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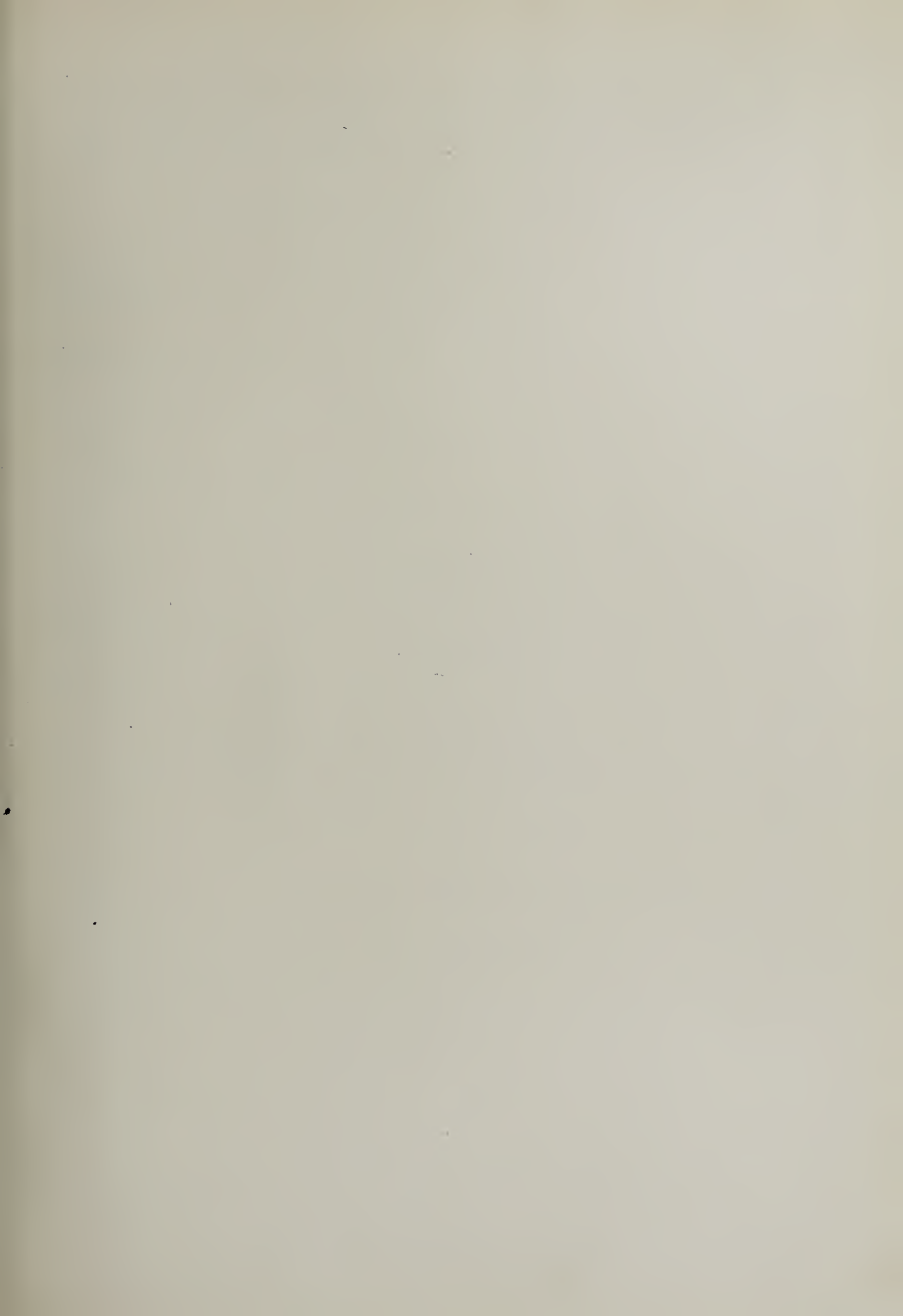
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THE CEREBROSPINAL FLUID IN HEALTH AND DISEASE*

CHARLES H. FRAZIER, M.D.

PHILADELPHIA

The theme of my address is one of entrancing interest to the thoughtful observer, whether from the purely physiologic or the purely clinical point of view. Probably no system of human anatomy, physiology or pathology has been the object of a more intensive study than the cerebrospinal system, from the contributions of the earlier writers to the present day. And yet, with all our knowledge of the anatomy of the brain and spinal cord in their normal state, and of the pathologic processes to which they are subject, how extraordinary it is that of the fluid in which these tissues are forever bathed, so little is known. We are not always, however, to remain in the dark. Hidden truths will soon be revealed, and the year or two just past has been extraordinarily productive. From the many contributions that have appeared in recent times, from the laboratory and clinics of various countries, new light has been shed on some of the mysteries of this ambient fluid. This subject, therefore, is a timely one, of interest alike to the surgeon and to the neurologist, and the hour may be spent profitably in taking stock, as it were, of our knowledge of the cerebrospinal fluid, in the light of modern interpretation.

What is the origin of the cerebrospinal fluid? The original conception of the cerebrospinal fluid as a transudate, has long since been discarded. When Pettit and Girard, in 1902, published their monograph on the secretory function and morphology of the choroid plexus, based on a study of the structure of the plexus in different classes of vertebrates, and on the histologic changes in the gland following the administration of substances with a hypersecretory effect, there seemed little room for doubting that the cerebrospinal fluid was a secretory output. Mott¹ added his testimony to the hypothesis after a comparison of the lachrymal gland and the choroid plexus. Between the two he saw a strong similarity, and on the basis of his own histologic studies and evidence from other sources, he postulated that the choroid plexus *was* a gland with an *external* secretion.

As still further proof of the secretory theory, stands the intravital staining experiments of Goldmann,² who, in his study of the fetal nervous system, found

that intracellular glycogen was demonstrable only in the plexus cells. This substance was not held back by the cells, but secreted drop by drop and diffused with cerebrospinal fluid throughout the entire nervous system. Thus the cerebrospinal fluid is charged with important metabolic products, the destination and function of which we must consider later.

The impermeability of the choroid plexus, as shown by Goldmann² may be offered as further evidence in favor of the secretory theory. When foreign toxic substances were injected into the circulation, the choroid plexus acted as an impermeable filter and prevented their entrance into the cerebrospinal fluid; on the other hand, when the dye was injected into the subarachnoid space, the brain and cord were at once stained. Have we not in this phenomenon a side light on salvarsan therapy? It is a well-known fact that after salvarsan is injected intravenously, only an infinitesimal amount of arsenic, if any, can be recovered from the cerebrospinal fluid. Is this not to be attributed, in part at least, to the character of the choroid plexus? Thus it would seem more rational to inject salvarsan or salvarsanized serum directly into the ventricles or subarachnoid space in cerebrospinal lues. It has been proved³ conclusively, that there is no lack of affinity between the brain substance and arsenic, but it is possible, as suggested by McIntosh,³ that the walls of the cerebral capillaries may be so constructed that they will not permit the passage of arsenic as do the capillary walls in other parts of the body. However this may be—whether the failure of the salvarsan to reach the brain cells is due to the non-permeability of the plexus, to the refusal of the plexus cells to secrete arsenic, to a peculiarity of the cerebral capillary walls, or to a combination of the three causes—the difficulty may be surmounted by an intraventricular or subarachnoid injection of the salvarsan.

To return to my argument in favor of the choroid plexus as the source of the cerebrospinal fluid, have we not in the artificial hydrocephalus, which I have produced in the laboratory, a very suggestive bit of testimony? And what of the decided increase in the rate of flow, such as Dixon and Halliburton⁴ observed after the injection of the extract of choroid? And again, if the pressure of the cerebrospinal fluid is the same as that of the capillaries, there can be no escape of fluid from the capillaries in the form of a filtrate or transudate.

Has the cerebrospinal fluid a dual source? On the operating table with brain surface exposed, under conditions of high intracranial pressure, one sees drops of

* Read at the annual meeting of the Section on Neurology and Psychiatry of the New York Academy of Medicine, Jan. 21, 1915.

1. Mott, F. W.: The Cerebrospinal Fluid, Lancet, London, July 9, 1914.

2. Goldmann, E.: Experimental Research on the Functions of the Choroid Plexus and Meninges of Brain, Arch. f. klin. Chir., 1913, ci, No. 3.

3. McIntosh: Proc. Roy. Med. and Chir. Soc., London, 1914, lxxxviii, 320.

4. Dixon and Halliburton: Jour. Physiol., 1913, xlvii, 215.

fluid appearing on the surface, as though the fluid came directly from the brain substance itself or from its blood vessels, an observation which Spina made also in his experimental work. There are a number of observers with whom I am disposed to agree, Weed,⁵ Plaut, Rehm and Schottmüller,⁶ and Hauptmann,⁷ who concede that the greater part of the fluid is derived from the choroid plexus, but hold that some is derived from the perivascular system of the nervous tissues. In a case of internal hydrocephalus with complete obstruction of the ventricles, Dandy and Blackfan⁸ were able to recover by lumbar puncture 5 c.c. of cerebrospinal fluid which reformed in a short time—quite positive evidence, it seems to me, of an extraventricular source of the fluid, inasmuch as no fluid from the plexus could possibly reach the subarachnoid space.

At this juncture, although the problem is complicated by so doing, we must acknowledge, at least tentatively, that the cerebrospinal fluid originates in part, in structures other than the choroid plexus. I say acknowledge with regret, advisedly, because this dual source of supply introduces a confusing element. Can the cerebrospinal fluid be in part a true secretory product, and in part an effusion or an infiltrate? Truly that fluid which is derived from the secretory cells of the choroid gland cannot be the same biologic product as that which is the product of brain metabolism, reaching the subarachnoid space through the perivascular system. No one seems to have considered or investigated this problem, which to my mind can only be explained by admitting that the cerebrospinal fluid is composed of two constituents, differing chemically and physiologically. We have approached this problem from the laboratory point of view and we are attempting to eliminate the choroid plexus altogether, so that a differentiation between these fluids of dual origin may be possible.

FUNCTION

It may, at first glance, seem as though a discussion of the function of cerebrospinal fluid was a matter of only academic interest, but at least our review would be incomplete, did we not consider it. Chemically considered, the cerebrospinal fluid has no analogy in human physiology; it is analogous neither to lymph nor to the contents of the various serous cavities. What is this unique fluid? Has it no other function than mechanically, as a water bed, to protect the brain and cord against shock and injury, or to support the arteries and, as a water cuff, to maintain a uniform pressure? Is it only to preserve the delicate balance of intracranial pressure—a delicate, self-adjusting mechanism equalizing and distributing pressure throughout the entire intracranial and intraspinal cavities, during such varying conditions as cardiac systole and diastole, inspiration and expiration, in health and disease? The cerebrospinal fluid serves a compensatory purpose in cases of atrophy or shrinking of the brain, as in cases of epilepsy or in congenital defects, filling up the dead spaces and thus surrounding the brain, its arterial and venous channels, with a degree of pressure necessary to maintain the proper balance. No doubt these purely physical activities constitute part of the function of the cerebrospinal fluid, but there must be other functions, of even greater importance.

A very interesting hypothesis has been advanced by Kafka⁹ and Goldmann² that the cerebrospinal fluid together with the choroid plexus may protect the nervous system against infection. By withholding certain harmful materials, and by creating ferments, the nervous system is thus protected. To show the effect of the choroid plexus as a barrier, we injected 1 c.c. of a 1 per cent. solution of trypan blue into the jugular vein of a rabbit, and though the plexus cells were stained, there was no disturbance of the nervous system. On the other hand, the injection of 2 c.c. of a 1 per cent. solution into the subarachnoid space was fatal in twelve hours.

Inasmuch as it has been shown that there is in the nervous system a canalicular system composed of the perivascular lymphatics which are continuous on the one hand with the pericellular or perineuronal spaces, and, on the other, with the subarachnoid space, according to the anatomic studies of Key and Retzius and others, the staining experiments of Quincke and Jacob, Lewandowsky, Bruno, Goldmann and others, and the microscopic studies of Mott and Hill, it seems but natural to suppose that the cerebrospinal fluid, in its passage through the subarachnoid space and along the perivascular and pericellular spaces, should be the medium of exchange between the capillaries and nerve cells. For example, it has been suggested (Mott) that the cerebrospinal fluid gives up water and carbon dioxid to the blood in exchange for oxygen and sugar. As a matter of fact, large quantities of carbon dioxid have been found in the cerebrospinal fluid and by some⁴ the excess of carbon dioxid is believed to act as a cerebral lymphagogue. Kopetzky, in his studies of the cerebrospinal fluid in relation to meningitis, found it contained toxic material, the result of disordered metabolism of bacterial action and fermentation.

Furthermore, the cerebrospinal fluid may be the medium of distributing the active principle of the pituitary to the tissues of the central nervous system. At least this active principle has been found¹⁰ in the cerebrospinal fluid, and if the pituitary body and its secretions are as essential to metabolism as we are now inclined to believe, this function of the cerebrospinal fluid as a carrier of the active hypophysial principles, becomes one of first rank.

Although differing in its constituency from lymph, the cerebrospinal fluid performs functions that may be analogous. The choroid plexus in its activity as a filter, has its prototype in the lymph node; the function of lymph is to provide the tissues with materials they require, and to carry away those which have served their purpose. Thus, of cerebrospinal fluid it may be said that it brings oxygen and glycogen to the tissues and carries away carbon dioxid and the products of brain metabolism, normal and pathologic.

PRESSURE

In my daily rounds, I find myself frequently making observations of the pressure of the cerebrospinal fluid, and as a consequence, I have a mass of data and figures, which I must confess have not, as yet, been fully digested. This feature of the cerebrospinal fluid has been the subject of elaborate theoretic studies in the lower animals, chiefly with reference to the conditions which affect pressure; but many of these have little if any practical bearing. I have already published the

5. Weed, L. H.: Studies on Cerebrospinal Fluid, Jour. Med. Research, September, 1914.

6. Plaut, Rehm and Schottmüller: Leitfaden zur Untersuchung der Cerebrospinal Flüssigkeit, Jena, 1913.

7. Hauptmann: Neue Deutsch. Chir., 1914, xi, 435.

8. Dandy, Walter E., and Blackfan, Kenneth D.: Internal Hydrocephalus, Am. Jour. Dis. Child., December, 1914, p. 406.

9. Kafka: Ztschr. f. d. Neurol. u. Psychiat., 1913, xv, 462.

10. Cushing and Goetsch: Jour. Physiol., 1910-1911, xxvii.

results of my own observations on the influence of respiratory movements and of the effect of disturbance of the arterial and venous circulation. What interpretation should be placed on variations in pressure and what significance should be attached to a substantial increase in the cerebrospinal pressure is, however, a matter of practical moment. Personally, I attach a good deal of importance to high cerebrospinal pressure, both in matters of diagnosis and in plan of treatment. Only the other day, a physician consulted me about his patient, perplexed as to whether he was dealing with a purely functional or an organic lesion. There were reasons, perhaps, for taking both points of view, but, on measuring the cerebrospinal pressure, when the fluid was being withdrawn for a Wassermann test, I found it 60 mm. Hg. This to my mind turned the balance at once in favor of an organic lesion.

Considerable difficulty confronts us, however, in any attempt to formulate standards or gages or to make comparative studies, because the so-called normal varies so with different observers. I would recommend that the clinicians of this country adopt a standard instrument and that certain regulations be formulated under which observations should be made. To show the disparity of various observers, I quote a few authorities: Adamkiewicz, 80-100 mm. water; Key and Retzius, 160-200; Quincke, 40-60; Kronig, 125-150, etc., etc.¹¹ In other words, there is a variation in *minimo* of from 40 to 160 mm. of water, and in *maximo* from 60 to 200 mm. of water under normal conditions. While the majority of observers measure in units of water pressure, I have found a small mercury manometer the most convenient and for all practical purposes quite as sensitive to slight variations. Accompanying the manometer is a special lumbar puncture needle, with a Y-shaped attachment so that no fluid can escape until the first reading is made. If this or another equally efficient instrument were accepted as standard, and all readings made with it under standardized conditions, we would soon be able to assemble an array of statistics that would enable us to value and interpret the readings of cerebrospinal pressure.

SECRETION

At first thought it seems commonplace and elementary to call attention to the fact that in every disease in which there is a departure from the normal in quantity of cerebrospinal fluid, it is in the direction of increase and not decrease. In the treatment of all intracranial lesions, whether it be hydrocephalus, epilepsy, meningitis, tumors or what not, the excessive accumulation of cerebrospinal fluid has to be reckoned with, and the problem is ever before us: What are the factors which so disturb the balance between secretion and absorption as to be accompanied by a superabundance of fluid? Can one or the other be controlled? To answer these inquiries, I must take you for a while into the field of research. It seemed to me that the logical way to approach this problem was to attack it at its source, to ascertain whether there were any substances, either chemical or glandular which would influence the rate of secretion of cerebrospinal fluid by the choroid plexus. My assistant, Dr. Peet, and I spent the greater part of a year on this problem alone, and our observations covered all of the glandular extracts, spleen, kidney, pancreas,

testes, ovary, liver and adrenal, as well as such substances as urine, bile, cerebrospinal fluid, chloroform, ether, amyl nitrate, magnesium sulphate, and physiologic salt solution.¹² I approached the problem from the point of view that in the choroid we were dealing with a secretory gland, the activity of which might be influenced just as it has been found possible to influence the function of the thyroid gland.

Before we had collected many tracings, it became evident to us that the results were more or less uniform in that, whenever the rate of flow was disturbed it was always *accelerated*, not *diminished*, and, furthermore, that coincident with the increased flow there was a fall of blood pressure. The greater the fall of pressure, the more rapid the flow. Just as soon as the blood pressure returned to normal, the flow would begin to slow down. It will suffice here to mention the general results, which, although varying in degree, were common alike to the injection of extracts of spleen, kidney, pancreas and liver. This apparent increase in the quantity of cerebrospinal fluid coincident with the fall of blood pressure, we interpreted as due to the sudden dilatation of the cerebral sinuses forcing out fluid which had accumulated in the ventricles and subarachnoid space, and not to any stimulating action of the extracts on the choroid glands.

Thus far the results may be said to have been negative; but the next series of observations revealed the fact that brain extract caused an actual increase in the cerebrospinal fluid, wholly independent of the amount of fall in blood pressure. In other words, a substance had been found which of itself had some specific action on the choroid gland. Dixon and Halliburton¹³ had come not only to the same conclusions regarding brain extract, but found that the increased output was more striking following the injection of the choroid plexus, and on their findings they promulgated the theory of a specific hormone—a choroid hormone—a chemical substance, the product of brain metabolism, stimulating the secreting epithelium of the choroid plexus and increasing its output.

Even though we had been able to find only substances which resulted in hyperactivity and none in hypoactivity, nevertheless a definite physiologic fact had been established, and we were sufficiently encouraged to continue the research in the hope of finding some substance having a specific action on the choroid gland, but in the nature of *inhibition*. To make a long story short, we discovered in thyroid extract a substance which of itself had a specific inhibitory effect on the action of the choroid plexus. Wholly irrespective of any other extraneous factors such as blood pressure, respiration, etc., when injected in sufficient quantities, thyroid in the form of fresh human, or fresh dog thyroid and the commercial desiccated beef thyroid, alike caused a temporary fall in blood pressure with the usual transitory increase, but following that a *prolonged* period in which the flow of cerebrospinal fluid was reduced to one-third that of normal. We have pursued this line of investigation further in search for the constituent of thyroid tissue that is the active agent. Alcoholic extracts of thyroid gland are practically inert.

Quite recently, we have been working with diiodo-tyrosin, a synthetic product identical with that found in the thyroid. While identical in some respects with

11. Quoted from Mestrezat, *Le liquide cephalo-rachidien normal et pathologique*, Paris, A. Maline, 1912, p. 85.

12. The laboratory experiments are repeated in full in a paper by Dr. M. M. Peet and myself, *Am. Jour. Physiol.*, xxxv, No. 3, 1914.

13. Dixon and Halliburton: *Jour. Physiol.*, Nov. 7, 1913.

thyroid tissue, it has not some of the properties of thyroid tissue, such as those which cause myxedema and exophthalmic goiter. This synthetic substance which I obtained through the courtesy of Dr. T. B. Jackson of Yale University had the same retarding influence on the output of cerebrospinal fluid, although not to so marked a degree as thyroid tissue itself.

Finally with the substances which act as cerebral lymphagogues, must be included (as brought out by Dixon and Halliburton) those which cause a deficient oxygenation with the resulting accumulation of carbon dioxide in the blood. In this group are pilocarpin, which interferes with respiration, amyl nitrate, anesthetics and narcotics.

Reference may be made here to my observations both in the laboratory and the clinic of the effect of the ligation of the common carotid arteries on the secretory rate. It had been suggested that the output of cerebrospinal fluid might be controlled by ligation of the common carotid arteries and this operation has even been recommended as a treatment of hydrocephalus. We found, however, both in the clinic and in the laboratory, that the rate of secretion was practically uninfluenced by ligation and assert that the operation is without justification, and therefore that it should not be endorsed. In the case of an inoperable brain tumor with distended ventricles, it was possible after the operation to introduce a cannula through the scalp directly into the ventricles. The latter were tapped on several occasions, the cerebrospinal pressure recorded before and after the withdrawal of measured amounts of fluid and the time required for the ventricles to refill was noted. These observations were repeated both before and after ligation, first of one then of both common carotid arteries. In both instances the fluid reaccumulated at the same rate and with the same degree of pressure.

ABSORPTION

The companion problem to that of secretion is the problem of absorption, and on this much light has been shed by recent investigations. We may accept without question the general statement that the major portion of the cerebrospinal fluid leaves the subarachnoid space via the venous channels rather than via the lymphatics. I need not retail the staining experiments which have proved to us the truth of this. It is true that fluid does escape by the nerve sheaths and into the lymphatic system, but only very slowly and in comparatively small quantities.

That the system of absorption was a very elastic one, capable of meeting demands much beyond those of normal conditions, was impressed on me years ago, when, in studying the problem of intracranial tension, I allowed by gravity, salt solution to flow into the subarachnoid space. To my amazement, amounts varying from 500 to 1,000 c.c. of saline solution would be absorbed within an hour or two from the subarachnoid space of a dog. Perhaps the physiologic properties of salt solution may make it a more favorable solution for absorption.

In altogether another connection, I compared the absorption of salt solution with that of cerebrospinal fluid from the subcutaneous tissues. The inefficiency of many attempts at drainage of the subarachnoid space subcutaneously had always been difficult of interpretation. I knew that within the cranial cavity drainage via the lymphatics was a negligible quantity, but I could not explain the accumulation of fluid in the subcutaneous tissues with free communication with the

lymphatics. My simple experiment consisted in injecting equal quantities of cerebrospinal fluid and salt solution at corresponding points over the rectus muscle, to either side of the median line intracutaneously, producing a wheal-like swelling, the size of a penny, readily seen and felt. In every instance the wheals would disappear within a few minutes and the wheal of cerebrospinal fluid just as rapidly, if not more so, than that of normal saline solution. The experiment, if it can be dignified by that term, was both positive and negative in its results. It demonstrated the readiness with which cerebrospinal fluid is taken up by the superficial lymphatics, but did not explain, as I had hoped, the frequent failures after subcutaneous drainage, as in cases of hydrocephalus.

A problem in absorption, which more than any other attracted my attention, was the rapidity of elimination of phenolsulphonephthalein after its injection into the ventricles. Within two hours of the injection, we recovered from the urine *60 per cent. of the drug*. At this rate there should be a complete replacement, if we can assume that a proportional quantity of cerebrospinal fluid is absorbed in the same time, of the total amount of cerebrospinal fluid every three or four hours, at the rate of a replacement of one-third the total amount every hour. This, to my mind, emphasizes the importance of the cerebrospinal fluid as a medium for the elimination of waste products. If, under normal conditions, there are from 60 to 120 c.c. of cerebrospinal fluid, and if this amount is replaced every three or four hours, the entire amount secreted for the twenty-four hours should total from 360 to 720 c.c.

The debatable questions in the physiology of absorption are as to the channels of escape and as to whether absorption is restricted to a certain area or whether it is a diffuse process limited only by the extent of the subarachnoid space. On the injection of phenolsulphonephthalein into an artificially blocked ventricle, we found that practically no absorption took place; after two hours there was only the slightest trace and this not constant, compared with 60 per cent. absorption in two hours when injected into the unobstructed ventricle. We have thus eliminated the ventricle, which in function is comparable to the urinary bladder, serving merely as a reservoir.

Is absorption a process of diffusion directly into the capillary network of the subarachnoid space? Is it a process of filtration via the arachnoidal villi, the precursors of the pacchionian bodies, into the great sinuses? If we accept the theory that the cerebrospinal fluid is the ambient medium of exchange between blood and nerve cells—a priori, a very plausible one—we would be prepared to accept the theory of capillary absorption. It would be idle to ramble into a discussion as to the relative merits of either theory. I can see in either a matter of no practical moment, for the very patent reason that the theories apply really to normal conditions, that is to say, conditions of normal cerebrospinal and vascular pressure. Just as soon as the cerebrospinal pressure is increased, channels of escape other than those attending normal conditions become available.

This point may be illustrated by the perversion of the lymph circulation under abnormal conditions such as carcinoma. As the lymph circulates in normal conditions, we could readily foretell where to look for lymph node metastasis, but just as soon, as in carcinoma, the natural lymph channel is occluded, the lymph

circulation and with it cancer cells, may be forced into many devious and anomalous paths.

Whether the process of absorption is confined to certain areas of the subarachnoid space, is diffuse or limited, is to be determined by further investigation. If one may be permitted to express an opinion based largely on that of the clinic, but partly on laboratory observation, I would say very definitely that the amount and rapidity of absorption was in proportion to the total area of subarachnoid space available. You have all observed that with tumors of the posterior fossa there is greater intracranial pressure; this implies a larger quantity of cerebrospinal fluid and this, in turn, delayed absorption. Now in the laboratory we found that, when a column of fluid was introduced into the cisterna magna at a pressure in excess of venous pressure, the midbrain was forced upwards and the isthmus of the tentorium blocked. To prove that the passage of fluid from the posterior to the anterior fossa was blocked, the cortex was inspected through a parietal trephine opening. No fluid was seen. To correlate this clinical and laboratory observation—if absorption takes place from the subarachnoid space throughout, the elimination of the extensive cortical area of both hemispheres reduces the absorptive area to a considerable degree. Is it not possible, then, for a tumor of the posterior fossa to block the passage of cerebrospinal fluid through the tentorium, and, as in the above experiment, interfere seriously with absorption?

Before the problem of absorption can be solved, we must know more of these pathologic factors which retard the process, and which of the various factors may prevail in given conditions. What is the pathologic factor in hydrocephalus? What is it in epilepsy? What is it exactly in brain tumor? These are problems for us to investigate further.

From these cursory observations of the fundamental problems having to do with the origin and circulation of the cerebrospinal fluid, we turn now to considerations of clinical conditions in which the cerebrospinal fluid is an important factor.

In all forms of meningitis it has to be reckoned with, because hypercranial pressure, as caused by acutely distended ventricles, is often the determining factor in fatal cases. Apart from repeated lumbar puncture to relieve tension, there are no measures to be considered other than the use of specific serums when available. I have yet to see a case of tuberculous meningitis of acute type recover when pressure was relieved by decompression. Nor have I seen or heard of any cases of suppurative meningitis which have been cured by drainage of the cisterna magna.

That more obscure form of meningitis, obscure at least as to origin, the so-called serous meningitis or as Reichmann calls it, aseptic meningitis, presents very positive indication for relief of pressure by such operative measures as subtemporal or suboccipital decompression. For illustration I may allude to two cases of my own: in the first, that in a boy with symptoms of extreme tension and impending blindness, I decompressed in the temporal region. He developed a tremendous swelling at the site of the operation, and immediately the distressing symptoms were relieved. The process of resolution extended over a period of months (the etiology always undetermined), until finally, almost a year after the operation, the tension at the site of the cranial opening disappeared, and the boy, apart from defective vision, was restored to health. I cite this case to illustrate the advantages of

a temporal decompression over lumbar puncture under such circumstances, but more particularly to call attention to peculiar and striking fluctuations in the degree of tension at the site of the opening in the protracted course of the disease. Without apparent cause and at irregular intervals there would be a return of all the symptoms with signs of extreme tension for periods lasting for from a few days to a week.

In the second case, after a suboccipital decompression, relief was afforded for only a few days. The symptoms and physical signs of hypertension returned and unless from 5 to 10 ounces of fluid were withdrawn daily, the boy was in great agony from headache, pain in the eyes, and pains referred to the epigastrium. I succeeded in this case in supplying a safety valve, as it were, by draining the cavity of the posterior fossa into the right pleural cavity, a method Dr. Peet had found of practical value in the laboratory. This was accomplished with two heavy strands of braided silk (Handley's silk) which were carried subcutaneously from an opening into the cisterna magna at the base of the neck to the angle of the scapula, where after resecting $\frac{1}{2}$ inch of the right rib, the other ends of the silk strands were introduced into the pleural cavity. The operation was devoid of any difficulties and it may prove to have a wider application for the relief of those effusions within the skull, so often the proximate cause of grave cerebral symptoms.

Vomiting, headache and papilledema, as symptoms of brain tumor, are the expression of hypertension within the cranial chamber, but this hypertension is never, perhaps I should say rarely, due to the mere accession to the contents of the cranial chamber, of the tumor itself. On the contrary, it is always, acknowledging exceptions, the result of excess of cerebrospinal fluid distributed throughout the subarachnoid space. Time will not permit of my treating this *in extenso*—I have covered the subject in a recent communication¹⁴—but only briefly to state a few unquestionable truths. Increased intracranial tension in tumors is the result of a secondary hydrocephalus, whether the tumor be cortical, subcortical or basal, large or small, malignant or benign. Tumors, irrespective of their size, character or seat, may exist *without signs of tension*. Subtentorial growths show signs of increased tension earlier because for patent reasons, they interfere more readily with absorption of cerebrospinal fluid. The excess of fluid may be in the ventricles alone, in the basal cisterns alone, or distributed throughout the subarachnoid space. The excess of cerebrospinal fluid in brain tumors is not, I believe, to be explained on a physical basis, that is, only as a problem of absorption. I find evidences in brain tumors of hypersecretion also, perhaps an expression of disturbed brain metabolism. Palliative treatment in brain tumors resolves itself largely into the problem of dealing with the associated hydrocephalus, and, therefore, accompanying decompression or preceding it, puncture of the corpus callosum should always be thought of.

Hydrocephalus has long been the *bête noir* of the neurologist and the surgeon. Four centuries before Christ, Hippocrates tapped the ventricles in the treatment of hydrocephalus, and for twenty-three and almost twenty-four centuries, we stood pretty much where Hippocrates did so far as therapeutic accomplishment was concerned. Of late, however, by

14. Frazier, C. H.: The Cerebrospinal Fluid and Its Relation to Brain Tumors, New York Med. Jour. June 27, 1914.

experiment and observation, certain definite contributions have been made that cannot but clear up some of the difficulties in diagnosis and treatment. In our laboratory we have been able to produce an artificial hydrocephalus by means of which it has now become possible to differentiate types of hydrocephalus; for example, an obstructive or a non-obstructive type. Of a given amount of phenolsulphonephthalein injected into the ventricles, 60 per cent. should be recovered in the urine in two hours. This test becomes one of great value not only as a guide to pathogenesis, but also to treatment. For example, the other day I was consulted as to the proper treatment in a case of hydrocephalus. The test was applied. The elimination of phenolsulphonephthalein in two hours, was 2 per cent. instead of 60 per cent. The chief pathogenic factor in this case was delayed absorption. The treatment, therefore, becomes a problem of drainage.

Of the non-obstructive type, I am not prepared to speak so dogmatically, although by deduction one would ascribe it to a state of hypersecretion, and if this were true, treatment should be aimed at the secreting organ, the choroid gland. How much reliance can be placed on our laboratory experience the future will decide. You will recall the effect of thyroid extract in diminishing the output of cerebrospinal fluid. While one swallow does not make a summer, one of several cases of hydrocephalus, now under treatment with thyroid extract, has so improved, that at the last report the child was, so far as one could judge, normal. I mention this single instance not with any feeling of overconfidence, but merely in the hope that others may be encouraged to apply this treatment in suitable cases and determine its efficacy.

Of the many methods of draining in the non-obstructive cases, and the methods increase in number faster than they do in effectiveness, I speak hopefully of the one I have proposed, that of draining the basal cisterns into the pleural cavity.

In this cursory review, I have touched only on what might be said to be the issues of the day in the physiology of the cerebrospinal fluid. The subject is capable of expansion and development in many directions, and what we know to-day may be but a fragment of the truths yet to be revealed. Obscure as many phases still are, the facts we have in recent years acquired have a very real and practical bearing on many different clinical problems. May we not then forecast a greater mastery over many lesions of the nervous system, hitherto baffling and obscure?

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Biology and the Social Sciences.—I am led to the suggestion of a more intimate relation between biologic and social sciences because great discoveries which give a new direction to currents of thought and research are not, as a rule, gained by the accumulation of vast quantities of figures and statistics. These are apt to stifle and asphyxiate and they usually follow rather than precede discovery. The great discoveries are due to the eruption of genius into a closely related field, and to transfer of the precious knowledge there found to his own domain. It is not so very long ago when medicine paid but little attention and less respect to the unusually rich field of animal life as a source of information. To-day, every department of medicine fills its available working spaces with animals which are subject of profound study. The results have revolutionized human medicine within a generation.—Theobald Smith: *Boston Med. and Surg. Jour.*

EXPERIMENTS RELATING TO THE VIRUS OF VERRUGA PERUVIANA

FOURTH REPORT *

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TRANSMISSION TO ANIMALS AND CULTIVATION OF THE VIRUS OF VERRUGA

Numerous inoculation experiments have been made in animals with material removed from various lesions of the skin in verruga peruviana. We have already referred in previous publications to the fact that we were unable to transmit the parasite of Oroya fever to animals, and that intravenous inoculations of the blood containing the parasites *Bartonella bacilliformis* into monkeys and rabbits, and intratesticular ones into rabbits produced neither local lesions, verrugas on the skin, nor lesions elsewhere. The inoculations performed on animals with the virus of verruga gave positive results in these animals, and the production of definite lesions, which in the case of monkeys when the inoculation was made on the skin, very closely resembled those observed in the human cases of the disease.

In performing these inoculation experiments in the manner in which we did, several objects were in view: first, to determine if the disease was directly inoculable; second, to determine if a visible micro-organism was present in the lesions; third, to determine if a spirochete was present, and fourth, to differentiate the disease from frambesia and syphilis. In this article, therefore, all of these points will be discussed more or less widely.

Frequently a portion of the pathologic material obtained from the human verruga cases and used for making inoculations in animals was also employed in experiments in relation to the cultivation of the virus in vitro, and sometimes for the determination of whether the virus was of a filterable nature or whether its presence could be detected by the microscope either in stained smears or sections. The results obtained in relation to each of these problems will now be discussed.

TRANSMISSION OF THE VIRUS OF VERRUGA TO ANIMALS

It has been found that the monkey is the most satisfactory animal for inoculation purposes. If the skin over the eye is scarified and a small portion of a verruga nodule rubbed into the abrasions, after an incubation period usually of from ten to twenty days, small papules appear which gradually enlarge and later assume the typical picture of the verruga nodules as seen in human beings. The nodules thus produced also have a similar histologic structure to those observed in man, a fact that will be referred to again. We have transmitted this virus from animal to animal through twelve successive series of monkeys since our departure from South America over a year ago. In twenty-five monkeys typical lesions have been produced in this manner.

When the monkey is inoculated with the virus either directly from man or from another monkey, only a

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localized lesion develops and no generalized eruption occurs. When this animal is inoculated with smallpox virus, also only a modified form of the eruption is produced. The monkey is not apparently as susceptible to either the virus of verruga or that of smallpox as is man. The virus of verruga also calls forth no appreciable febrile reaction in the monkey inoculated with it, and none of the monkeys died from the inoculation with this virus. The lesion in the monkey as a rule gradually begins to fade away four or five weeks from the time of the inoculation. The virus also may be sometimes transmitted to rabbits and to dogs. In the dog the subcutaneous inoculation occasionally produces a lesion which is much more vascular than the one produced in the rabbit's testicle.

On intratesticular inoculation of the virus into rabbits or dogs, a more or less characteristic lesion is sometimes produced after an incubation period varying from ten to twenty-two days. The lesion usually measures several millimeters in diameter, and is sharply circumscribed from the surrounding tissue. In the rabbit's testicle it suggests in its appearance not a lesion which has resulted from an acute inflammatory process, but rather one which has arisen from a rather low grade of inflammation. By repeated inoculations of this character, however, the virus becomes gradually attenuated, and finally inoculations of this nature fail. In only a certain percentage of the inoculated rabbits does a lesion develop. This fact suggests that rabbits are not very susceptible to the virus.

In the earlier literature on the subject of verruga peruviana and Oroya fever, it has been repeatedly stated that the lower animals were susceptible to the disease, and that the infection had been observed in animals, and particularly in dogs, cats, mules and poultry. Scheube and Manson refer to these statements. Manson points out in this connection that if the lower animals were susceptible to the disease, it is curious that Carrion chose to experiment on himself. Scheube calls attention to the fact that animals have also been reported to suffer from Oroya fever. Barton claimed the production of a verruga-like eruption on the skin of dogs following the inoculation of an organism said to have been cultivated from cases of Carrion's fever, and afterward shown to be a paracolon bacillus. As a matter of fact, there was no demonstration that the virus of verruga could be transmitted to animals until experiments with monkeys were undertaken. We have already referred to our work on this subject.

Jadassohn and Seiffert¹ in one case of verruga peruviana, and Mayer, Rocha-Lima and Werner² in another case, both of which were studied in Europe, also succeeded in transmitting the virus to monkeys through several generations. Cole³ showed from a study of Jadassohn's case, and the material from the animal lesions, that the histologic structure of the nodules produced in the monkeys was also similar to that of the human lesions, an observation which we have been able to confirm. In Lima more recently Dr. Ribeyro also transmitted the virus of verruga to a monkey in which we observed the lesions develop. So far as we know up to the time of writing, no published report of this experiment has yet been made. These experiments and our own on monkeys, dogs and

rabbits, already described, are the only ones that have demonstrated that the virus of verruga is transmissible to the lower animals. We did not observe any cases of natural infection of the disease in dogs, cats, donkeys or poultry, and do not believe that the disease occurs naturally in these animals. In fact, the monkey is the really only satisfactory animal for inoculation purposes in this disease.

In the transmission of the virus from man to animals it is noticeable that in monkeys, and as has been mentioned particularly in the intratesticular inoculation of the rabbit, the inoculation often fails, and no lesion results. It would appear that the virus is only transmissible during a certain stage of the disease even in man, and that unless it is obtained from the lesion of the human case during that stage, it is either innocuous for animals or its virulence is greatly reduced. Also, the susceptibility of the animal to the infection obviously must play a rôle in regard to the percentage of animals in which the inoculation succeeds and a definite lesion results. In monkeys the percentage of successful inoculations is much higher than in rabbits, and the virus, while it becomes attenuated by successive passages through these animals, does not become nearly so quickly attenuated in this manner as it does by successive passages through the rabbit's testicle. When once the virus has been successfully transmitted from the human lesion to the monkey, however, it may be sometimes carried through many successive passages in these animals, as has been already emphasized.

CULTIVATION AND FILTERABILITY OF THE VIRUS OF VERRUGA

Many experiments have been undertaken in the cultivation of the virus of verruga from material obtained from human lesions and from those produced in the rabbit's testicles. The results obtained in these experiments show that even in those cultures which suggested from their appearance the possibility of a growth, no definite micro-organism could be demonstrated by microscopic examination or by subculture, and on inoculation of these cultures into the rabbit's testicle, no lesions were produced. While the results alone of the inoculation experiments into animals of this nature do not preclude a cultivation of the virus, since by this method of inoculation only a small proportion of rabbits may be expected to develop lesions even when the fresh virus is employed, nevertheless, the results of these experiments do not give any support to the idea of a successful cultivation of the virus. Numerous attempts have also been made to cultivate the virus in vitro from the verruga lesions produced in monkeys by its inoculation.

These experiments and those performed in relation to the cultivation of the virus from the human and rabbit lesions have usually resulted in failure. Various modifications of the methods described by Noguchi and Murphy for cultivation have been employed. Great difficulty has been experienced in obtaining the material from monkeys free from bacteria. The monkeys almost invariably scratch and infect secondarily the lesions. It is not deemed advisable to consider in detail all of the experiments which have resulted in complete failure of cultivation of the virus from the lesions produced in these animals. However, the results will be briefly referred to which were observed in a series of cultures made in ascitic fluid containing rabbit's testicle to which had been added exudates produced by injections of aleuronat

1. Jadassohn and Seiffert: *Ztschr. f. Hyg. u. Infektionskrankh.*, 1910, lxxvi, 247.

2. Mayer, Rocha-Lima, and Werner: *München. med. Wchnschr.*, 1913, No. 14.

3. Cole: *Jour. Cutan. Dis.*, 1913, xxxi, 384.

containing leukocytes and small fragments of verruga nodules.

In several instances such cultures showed certain differences from the control ones, notably in a cloudiness of the media, and in the formation of a fine granular precipitate along the sides and bottom of the tube. This precipitate perhaps resulted from disintegration of the tissues in the culture by the growth of the virus. Apparently it did not constitute itself a living organism, as these cultures revealed no bacteria or other visible micro-organism, and subcultures on agar gave no apparent growth. In the case of one monkey, inoculated with such a culture which had been incubated for sixteen days at 37 C. (98.6 F.), a small group of reddish papules appeared in a row on each brow after an incubation period of twenty-one days. These papules, however, never developed into as extensive lesions as almost invariably happens when the fresh virus is used, and they disappeared in a shorter time. Thus it appears that while the virus was still alive in the culture medium, it had evidently become more or less attenuated. Other attempts to infect monkeys with cultures have failed. Experiments in cultivation were continued, but with no further success. In the successive passage of the virus through monkeys, it has become increasingly difficult to obtain sufficient satisfactory material from which to prepare the cultures. The most satisfactory material for work in cultivation of the virus can be secured directly only from the human cases. The cultivation of the virus of verruga, then, seems to be to-day in a somewhat similar position to that of the virus of small-pox.

FILTERABLE QUALITIES OF THE VIRUS

Experiments were also performed to demonstrate the filterable qualities of the virus. Rabbits, inoculated with the diluted filtrates of suspensions made by grinding the human lesions in saline solution, developed no lesions. These experiments are not conclusive, however, since, as has been emphasized, only a portion of the rabbits inoculated with the virus itself by the intratesticular method develop lesions. No monkeys were available for filtration experiments, while human material was available. Although we had been informed that monkeys were plentiful in Peru, we had the greatest difficulty in obtaining them on the western coast of South America, and it was necessary to import them via Panama. Subsequently, however, experiments were performed relating to the filterable qualities of the virus with material obtained from the lesions produced in monkeys by inoculation of the virus after numerous successive passages of it through these animals. In the experiments in which portions of the verruga nodules from monkeys were finely ground, suspended in water or saline solution, and the resulting mixture passed through Berkefeld filters (No. 2), the filtrates failed to produce lesions in monkeys, and monkeys inoculated with such filtrates were not rendered immune to subsequent infection with the unfiltered virus. Either the virus was present in too small amount in the filtrates, or was in too attenuated a condition to give rise to the production of lesions in an animal so relatively insusceptible to the infection as is the monkey, or else it had failed to pass through the pores of the filter. Nevertheless, we have been unable to detect by microscopic examination either in numerous fresh preparations, often examined with the dark field microscope, or in stained

preparations made from the verruga lesions, or in cultures made from them, or in sections from the tissues, any definite visible micro-organism. It seems not unlikely that the virus of verruga will ultimately be shown to be a filterable one.

As is well known, the success in filtering a virus or organism depends not only on the form and dimensions of it, and the texture and thickness of the filter used, but on the pressure employed, the duration of the filtration, and the composition of the liquid in which the virus or organism is suspended. The results obtained in animals inoculated with the filtrates of some of the "filterable viruses" are frequently not constant, and before it can be definitely asserted that a virus is non-filterable or filterable, very extensive experimentation with a large amount of material is sometimes necessary.

For many years the virus of small-pox was regarded as non-filterable, and in many experiments made in connection with the filtration of this virus, the filtrates of it often fail to produce lesions in monkeys. Sims Woodhead⁴ has recently again called attention to this fact, and has mentioned that during an epidemic of small-pox he attempted to obtain vaccine by filtration, but found that not a trace of active vaccine was found in the filtrate after the process was completed, whether the dilution was high or low. Further experiments in relation to the question of the filterability of the virus of verruga should be performed with perfectly fresh material obtained from the human lesions, and the inoculation of the filtrates should be made into human beings or into monkeys to demonstrate whether the virus has passed through the pores of the filter in sufficient amount to produce lesions. Mayer, Rocha-Lima and Werner² have performed a single experiment regarding the filterability of the verruga virus. In this instance the filtrate from a Berkefeld candle of a suspension of four ground papules removed from their case was inoculated over the eyes of a monkey. The experiment resulted negatively, and no lesion resulted. As the virus becomes altered in its repeated passage through monkeys, the results of the experiments regarding its non-filterable qualities which have been performed by us on monkeys should not be considered conclusive.

In connection with the consideration of the virus of verruga peruviana, the important researches of Rous⁵ relating to the nature of the filterable agent causing sarcoma of the fowl are of great interest.

SIMILARITY BETWEEN THE VIRUS OF VERRUGA AND OF SMALL-POX

We have called attention to the fact that when monkeys are inoculated with the virus of verruga, no generalized eruption occurs on the skin, but only a localized lesion. The small-pox virus also calls forth only a modified eruption in these animals. Neither the virus of small-pox nor that of verruga, as we have shown, has been satisfactorily cultivated in vitro on artificial media. In several other ways the virus of verruga shows some similarity to that of small-pox, but in other ways obviously the two behave very differently. So far no definite visible micro-organism has been discovered in verruga peruviana, although Mayer, Rocha-Lima and Werner,⁶ in the study of a single

4. Woodhead, Sims: Proc. XVII Internat. Cong. Med., London, 1913, Sect. 4, Bacteriology and Immunity, p. 122.

5. Rous: THE JOURNAL A. M. A., 1911, lvi, 198. Rous, Peyton, and Murphy, J. B.: The Nature of the Filterable Agent Causing a Sarcoma of the Fowl, *ibid.*, June 22, 1912, lviii, 1938.

6. Mayer, Rocha-Lima and Werner: München. med. Wchnschr., 1913, No. 14; Verhandl. d. deutsch. path. Gesellsch., 1913, p. 198.

case, reported the presence of bodies resembling Chlamydozoa in the lesions. The cell inclusions observed in variola and vaccinia have also been referred by Prowazek⁷ to the Chlamydozoa. Schilling-Torgau⁸ places both verruga peruviana and variola in the list of diseases caused by filterable viruses, but he gives no evidence to support the view that the virus of verruga is filterable. Apart from the evidence obtained from our own experiments and the single negative one performed by Mayer, Rocha-Lima and Werner, already referred to in previous papers, no experiments relating to this question apparently have been performed. The filterable properties of the virus of verruga have, however, already been discussed. The virus of verruga is much less stable than that of small-pox, and after the verruga virus from animals has been glycerinized, it is at least sometimes no longer inoculable for monkeys, as we have shown. The two viruses show similarity, however, in the fact that monkeys which have been successfully inoculated with either of them are subsequently usually immune to a second inoculation of the corresponding virus. In every instance in which a monkey has been successfully inoculated with the verruga virus it has subsequently been immune to reinoculation. The verruga virus, on the other hand, produces no lesion when inoculated on the rabbit's cornea, as does the variola virus. The disease produced in man by the small-pox virus is of a more virulent type than that produced by the virus of verruga.

The clinical appearance and structure of the lesions on the skin are also entirely different, and small-pox is very contagious. The inoculation of man with small-pox virus obtained directly from a human case of small-pox, however, is not usually a dangerous proceeding, and we have shown in one case that the inoculation of a man with verruga virus obtained directly from another human case was accomplished without serious result. After considering these facts, it seems apparent that there is a slight analogy between the two viruses.

A MILK BORNE EPIDEMIC OF TONSILLITIS IN TUBERCULOUS PATIENTS *

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The relation of milk to the epidemiology of certain diseases, such as diphtheria, typhoid fever, scarlet fever, etc., has been quite definitely established. The close association of epidemic sore throat to an infected milk supply, although recognized by English physicians for some years past, did not attract attention in this country until the recent study by Winslow,¹ of the Boston epidemic in 1911. A detailed analysis of 1,043 cases gave strong presumptive evidence that the original source of the epidemic was milk contamination. Winslow arrived at the following conclusions: The milk from a single dairy was the channel of distribution for the epidemic, and although no acute cases among the dairy employees were encountered, a carrier case presumably infected the milk.

Other epidemics of a similar nature have been reported in this country. Capps and Miller² have studied in detail the Chicago epidemic of 1911 and 1912. A bacteriologic analysis of the milk in this epidemic was made by Davis,³ who recovered a streptococcus identical in morphology, in culture, and in pathogenicity, with a culture obtained from a human case of tonsillitis and arthritis. An extensive report of the Baltimore epidemic in 1912 has been made by Frost, Stokes and Hachtel.⁴ The same year Cowes⁵ reported a second outbreak in Boston. More recently the Cortland epidemic has been investigated by North, White and Avery,⁶ who give an excellent historical review of the subject, and offer substantial evidence in confirmation of the previous assumption that the cause of the infection was a streptococcus, discharged from the inflamed udder of the cow into the milk. In all instances the source of infection was traceable to cases of mastitis among the herd or to illness of one of the dairy attendants. The present series of cases is apparently the first recorded instance of an epidemic of tonsillitis in a population almost exclusively tuberculous and due presumably to milk contamination. Of further interest is the type of organism isolated and the mild character that the epidemic assumed in contrast to those previously described.

The present epidemic occurred at the New York State Hospital for Incipient Tuberculosis at Ray Brook, N. Y. On the evening of Jan. 23, 1914, three patients were reported suffering from tonsillitis. Three days later the total had risen to forty out of a population of approximately four hundred. Inquiry revealed that the epidemic was sharply localized. No cases were present in the immediate neighborhood and the surrounding towns reported that no notable increase above the usual number of cases had been observed. The epidemic showed no predilection for any one division of the sanatorium, the distribution of cases being fairly uniform. There was also no evidence to show that the infection originated in the sanatorium, as no case of tonsillitis had occurred in the institution during the previous two months. The possibility that the infection had been introduced from without through the medium of a visitor to the sanatorium naturally could not be excluded. Inquiries were made to determine this point but with negative result. The data given above connected with the rapid spread of the infection, pointed to some unusual source of origin and it was tentatively assumed that one of the more universal vehicles, water or milk, was at fault. The water was examined and found to be of the usual standard quality.

The milk supply for the sanatorium is derived from two separate farms, approximately six miles apart and under one management. The dairies for convenience may be designated as "A" and "B." The entire milk supply of the two farms is consumed by the sanatorium. Farm A supplies two-thirds of the milk. The barn is a modern structure and in good order. The usual reluctance to answer questions was encountered, but an inspection of the herd showed the ani-

7. Prowazek: Handbuch der Pathogenen Protozoen, Leipzig, 1912, i, 119.

8. Schilling-Torgau: Mense, Handbuch der Tropenkrankheiten. Leipzig, 1914, Ed. 2, ii, 110.

* Read before the Academy of Medicine at Toronto, Jan. 12, 1915.

1. Winslow: Jour. Infect. Dis., 1912, x, 73.

2. Capps, J. A., and Miller, J. L.: An Epidemic of Sore Throat Due to Milk, THE JOURNAL A. M. A., April 13, 1911, p. 1111; The Chicago Epidemic of Streptococcus Sore Throat and Its Relation to the Milk Supply, *ibid.*, June 15, 1911, p. 1848.

3. Davis, David J.: A Bacteriologic Study of Streptococci in Milk in Relation to Epidemic Sore Throat, THE JOURNAL A. M. A., June 15, 1911, p. 1852.

4. Frost, Stokes and Hachtel: Pub. Health Report 47, U. S. P. H. S., 1912, xxvii, 1889.

5. Cowes: Am. Jour. Pub. Health, 1913, ii, 419.

6. North, White and Avery: Jour. Infect. Dis., 1914, i, 124.

mals in good condition and with no obvious udder trouble. The attendants appeared healthy and denied recent illness. On Farm *B* the barns are temporary structures, and as might be expected, conditions were not comparable to those of Farm *A*. One of the milkers on this farm, a lad of 14, stated that during the previous week he had been in bed for three days with a sore throat, but was not very sick at the time, and had resumed milking almost immediately after getting out of bed. His return to work occurred four days previous to the inspection of the farm. The lad appeared healthy, the throat showed no appearance of recent inflammation and the cervical and submaxillary glands were not enlarged. The boy's mother stated that another of her children had caught the disease from the boy, and was at present confined to bed. A visit to this child revealed a clinical picture strikingly like the cases at the sanatorium. The tonsils were engorged, the surface covered by a discrete exudate; the pillars and uvula were injected and there was decided enlargement of the glands at

naturally embarrassed the bacteriologic findings, and although it would have been interesting to discontinue the local treatment in order to make a more detailed bacteriologic study, under the circumstances, it was not considered a warrantable procedure. Nevertheless, a total of twenty-two cases, most of which occurred in the first forty-eight hours, have been studied bacteriologically in detail. The data obtained and presented in the accompanying chart point conclusively to a streptococcus infection as the etiologic factor in the present epidemic. Further, the interesting point developed that in fifteen of the cases the streptococci isolated gave biologic reactions identical with or strikingly similar to those of the organism isolated from the child on the farm.

The organisms isolated may be conveniently grouped as follows:

Group A.—This comprises in all, seventeen strains, including Culture 18 obtained from the child at the farm, and 24*b*, isolated from the patient developing peritonsillar abscess. The members of this group are

TABLE SHOWING BACTERIOLOGIC STUDY OF CASES OF EPIDEMIC SORE THROAT

Case No.	Hemolysis	Salicin	Raffinose	Mannite	Inulin	Dextrin	Dextrose	Saccharose	Litmus Milk	Bile	Remarks
GROUP A—											
1.....	+	+	—	—	—	—	+	+	+	—	Rabbit, 750 gm., died. Multiple arthritis and empyema. 1 c.c. eighteen-hour broth culture.
2 <i>b</i>	+	+	—	—	—	—	+	+	+	—	
3 <i>a</i>	+	+	—	—	—	—	+	+	+	—	
4.....	+	+	—	—	—	—	+	+	+	—	
5 <i>a</i>	+	+	—	—	—	—	+	+	+	—	
15.....	+	+	—	—	—	—	+	+	+	—	
16.....	+	+	—	—	—	—	+	+	+	—	
17.....	+	+	—	—	—	—	+	+	+	—	
18*.....	+	+	—	—	—	—	+	+	+	—	Rabbit, 700 gm., died. General septicemia. 1 c.c. eighteen-hour broth culture.
19.....	+	+	—	—	—	—	+	+	+	—	
23.....	+	+	—	—	—	—	+	+	+	—	Blood culture negative.
24 <i>a</i>	+	+	—	—	—	—	+	+	+	—	
24 <i>b</i>	+	+	—	—	—	—	+	+	+	—	
6 <i>b</i>	+	+	—	—	—	+	+	+	+	—	
12 <i>a</i>	+	+	—	—	—	+	+	+	+	—	Blood culture negative. Blood culture negative.
14.....	+	+	—	—	—	+	+	+	+	—	
20.....	+	+	+	—	—	+	+	+	+	—	
GROUP B—											
9.....	+	+	+	—	+	—	+	+	+	—	
22.....	+	+	—	—	+	—	+	+	+	—	
21 <i>a</i>	†	+	+	—	+	—	+	—	+	—	
7.....	†	+	+	—	+	+	+	+	+	—	
11.....	†	+	—	+	+	—	+	+	+	—	
13.....	†	—	+	—	—	—	—	—	—	—	

*Culture obtained at farm. † Methemoglobin.

the angle of the jaw; the temperature was 102.3 F.; the pulse 112. A culture from the throat was obtained, treatment was prescribed and an antiseptic gargle prepared for the family and employees. As both the children attended the local district school, it was thought that some light might be thrown on the original source of the infection by an inspection of the records of those absent on account of illness. The number of absentees was found to be no larger than previous years. There appeared on the record, however, "absence due to sore throat" for one of the pupils, which antedated by ten days the illness of the boy on the farm. Inquiries in the neighborhood and replies from the two local physicians gave no indication of undue prevalence of tonsillitis in the immediate neighborhood of the farm.

On the evidence presented, the milk was immediately pasteurized at the sanatorium and only one case developed subsequent to this procedure. Gargles were distributed to all the patients and employees on the second day of the epidemic, while a number also received additional local treatment with hydrogen peroxid, alkaline solutions and iodine. This procedure

characterized by their hemolytic action, their ability to ferment salicin, their negative reaction to raffinose, mannite and inulin, and their insolubility in bile. Cultures 6*b*, 12*a*, and 14 may properly be included in this group although they exhibit a slight variation in their ability to attack dextrose, and also Culture 20 which further ferments raffinose. It will be observed that the fermentation reaction of all the members of this group agree with those of the pyogenes type of streptococci. That the infecting organism in this epidemic was the *Streptococcus pyogenes* is confirmed by the pathogenicity for rabbits, of the members of this group.

Group B.—The other organisms charted show such varying characters as would be exhibited by the streptococci normally present in the upper respiratory tract.

To secure the causal agent directly from the milk when the source of infection cannot be traced to one of the animals in the herd is an almost insurmountable task, and one is thus compelled to rely solely on circumstantial evidence. That circumstantial evidence may prove fallacious has been emphasized by many writers, but from the facts correlated in the present

instance, evidence closely bordering on certainty points to the milk as the distributing agent.

The frequency of associated throat inflammation in pulmonary tuberculosis makes a diagnosis of a mild intercurrent tonsillitis particularly difficult. Of the cases, 29 per cent. exhibited only slight tonsillar and pillar injection with or without glandular involvement in the submaxillary and the cervical regions. The constitutional symptoms were uniformly mild in character. Great care was exercised to include in this group only the patients who, previous to the onset of the epidemic, had not complained of local throat inflammation, and who requested treatment for the condition at the time of the epidemic. Certainly 71 per cent. of all cases showed definite local and constitutional disturbances. The tonsils were enlarged, the mucosa swollen and injected. A discrete exudate appeared in 62 per cent. Confluent exudates were not observed. Extension of the inflammatory process to the pillars occurred in 91 per cent.; involvement of the uvula in 73 per cent., and of the pharynx in 93 per cent. Varying degrees of glandular involvement at the angle of the jaw were noted in all cases. In children the glandular enlargement was uniformly more marked. The degree of enlargement, however, was not comparable to that described by Hamburger⁷ in the Baltimore epidemic in which the little ones looked like victims of Hodgkins' disease. No apparent enlargement of the liver or spleen was noted. Abdominal pain occurred in some instances, but without subsequent development of peritonitis. Tonsillar abscess developed in two cases during convalescence. From one the causal streptococcus of the epidemic was isolated. Unfortunately, no culture was made from the second case. The constitutional symptoms were those of ordinary follicular tonsillitis: the onset was ushered in by malaise, headache, chilly sensations, and nausea. Severe vomiting occurred in some of the cases. Except in a few cases, the temperature elevation did not exceed 102 F. In some instances, the entire course of the disease was marked by a subfebrile temperature. In three cases, the height of the fever was associated with severe constitutional disturbance and a moderate leukocytosis, which suggested the possibility of a general septicemia. Blood cultures were made to determine this point, but the results were negative in each instance.

It has long been recognized that intercurrent infections occurring in the course of pulmonary tuberculosis may exercise a detrimental influence on the lung lesion. In view of this fact, a comparative clinical study was made to determine the effect of this transient streptococcus infection on the progress of the disease. It was thought that an interval of one month, following the termination of the epidemic, would suffice for the complete subsidence of the local and constitutional disturbance arising from the tonsillar infection. If a critical study of the symptoms and physical findings now showed obvious change when compared with the examination just preceding the epidemic, it might appear reasonable to assume that the cause lay in an exacerbation of the tuberculous lesion, resulting from the transient throat infection. The data obtained proved highly interesting. The distribution of the epidemic did not appear to be influenced by the stage of the pulmonary disease. Except

in some instances, to be detailed later, it may be said that in the afebrile cases, with the disappearance of the local throat inflammation the fever promptly returned to normal, and in those previously exhibiting fever, no tendency to assume higher limits was observed.

The determination of the loss of weight was complicated by an outbreak of severe gastro-intestinal toxemia, with diarrhea, involving 53 per cent. of the patient population. As this followed directly after the sterilization of the milk, we tentatively associated the outbreak with the milk. The average loss of weight, excluding those with intestinal complications, was 5½ pounds. The largest reported loss was 12 pounds. These figures were obtained immediately after the close of the infection, and it was interesting to note that after a lapse of one month, in practically every case, the lost weight was regained. In all patients, malaise persisted for varying intervals, and manifested itself in a disinclination for exercise, and weakness, and was frequently accompanied by pain localized as a rule in the thorax, although pain in the joints was also noted. Anorexia ceased with the termination of the throat inflammation. The rapid gain in weight indicated that the temporary loss of appetite was quickly restored to normal. Cough was necessarily accentuated and the amount of sputum, increased during the height of the infection, gradually, with few exceptions, subsided to the usual quantity. Twenty-four hour specimens of sputum were collected to determine any observable changes in the character and quantity, and any increase in the number of tubercle bacilli in the positive cases or their presence in those previously negative. No change occurred in the latter and no observations sufficiently outspoken to be worthy of note were observed in the former. In three cases suffering from tuberculous involvement of the larynx, one with marked infiltration and ulceration showed no untoward effects locally. The enlarged glands at the angle of the jaw had in every instance subsided at the time of the examination. The frequent occurrence of cardiac complications in acute throat affections made us especially attentive to this condition, but, probably due to the mild general character of the infection, no lesions were discovered. One case of mitral regurgitation showed no ill effects as a result of the infection.

* A brief summary has been made of six cases in which the clinical course of the tuberculosis was apparently detrimentally influenced as a result of the throat infection. One non-tuberculous patient developed a peritonsillar abscess complicated by a mild attack of arthritis and pleurisy.

SUMMARY OF CASES

Case 2787, Stage 2.—Sputum blood tinged during convalescence, extensive fresh pleural involvement at left base with localized pain, no exudate. Lumbago, general malaise, weakness. Three pounds under former weight. No rise of temperature.

Case 2243, Stage 2.—Malaise, weakness, pain over seat of lesion dating from tonsillar infection, extension of lesion with increased moisture.

Case 3026, Stage 1.—Signs increased, slight extension of inflammatory process. Pain right base with fresh pleural involvement. Constitutional symptoms aggravated.

Miss E., Non-Tuberculous.—Pain right shoulder and corresponding knee, left base pleurisy with accompanying pain, tonsillar abscess; convalescence protracted. Two months later, reexamined, recovered. Evidence of base pleurisy still exists.

7. Hamburger, Louis P.: An Epidemic of Septic Sore Throat in Baltimore and Its Relation to a Milk Supply, *THE JOURNAL A. M. A.*, April 15, 1911. p. 1109.

Case 2364, Stage 1.—Fresh pleural involvement, left base; no pain; no increase of either local or constitutional symptoms.

Miss G., Employee, Stage 1 Plus.—Formerly a patient. Eight months previous to tonsillitis, entire absence of cough and expectoration, now complains of general malaise. Pain in left knee joint. Weakness, dry hacking cough with expectoration, 10 to 15 c.c. in twenty-four hours. Tubercle bacilli absent. No extension of lesion. Increased moisture and right base pleurisy.

To interpret slight variations in the physical findings of tuberculous patients as evidence of increased focal disturbance, may lead to error, unless such changes are accompanied by an increase of the constitutional symptoms. In reviewing the cases cited above, the relative frequency of pleural involvement is a striking characteristic, and although no temperature rise was noted at the time of the examination, there no doubt occurred at the onset of the pleurisy some temperature oscillation which failed to be recorded.

The susceptibility of serous membranes in the presence of acute tonsillar infection has been frequently emphasized. The apparent predisposition of the pleura in the present epidemic may be due, in part at least, to a lowering of the original resistance of this tissue as a result of the existing tuberculosis.

Milk borne epidemic sore throat, as reported by English authors and in most of the epidemics occurring in this country, is a severe disorder followed by serious complications and having a relatively high mortality. In striking contrast to this picture is the present epidemic, which was characterized by a mild form of infection with few resulting complications and no mortality. Notwithstanding the mild nature of the infection, the evidence would seem to sustain the supposition that acute inflammatory throat conditions are especially to be avoided in pulmonary tuberculosis, since their presence may exert a decidedly harmful influence on the pulmonary lesion.

THE PREPARATION OF DIABETIC PATIENTS FOR OPERATION

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There are three dangers which are commonly accepted as accompanying operations on diabetic patients—wound infection, non-healing, and diabetic coma. The method of preparation for operation still frequently followed is the removal of sugar and starches from the food. The theoretic basis of this treatment is the conception that the slowness of healing of the operation wound and its liability to infection are to be ascribed to the direct action of the excessive amount of sugar in the blood and tissues, and that diabetic coma is especially likely to occur in those patients in whom the diabetic condition, as judged by the amount of sugar excretion, is especially pronounced. An endeavor is therefore made to get rid of the hyperglycemia before operation, and the patient is given a carbohydrate-free diet until the sugar in the urine is eliminated or has been greatly reduced in amount.

This method of preparation does not attain its object. Unfortunately it is not simply ineffectual, it is positively disastrous in its results. It is the best way possible to subject the patient to the maximum degree of

risk. Yet the theory on which it is based seems plausible enough; indeed it is the first obvious hypothesis which anyone could probably make. This is, as a matter of fact, exactly what it is. It is a pure hypothesis, unsupported by any experimental work. Investigators have long ago put it to the test and found it wanting. They have published their results in technical journals, and have gone on to make other hypotheses and other experiments. In the meantime many clinicians, concerned more with practice than with theory, continue to act on the not unnatural assumption that since a reduction of the amount of carbohydrate in the food is one of the standard principles of treatment in diabetes, it is all the more necessary to carry it out rigorously as a preparation for operation, when the patient is going to be in danger according to the intensity and the grade of the diabetic condition from which he suffers.

Clinical and experimental research work not infrequently clears up the theory of a disease, but does little for its treatment. In diabetes the reverse has been the case, for the mystery of the origin of the condition is still substantially intact, while a great deal of knowledge has been gained which is of importance in the actual management of patients. This question of the best way to prepare such a patient for operation is an excellent example of that fact.

A special liability to infection exists in diabetes. Clinical experience shows it, and experimental research confirms it. It is therefore one of the dangers of operation. Are there any steps which can be taken to guard against it? The answer depends on whether we can remove the cause of the decreased resistance of the tissues. If it is the increased sugar in the blood, we can do a great deal toward removing it. It is certain, however, that the sugar in itself has nothing to do with it. An animal may be made intensely hyperglycemic and yet show no increased liability to infection; but when the hyperglycemia is due to the removal of the pancreas, this liability shows itself. Both may be effects of the same cause, but they have no direct relation to one another. By cutting off carbohydrate food, many diabetic patients will become free from sugar in the urine, but there is just as much chance of infection then as when the urine and tissues are loaded with sugar. The fact must simply be accepted that we have not, as yet, any specific means of dealing with this danger. That will not deter a surgeon from operating. There will be no infection in operating on aseptic tissues, however low their resistance may be, so long as organisms are not allowed to enter, and even when absolute asepsis cannot be attained, it is not a common experience to find that dangerous wound infections follow.

As regards the second danger—non-healing of the wound—there would seem to be even less to fear. It is even a little doubtful whether the diabetic condition in itself has anything which has any deterrent influence on the process of healing in an aseptic wound. Everyone is familiar with the type of diabetic patient whose most prominent symptom is progressive loss of weight. It is in these cases that, associated with more or less marked inability to assimilate dextrose, there may also be an analogous though less pronounced disturbance in the utilization of amino-acids, which are found in somewhat increased amounts in the urine. Here, again, there is no direct relationship between the amount of sugar in the urine and this interference with protein metabolism. Many persons who have constantly from

4 to 5 per cent. of sugar maintain their weight for years, while others, with perhaps a less marked inability to utilize sugar, waste rapidly. It is in these cachectic cases, perhaps, that there may be some possibility of delayed healing, but whether this is to be ascribed to some unknown concomitant of the diabetic condition, or is simply part and parcel of the cachectic state, it is impossible to say. In two of the six cases we have seen recently there was well-marked cachexia and yet the wounds healed rapidly. This seems to be the common experience, and this danger, if it exists, is a minor one. At any rate, there is no evidence that it has any connection with the degree of hyperglycemia.

The last danger—diabetic coma—is the only one of any importance. Karewski stated last year that he had notes of 136 cases of operations on diabetics. There was a mortality of 20 per cent., and, of these, 78 per cent. died in coma and only 21 per cent. from all other conditions.

Diabetic coma is a definite clinical entity. We know that the cause is a poisoning with large quantities of beta-oxybutyric and diacetic acids; and we can only diagnose the condition with certainty when we have demonstrated the presence of large amounts of these substances in the urine. It is true that we need expect no very close relationship between the actual amounts of these acids recovered from the urine and the severity of the patient's condition; for, as has been pointed out, it is the amount retained in the tissues, and not that part which the body succeeds in excreting, which does the damage, and, further, we have to take into account varying susceptibility, not only in different patients, but also in the same person at different times. Yet it remains true that we cannot say a patient has diabetic coma unless we find at least considerable amounts of beta-oxybutyric and diacetic acid, and (if no large amount of alkali has been given) a considerably increased total quantity of ammonia in the urine. The clinical symptom of air hunger cannot be regarded as indispensable for the diagnosis, since Wilbur has shown that an analogous condition may be produced by feeding the neutral sodium salt of oxybutyric acid as well as the acid itself. The neutral salt would not of course lead to the slight increase in the H ion concentration of the respiratory center which is supposed to produce this symptom. Blum has also recently reported death in diabetic coma in a patient to whom so much alkali had been given that the urine had remained alkaline throughout, in whom, therefore, no "acidosis" existed. Unless oxybutyric acid or its salts are found in large amount, however, there can be no question of diabetic coma. At present, any patient with diabetes who becomes comatose is apt to be regarded as in diabetic coma. It is rarely possible to make quantitative estimations of acetone bodies, because that requires much time and technical skill, and alkalies have been almost always given, so that ammonia estimations are not decisive. The diagnosis is therefore not checked up. In patients in whom the typical deep breathing is well marked, the diagnosis is nearly always well grounded, but it is not unlikely that in the less typical cases there are some in whom the coma is due to something else than oxybutyrates or diacetates. We have recently seen, in this clinic, two diabetic patients die in coma with somewhat deep breathing but without the typical polypnea, in whose urine there was no large amount of acetone bodies or ammonia. They died in coma, but not in diabetic coma. Karewski does not give details in connection

with his cases of coma following operation, but surgeons who have seen a number of cases state that, in a certain proportion, the coma is not by any means clinically typical. Exact estimations of the quantity of acetone bodies in the urine and in the blood and tissues are necessary in such cases in order to establish definitely that they are not true diabetic coma. We do not as yet have such estimations, but it would seem probable that there is a form of death in coma which is caused by something else than poisoning with acids.

For this reason one cannot say that true diabetic coma is the only special danger after operation on diabetics. There may well be something else to fear about which we know nothing. True diabetic coma is, nevertheless, certainly not uncommon after operation. It is the only known danger of any account which arises after operation as a direct result of the diabetic condition. From a practical point of view it is this we have to guard against.

Have we any means by which we can say in what patients diabetic coma would be especially apt to appear after operation? It is natural to suppose that in severe cases it would more commonly appear than in mild ones. Karewski states, however, that nearly 50 per cent. of his cases of coma were in patients classified as having mild diabetes. This division into severe and mild cases is one which is based on one manifestation of the condition, that is, the amount of sugar excreted in the urine. If under dietetic restrictions the patient becomes sugar-free, he is said to have "mild" diabetes, if not, it is a case of "severe" diabetes. We must conclude, then, that the amount of sugar in the urine is no indication of the degree of danger. This, after all, is not so surprising, for it is not the loss of power to use sugar which produces diabetic coma, but the loss of power to oxidize beta-oxybutyric acid to carbon dioxide and water. It is the common clinical experience that in many cases there is no close parallelism between the disturbance of carbohydrate and fat metabolism. Patients who are difficult or impossible to render sugar-free may have very little difficulty in dealing with fatty acids, while other patients who have only a moderate amount of sugar in the urine, may have a relatively large output of acetone bodies.

If, then, we turn our attention to the fat metabolism, and put all the patients concerning whom the question of operation had been raised, under the same conditions as regards diet, would it be possible from the relative amounts of acetone bodies to tell the relative danger these patients would run? Is a patient who excretes 10 gm. of acetone bodies in twice as much danger as one who under the same conditions excretes only 5 gm.?

We know that this is by no means always the case. Patients are seen who over long periods of time lose large quantities of fatty acids, as much as 25 gm. daily, who yet do not develop diabetic coma. On the other hand, it may appear unexpectedly in those who excrete relatively small amounts of acetone bodies. There is quite commonly this element of surprise in the onset of the condition, as if the neutrality regulating mechanism of the body were overwhelmed by a sharp and complete failure to oxidize the fatty acids; as if the hidden factors of safety, working more or less efficiently in spite of difficulties, had suddenly given way under some added strain. Although, from the amount of acetone bodies alone, we cannot pick out those patients who are thus on the verge of diabetic coma, if with this we could combine observations on

the rate of increase of acetone body excretion, following an increase in the total amount of fatty acids undergoing oxidation, we should probably get nearer to the crux of the question, for this would be equivalent to a functional test of the integrity of the fatty acid oxidizing mechanism under strain.

We have a method which is easily applied, of throwing a strain on the capacity of the organism to oxidize fatty acids. When carbohydrates and proteins are removed from the food, the fats are mobilized to provide nourishment for the body. The quantity of beta-oxybutyric acid produced is greatly increased. According to the capacity of the body this will be oxidized to carbon dioxide and water or will be excreted unchanged.

With this idea in mind, we have recently put diabetic patients, concerning whom the question of operation has arisen, for three days on a diet which contains 100 gm. of carbohydrates, 80 gm. of protein, and 150 gm. of fat. At the end of this period of moderate carbohydrate and protein intake, they are under approximately the same conditions, and their relative excretion of acetone bodies may be compared.

During the next three days an abrupt change is made in the diet. The carbohydrates are reduced to 18 gm., and the proteins to 27 gm. By giving 200 gm. of fat and some alcohol, the caloric value of the diet is made as high as possible. The patient of course is kept absolutely at rest in bed.

In some patients who have shown a high excretion of acetone bodies even during the period of moderate carbohydrate intake, it may be safer to give alkali to facilitate the excretion of the increased amounts of acetone bodies which this cutting off of carbohydrates and proteins will produce, and, in such cases, the estimations of the ammonia content of the urine will indicate a slighter degree of acidosis than really exists. Then we have to rely on such clinical approximations to the total quantity of acetone bodies as are given by Hart's method, when, as is usually the case, we have no facilities for more accurate estimations. This is seldom a serious handicap, since stress is laid not so much on the absolute degree of acidosis as on the rate at which it augments under the above conditions. The excretion of acetone bodies is always increased, but the important point is the relation between the amount excreted on the last day of the second period and the end of the first.

We have not had sufficient experience with this method to allow us to give any definite ratio between the ammonia or acetone body excretion of these two periods, which should be regarded as indicating a special liability to the onset of diabetic coma, and indeed it is evident that no hard and fast rules can be laid down. The absolute amounts as well as the relative increase must be borne in mind. A large relative increase in a patient who was excreting very little acetone bodies will not have the same significance as a similar increase when the previous elimination was high.

Both factors have to be taken into account in forming a judgment, but, of the two, the greater stress should probably be laid on the results of the functional test. After a considerable number of cases have been studied along these lines, it will be possible to formulate more precisely the significance of the results as regards prognosis. We intend to continue this work, for there is an obvious need for a functional test to indicate not only the extent of the deficiency in the fatty acid

metabolism in diabetes, but also its stability or instability under strain.

It is, of course, only in those cases of diabetes in which operation may be safely delayed and possibly avoided altogether that it is wise to put the patient through this test. When there is any septic condition (a spreading moist gangrene for instance), the statistics which have been collected show that the earlier the operation the lower is the mortality. No time should be wasted in trying to estimate the risk of such an unavoidable operation, when with every day the danger increases.

If an operation is decided on or is imperative from the nature of the case, how can the patient be prepared against the danger of diabetic coma? When time is not all-important, the obvious indication is to endeavor to bring about a storage of carbohydrate in the liver in the form of glycogen. Even in the most severe disturbances of the power to utilize sugar, the capacity is not entirely lost, since even in these patients we can almost always reduce more or less the degree of acidosis by feeding carbohydrates. It is a mistake to wait until the condition of diabetic coma is evident before carbohydrates are given, for then it may be too late and the damage already done. When the organism is under strain and mobilizes its food reserves, glycogen is the first line of defense. It is only when the store is becoming exhausted that the fats are called on. Glycogen spares fat. The less fat is broken down, the less acetone bodies will be produced.

The *accumulation of glycogen* in the body is the aim. The best means to attain it in most cases is to feed *oatmeal*. This was discovered accidentally by von Noorden. Allen gives the best explanation why this particular form of carbohydrate should be better borne than others. He points out that oatmeal calls for a minimum secretory activity on the part of the pancreas, and brings forward interesting evidence in favor of the view that there is a relationship between the external and internal secretion of the pancreas.

Success in producing a retention of carbohydrates with the oatmeal diet is much more likely to be attained if it has been preceded by a period of nearly complete rest to the carbohydrate regulating mechanism of the body. The fat-alcohol diet, which has been suggested as a means of testing the integrity of the mechanisms concerned in the complete combustion of fatty acids, at the same time serves as the best preparation for the oatmeal, for it contains only 18 gm. of carbohydrates and 27 of protein. Assuming that the greatest conceivable amount of sugar is formed from the protein, the total sugar which could be produced only amounts to about 40 gm. Under these conditions the diabetic organism seems to store up within itself some substance necessary for the fixation and utilization of sugar. When larger quantities of carbohydrates or protein are ingested, the amount of this hypothetical substance is not only insufficient, but the organ or organs concerned in its production are so overstrained that the amount turned out is actually smaller. At any rate, whether or not this is the explanation, it is a well-established clinical fact that after a period of sugar starvation, the amount of carbohydrate which is retained in the body is, in the great majority of cases, much larger than it was before. It is a mistake to have any standard quantity of oatmeal to give all patients, because there are some who, if you give them 150 gm. of carbohydrate in this form, retain more than if you make them take 300 gm. Digestive disturbances must

be carefully watched for. It appears that they seldom occur, but if they do, all the good which may have been acquired is probably lost, and the operation will have to be delayed until the patient has fully recovered.¹

During this period of oatmeal feeding, the sugar in the urine will greatly increase or may reappear if the patient has become sugar-free under the fat-alcohol diet. The amount should be estimated and compared with the sugar-value of the diet in order to determine how much is retained; but apart from this no attention should be paid to it. The fact that the patient has a high sugar concentration in his blood and urine is not in itself any contra-indication to operation.

Another essential part of the preparation is to have the patient in the best possible condition to excrete large amounts of the acetone bodies, if they should be produced during or after the operation.

When alkali is given to a diabetic patient with acidosis, the effect is almost always a marked increase in the acetone bodies in the urine, an increase which may extend over several days; but alkali in itself has no influence on the production of these incompletely oxidized acids. It can neither increase nor decrease the actual amount formed. All it can do is to turn them into a form in which they can be readily gotten rid of. Even in comparatively mild acidosis an increased excretion after the giving of sodium bicarbonate may be observed. This would seem to be a significant fact. It would indicate that, from the beginning, there is the tendency to that heaping up of oxybutyrates and diacetates in the tissues, which, when it reaches a certain grade, culminates in the condition we know as diabetic coma. We do not know the reason for this difficulty in excretion. Probably, in the tissues, oxybutyric and diacetic acid exist largely in the form of ammonium salts, since the store of free fixed bases in the body is limited and is required for other purposes, whereas there is an unlimited potential reservoir of ammonia. Perhaps the ammonium salts are in some way held in the tissues, or it may be that the kidneys can more readily excrete the sodium than the ammonium salts. Investigations along these lines are badly needed. There is no doubt, however, about the practical indication. If possible, no patient should be operated on until he has been oversaturated with fixed bases, that is to say, until such an excess has been given that the urine is distinctly alkaline. Then we may be sure that all the retained acetone bodies have been washed out.

On theoretic grounds we ought to give a mixture of various bases, sodium, potassium, calcium, and magnesium, since the available stock of each of these minerals may be depleted in a patient with acidosis. Sodium bicarbonate, however, remains the alkali which can be taken in the largest quantities, and very large quantities are sometimes required before the urine becomes alkaline. It is best to give the alkali half an hour before each two- or three-hourly feeding with oatmeal. Doses of from 5 to 10 gm. in plenty of water may be necessary, and one or two doses should be given at night, if it can be done without disturbing the patient. The quantity of alkali required to make the urine alkaline is an indication of the amount of acetone bodies stored in the body, and this is another point to be considered in prognosis.

1. Perhaps the caramel introduced lately by von Grafe will be found to be even a better substance than oatmeal for producing an accumulation of glycogen in the liver. When dextrose is heated to a temperature of 200 F. for half an hour, it becomes polymerized to substances of high molecular weight, and has been found to be very well assimilated by diabetics.

When by these means we have succeeded in causing some storage of glycogen, and have saturated the body with alkali, there is no doubt that the patient is in better condition for operation and is less likely to die of diabetic coma than he would have been under the old plan of carbohydrate starvation. It is well to remember, however, that these are only palliative measures, and do not influence the cause of the condition. Diabetic coma still appears in spite of these precautions. They are only frail barriers, which a suddenly rising tide of acetone bodies may easily sweep aside. We have not even begun to work out the best method of preventing this catastrophe until we go to the root of the matter and find the ultimate cause. There are many difficulties in the way of such studies. It has not been approached from the experimental side, because nothing quite analogous to diabetic coma can be produced in dogs, though it is to be hoped it may be found possible in monkeys. In man, of course, treatment must supersede investigation.

In the absence of the fundamental knowledge necessary for any specific treatment, the best that can be done is to look for factors which may act as exciting causes.

Why is the incidence of coma so enormously higher in diabetics who are operated on than in those who are not? It cannot be the amount of tissue trauma alone, for coma is common after minor operations. It is not the anesthetic, for it may appear when local anesthesia or no anesthetic is used; it is not after any special sort of general anesthetic, for it occurs after all. As has been mentioned, about 50 per cent. of the deaths in coma after operation are in patients in whom the defect in the carbohydrate metabolism is not very pronounced. Even the degree of disorganization of the fatty metabolism cannot be taken as a safe guide, though it is the best we have. There seems to be a something incalculable and mysterious which may upset prognosis, however carefully the evidence is balanced.

What is there common to all operations which can vary in its intensity this bizarre manner, which may be severe after a slight operation, and negligible after an extensive one? Shock, if that word is taken in its widest significance, is the only condition which may so act. The extent of the psychic and physical alterations induced by operation cannot be predicted in any patient, since it depends not only on the objective trauma, but also on the subjective receptivity of the nerve centers. The mental attitude of the patient can be only vaguely guessed, yet this factor may be of primary importance. One man may put his hand in the fire and suffer no shock, while another may die from the stress and turmoil induced by apprehension, before the knife has touched him.

In diabetes we have good reason to believe that bodily or mental disturbances may induce marked variations in the metabolism of carbohydrates and fats. It is an old clinical observation that diabetic coma may follow physical or psychic trauma. A patient breaks his arm or receives some bad news, and a few days later dies in coma, and it is worth noting that some modern investigators are returning to the conception that the origin of diabetes is to be sought for in a functional derangement of the nervous system.

Whether or not this is so, the practical indication is plain. We must regard all diabetic patients, and more especially those in whom a marked instability of the fatty acid oxidizing function has been demonstrated,

as being, as it were, on the edge of a precipice. They are maintaining their equilibrium with difficulty, and it is of vital importance that they should not be distracted.

We have in our hands the means whereby the strain on mind and body of any operation may be greatly reduced. Crile has worked out the details in connection with operations on patients with exophthalmic goiter. If the measures grouped under the term "anoci association" could be applied to all diabetics in whom operation was necessary, it seems not unlikely that the present high mortality from coma would be greatly reduced.

SUMMARY

1. One method of preparing diabetic patients for operation is to give them a sugar and starch-free diet. This is a useless procedure, because, although it may reduce the degree of hyperglycemia and the amount of sugar in the urine, it will not lessen any of the risks of operation. It is more than useless, however; it is dangerous, since it increases the chances of the onset of diabetic coma.

2. When operation is not immediately necessary, and especially in those cases in which the decision as to whether or not an operation shall be performed rests largely on the question as to how much danger would be run by the patient after the operation because of his diabetic condition, it would be a great advantage to have some objective data to supplement the facts relative to this point, which can be gained by clinical observation. The quantity of sugar in the urine is no aid in this respect, for the special danger to life is the failure, not of the sugar, but of the fatty acid metabolism. The coma in which diabetic patients die after operation is, often at least, accompanied by the excretion in the urine of large amounts of unoxidized fatty acids, and there is good reason for believing that the condition is due to poisoning by these acids.

The estimation of the degree of impairment of the power of the body to oxidize fatty acids is therefore of prime importance in deciding whether or not operation is advisable in any particular case; but the amount of acetone bodies (fatty acids) excreted does not give a reliable indication of the degree of danger, because, although that amount may be small, the reserve power of the body to deal with these substances may be very slight, so that there may be a sudden failure under the special strain induced by operation, with the result that diabetic coma ensues. What is needed is a functional test of the fatty acid oxidizing power. A method is outlined whereby, with very simple methods, the amount of acetone bodies or of ammonia under certain fixed conditions is compared with the quantity found under circumstances which call for a marked increase in the catabolism of fatty acids.

3. The fear, excitement and undernourishment of the patient, which frequently accompany operation, brings about a call for the utilization of the food stored in the body. This food consists of glycogen and fat, but the most easily available is glycogen, and there will be no very extensive breaking down of fat into fatty acids until the glycogen stores of the body are largely depleted. Even in cases in which the utilization of sugar is very defective, glycogen will diminish the amount of fat required in such emergencies. One aim of treatment should therefore be to bring about a storage of glycogen in the body before operation.

The best means yet devised to this end is the oatmeal treatment introduced by von Noorden.

4. The inability of the kidneys to excrete large amounts of fatty acids is a factor in the production of diabetic coma. The giving of alkali helps the kidneys in this work. Before operation, therefore, it is important to give alkali until the urine becomes alkaline, and to maintain if possible this alkaline reaction after operation.

5. Neither success in inducing a storage of glycogen in the body before operation, nor in keeping the urine alkaline is an absolute barrier against diabetic coma. They are only palliative measures. All those circumstances which unite together to produce shock are factors which act as exciting causes of the condition known as diabetic coma. It is possible to mitigate the action of these agencies by the application of the principles of "anoci association."

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RESULTS OF COMPLEMENT-FIXATION STUDIES WITH THE CORYNE- BACTERIUM HODGKINI *

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Fraenkel and Much,¹ in 1910, described an organism occurring in Hodgkin's disease. This bacterium, Gram-positive, granular, non-acid fast and sodium hypochlorid (antiformin) resistant was seen in the lymph nodes of twelve out of thirteen cases, but no satisfactory culture was obtained. Negri and Mieremet,² in 1913, successfully cultivated this organism from two cases of the disease. They applied the name *Corynebacterium granulomatis maligni* to the bacillus on account of its diphtheroid nature. In the two cases studied, complement fixation was tried, but the results were negative. No methods were described in their article. In the same year Bunting and Yates³ obtained pure cultures in four out of seven cases of Hodgkin's disease and renamed the organism *Corynebacterium hodgkini*, which being binomial, is a more suitable name.

Billings and Rosenow⁴ obtained pure cultures of this diphtheroid bacillus from the glands of patients suffering from Hodgkin's disease, and in one case in which the lesion was of the lymphosarcoma type. Subsequently, Steele⁵ reported the finding of the same diphtheroid organism in a case of Hodgkin's disease as well as in a case of lymphatic leukemia. Recently Yates, Bunting and Kristjanson⁶ have found a similar organism in Banti's disease.⁷

Without going into the question of whether or not this bacillus is the causative factor of Hodgkin's disease, lymphosarcoma, lymphatic leukemia and Banti's

* Work done under the tenure of the Eugene Meyer, Jr., Fellowship in Pathology, Pathological Laboratory, Mount Sinai Hospital, New York City.

1. Fraenkel and Much: Ztschr. f. Hyg., 1910, lxxvii, 159.

2. Negri and Mieremet: Centralbl. f. Bakteriol., 1913, lxxviii, 292.

3. Bunting and Yates: Cultural Results in Hodgkin's Disease, Arch. Int. Med., August, 1913, p. 236; An Etiologic Study of Hodgkin's Disease, THE JOURNAL A. M. A., Nov. 15, 1913, p. 1803.

4. Billings, Frank, and Rosenow, E. C.: The Etiology and Vaccine Treatment of Hodgkin's Disease, THE JOURNAL A. M. A., Dec. 13, 1913, p. 2122.

5. Steele, A. E.: Corynebacterium Hodgkini in Lymphatic Leukemia and Hodgkin's Disease, Boston Med. and Surg. Jour., Jan. 22, 1914.

6. Yates, J. L.; Bunting, C. H., and Kristjanson, H. T.: The Etiology of Splenic Anemia or Banti's Disease, THE JOURNAL A. M. A., Dec. 19, 1914, p. 2224.

7. Kusunoki (Virchows Arch. f. path. Anat., 1914, ccv, 184) found this diphtheroid in sixteen cases of Hodgkin's disease. The article contains a complete bibliography.

disease, I shall state my experience with it in regard to complement fixation with patients' serums. Incidentally, comparative studies were made between it and other diphtheroids.

The methods of procedure were as follows:

The Antigen.—A polyvalent antigen was prepared using three strains of the organism, two of which were obtained through the courtesy of Dr. Rosenow, and one was cultivated by Dr. Celler, from the glands of a patient suffering from pseudoleukemia. At the same time, for the sake of comparison, individual or single strain antigens were prepared from each of the three. The organisms were grown for twenty-four hours on 0.5 per cent. glucose-serum-agar in Blake bottles. The growth was usually luxuriant, so that 10 c.c. of sterile distilled water were sufficient to wash off the growth from each Blake bottle. The suspension was autolyzed at 60 C. (140 F.) for one hour, and then kept at 37 C. (98.6 F.) for twenty-four hours. This thick fluid was then filtered through a size N Berkefeld filter at the rate of from 3 to 4 drops per minute. The resultant clear fluid was heated at 56 C. (132.8 F.) for one-half hour on each of three consecutive days, but no preservative was added. For comparison, antigens of unfiltered suspensions of the organism were used, but these were so anticomplimentary and non-antigenic that they were discarded.

Immune Serum.—To test the antigenic properties of the antigens, immune rabbits' serums were prepared. A saline suspension of growth of the organism on one agar slant was injected intravenously; four days later two agar slants, followed in four days by three agar slants and at the same interval by four slants. This organism being completely avirulent for rabbits, these large doses could be given with impunity.

Nine days after the last injection, the rabbits were bled. All the rabbits were tested previous to immunization and those that would bind complement in high dilutions in the presence of antigen were discarded. It is to be remembered that most rabbits' serums will bind complement in the presence of a bacterial antigen when used in amounts of 0.1 c.c. or more.

In this manner, immune serums were developed against the three strains as well as against each single strain.

Patients' Serum.—This serum was inactivated at 56 C. for one-half hour.

Complement and Hemolytic System.—Guinea pig serum 1:10 was used for complement. Rabbit antiserum red blood cell amboceptor and sheep cells in a 5 per cent. suspension were employed. These reagents were carefully titrated before use. In general, Wassermann's technic (but half his quantities) was followed, and twenty-four hour ice-box fixation allowed before the hemolytic system was added. An active hemolytic system is essential in order to obtain clear-cut results in all bacterial antigen work.

Titration.—Using these reagents, the antigens were first titrated for their anticomplementary unit, after being "normalized" to 0.85 per cent. tonicity. The amounts used never exceeded one-fourth the anticomplementary titers, to avoid the danger of non-specific fixation. The antigenic powers of the antigens were determined by titrating this amount against decreasing amounts of immune rabbits' serums. In this way antigens having a long "range" were used with patients' serums. For example, an antigen, the anticomplementary dose of which was 0.6 c.c. was employed in amount of 0.15 c.c. This completely inhibited hemolysis with 0.001 c.c. immune serum or one two-hundredth the amount used in test with patients' serums.

Control polyvalent antigens, made of growths of streptococci and gonococci, were employed to eliminate reactions that might be caused by a bacterial antigen as such.

Having obtained highly specific antigens capable of binding complement-fixing antibodies, the following tests were made with patients' serums:

CASE 1.⁸—Histologic diagnosis, Hodgkin's disease. Blood tested one year and three months after onset of symptoms. Vaccines (of this organism) were given after serum examination. The patient died one month after the test.

CASE 2.—Clinical diagnosis, Hodgkin's disease. (The patient refused to have a gland excised for diagnosis.) The blood was tested three months after the onset of the symptoms.

CASE 3.—Histologic diagnosis, Hodgkin's disease. The blood was tested two months after the onset of the symptoms.

CASE 4.—Histologic diagnosis, Hodgkin's disease. The blood was tested two years after the onset of the symptoms.

CASE 5.—Histologic diagnosis, Hodgkin's disease. The blood was tested ten months after the onset of the symptoms. This case was treated with vaccine (of this organism). The patient died two months later.

CASE 6.—Histologic diagnosis, Hodgkin's disease. The blood was tested between five and six years after the onset of the symptoms.

CASE 7.—Histologic diagnosis uncertain, but a gland showed chronic changes resembling Hodgkin's disease. The blood was tested one year after the onset of the symptoms.

CASE 8.—Histologic diagnosis, lymphosarcoma. The blood was tested two months after the onset of the symptoms.

CASE 9.—Histologic diagnosis, lymphosarcoma. The blood was tested two months after the onset of the symptoms.

CASE 10.—Histologic diagnosis, lymphatic leukemia. The blood was tested three years after the onset of the symptoms.

The serums of these patients were used in amounts varying from 0.05 c.c. to 0.2 c.c. (corresponding to 0.1 c.c. to 0.4 c.c. in Wassermann's system). Ordinarily, the reagents used in this laboratory are gaged so that from 0.05 to 0.1 c.c. gives perfect fixation with other bacterial antigens with specific serums. Using greater amounts of the serum, however, the maximum amount of antigen and longest period for fixation (twenty-four hours, ice-box), the results in these cases were uniformly negative.

At the same time, serums from patients suffering from other chronic conditions, as lues, tuberculosis, pernicious anemia, carcinoma, etc., in all thirty-four, were tested in a similar manner and the results were likewise negative.

An attempt was made to investigate the nature of the *Corynebacterium hodgkini* by making cross-fixation experiments with other diphtheroids.

Rabbits were immunized, as above described, against the xerosis bacillus and Hofmann's bacillus, both pseudodiphtheria organisms. In this work, the preliminary titration (that is, before immunization) of rabbits' serums showed a great tendency on the part of normal rabbits to bind complement with the xerosis bacillus antigen. When such difficulties had been overcome and potent immune serums developed, my protocols (too lengthy for publication here) show that there existed no cross fixation between the xerosis bacillus and the Hofmann bacillus, nor between the Hodgkin's organism and either of the former. Hence the *Corynebacterium hodgkini* is distinct from these pseudodiphtheria organisms.

Mount Sinai Hospital.

8. In all the cases the histologic diagnoses were made by Dr. F. S. Mandelbaum, Pathologist, Mt. Sinai Hospital.

Value of Medical Libraries.—It is hard to speak of the value of libraries in terms which would not seem exaggerated. To study the phenomena of disease without books is to sail an uncharted sea, while to study books without patients is not to go to sea at all. For the teacher and worker a great library is indispensable. They must know the world's best work and know it at once: they mint and make current coin, the ore so widely scattered in journals, transactions and monographs.—Osler.

TREATMENT OF HEMORRHOIDS BY THE
OPEN METHOD

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Hemorrhoids are primarily a varicose condition of the hemorrhoidal veins, and their tumor-like structure is due to this varicosity (Fig. 1).

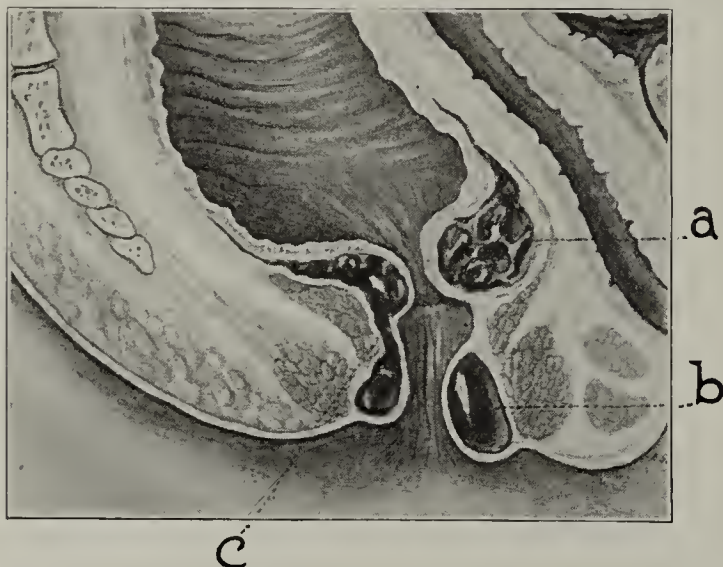


Fig. 1.—Internal hemorrhoid (a), external thrombotic hemorrhoid (b) and interno-external hemorrhoid (c).

They are located on the inner side of—and project into—two similar, hollow, flexible, distensible, collapsible, sensitive and musculovascular cones (Fig. 2). These cones are formed by the coalescence of the hindgut and proctodeum, with their common point of intersection at the pectinate line. One of these is the proximal (or rectal) cone, the other, the distal (or anal) cone. The former is lined with mucous membrane, nourished by the superior hemorrhoidal artery and drained by the superior hemorrhoidal veins. The anal cone is lined with skin, nourished by the inferior hemorrhoidal artery and drained by the inferior hemorrhoidal veins.

Clinically, hemorrhoids should be classified: (1) according to location, (2) according to structure.

1. According to their location they are divided into internal, external and interno-external hemorrhoids.

2. According to their structure they are divided into: (a) those containing fluid blood; (b) those con-

taining clotted blood; (c) those containing both fluid and clotted blood, and (d) “skin tabs” or cutaneous folds (Fig. 1).

Internal hemorrhoids are located in the proximal cone, and are due to a varicose condition of the superior hemorrhoidal vessels. This varicosity is covered by mucosa and submucosa, and contains fluid blood (Fig. 1 a and Fig. 3).

Interno-external hemorrhoids are located partly within both cones. They are due to a diseased condition of the superior as well as the inferior hemorrhoidal vessels. The proximal portion of the hemorrhoid is covered by mucosa and submucosa and the distal portion by skin. The contents are usually both fluid and clotted blood (Fig. 1 c).

The external varieties are located in the anal cone and are divided into two classes—the thrombotic pile and the hypertrophied “skin tab” (the

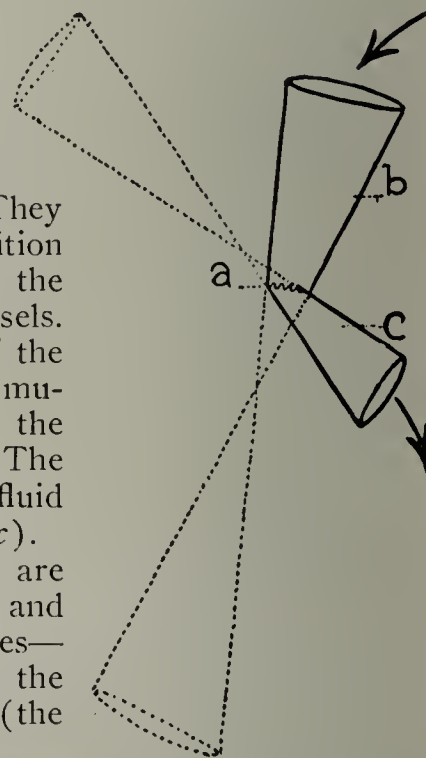


Fig. 2.—Schematic illustration of the anal and rectal cones: a, pectinate line; b, mucous membrane; c, skin.

“fleshy pile”). The first of these usually comes on rather suddenly, is bluish-red, very painful, covered by skin and contains a clot of blood (Fig. 1 b). The “skin tab,” or fleshy pile, is what the name implies. There is no pain unless it becomes irritated and inflamed; then it is very painful.

TREATMENT

Indications for Treatment.—The presence of piles is a justification for their treatment. Hemorrhoids per se may do no harm, but their presence lessens physiologic resistance; while the end-result if they are not treated may be formidable. Treatment is both palliative and operative.

Palliative.—This consists of keeping the bowel movements soft and regular, together with applications of stimulating agents and astringent lotions or ointments.

Operative.—This consists in excising sufficient of the covering of such varicosities so that when the



Fig. 3.—Microscopic section of an internal hemorrhoid showing the mucous membrane (a) and the blood lakes (b) located in the submucosa (c).

pathologic condition is removed, the operated field will resume its normal state and relation to the contiguous parts. This, in my opinion, can best be done by that method of operating which radically removes the pathologic condition present, traumatizes the tissues least, gives least pain, keeps the patient from his work

solution in its course. The needle is next introduced into the muscles and up along the sides of the rectum, anesthetizing these structures.

For the deeper tissues, the needle is usually inserted into the anterior and posterior median raphé, also in the right and left lateral quadrants, and carried up

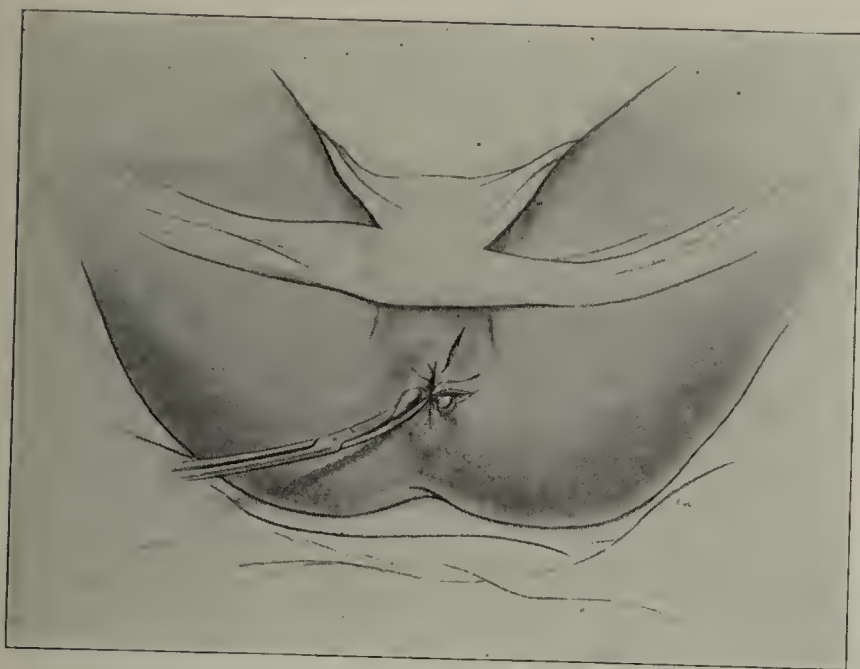


Fig. 4.—Removal of an ellipse from over the clot, the extraction of the clot and the appearance of the cavity after the clot is removed. The scrotal bandage applied. Over draperies have been purposely omitted from Figs. 4, 5 and 7.

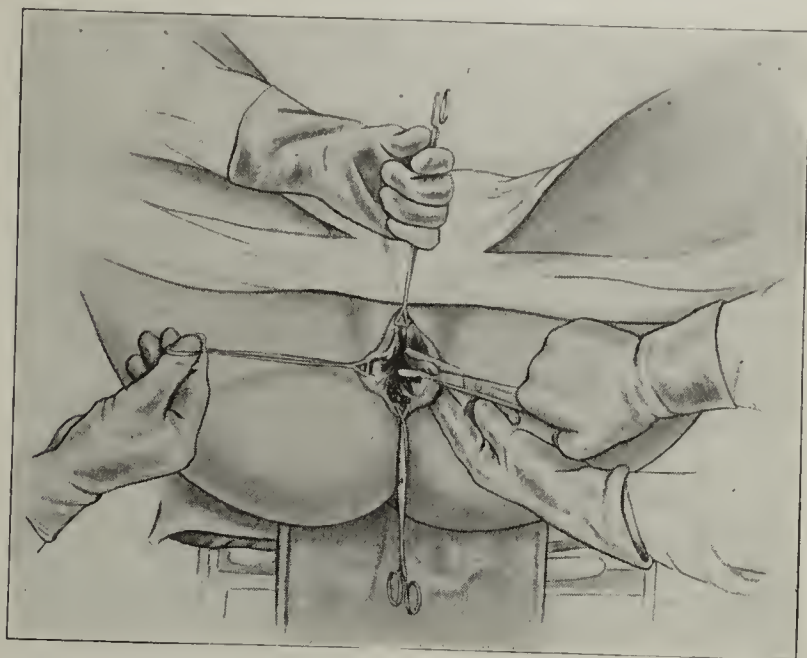


Fig. 5.—Method of bringing the hemorrhoids into view and the removal of an ellipse from one of the tumors. Vis a tergo pressure is being applied with the left index finger.

the shortest period of time, is the safest and freest from danger, and preserves the normal contour and function of the rectum. For want of a better name, I have called this method the open method of operating on hemorrhoids.

ANESTHESIA

Either general or local anesthesia may be used. I operate on 90 per cent. of my cases by blocking¹ the field of operation, and usually employ from one-quarter to one-half grain of cocain in solution, and about 1 to 2 grains of quinin and urea hydrochlorid in the same manner. The cocain is employed in the strength of from 0.25 to 0.5 per cent.; the quinin and urea hydrochlorid in from 0.5 to 1 per cent. solution. Sometimes the two solutions are combined. The cocain is used for its immediate effect and the quinin and urea hydrochlorid for prolonging the anesthesia. (Novocain may be used instead of cocain.)

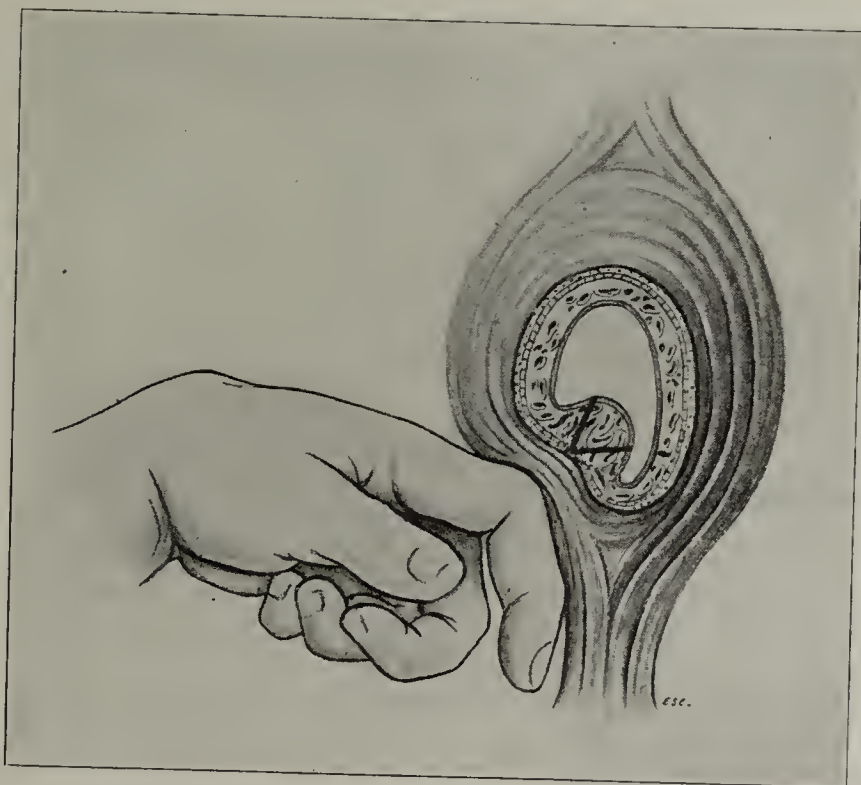


Fig. 6.—Effect of vis a tergo pressure, and line of incision.

along the lateral walls of the rectum. (The finger in the rectum may be used as a guide, if the operator so desires.)

During the last twenty years I have given a fair trial to each of a number of methods advocated which promised a good result. These include the ligature, clamp and cautery, Whitehead's, injections, suturing and other plans, and I have come emphatically to the conclusion that the best way of treating this condition is by the open method before referred to.

PREPARATION OF PATIENT

The perianal region is, as a rule, shaved, and the rectum irrigated with compound solution of creosol and water or soap and water. The patient is placed in the lithotomy position and a scrotal bandage (Fig. 4) applied.

OPERATIVE TECHNIC

I think all agree that the primary cause of the tumor-like condition is the varicosity. The operative procedure, then, should have for its object the

removal of this varicosity.

Since the primary cause of each type of hemorrhoids is practically the same and the difference in structure is only one of degree, the treatment of each variety is—and should be—technically the same. That the technic may be more readily comprehended, I shall first consider the treatment of the thrombotic pile:

1. Pennington, J. Rawson: Regional Analgesia in Surgical Treatment of Anorectal Diseases, Am. Med., July 29, 1905.

After the patient is prepared and the tumor anesthetized (infiltration anesthesia only is necessary in this variety), an ellipse commensurate with the size of the pile is removed from the covering of the clot, the latter picked out, and the dressing applied (Fig. 4). I usually dress the wound with rubber-dam, and over this gauze, or with petrolatum and gauze, and a T-bandage. There is little or no after-pain, and the patient is well in a very short time.

Had the blood in the swelling been fluid, it would not have been necessary to pick it out, as it would have escaped and the wall collapsed as soon as the ellipse was removed and the varicosity destroyed. The after-treatment also would have been the same. Should a spurting vessel be exposed in the course of the procedure, it is picked up and twisted or ligated. Such is the principle involved in the open method of treating hemorrhoids.

Because the internal piles are located in the proximal (or rectal) cone it is necessary to bring them into view (Fig. 5). This, after gently stretching the sphincter, is done by means of four T-forceps applied as shown in Figure 5. *Vis a tergo* pressure is made at the base of each pile, forcing it into the field of operation, and an ellipse varying with the size of the swelling removed from the covering of the varicosity by means of scissors curved on the flat (Figs. 5 and 6). Frequently this procedure also destroys the pathologic condition; if it does not, this is readily accomplished by another and deeper cut with the scissors.

The "fleshy pile" is treated in a similar manner. A section is excised from the apex, and then the inside of the pile is removed with the flat-curved scissors (Fig. 7). Sufficient of the mass is removed so that the anal region will assume a normal surface when the operation is completed.



Fig. 7.—Removal of an ellipse from the apex of a "fleshy pile," then dissection out of the inside, and the slit-like appearance of the cavity after the dissection.

In some instances, a ring of flesh completely encircles the anus and extends distally for an inch or more. When this is the case it is removed by the same technic.

The field is then cleared of blood clots and a rubber-covered tampon, which dresses the field in extension, is introduced into the rectum (Fig. 8). Hot wet dressings, a piece of protective and a snugly-fitting T-bandage are now applied.

The dressings and tampon are removed in from eighteen to twenty-four hours, and the hot fomentations continued.

In six or eight hours thereafter, an enema of 3 ounces of olive oil and a laxative are given. The patient does not use a bedpan, but gets out of bed and goes to the water closet or commode; wet cotton is used as a detergent.

Hot fomentations are applied every four to six hours for a few days. The average patient is dismissed on

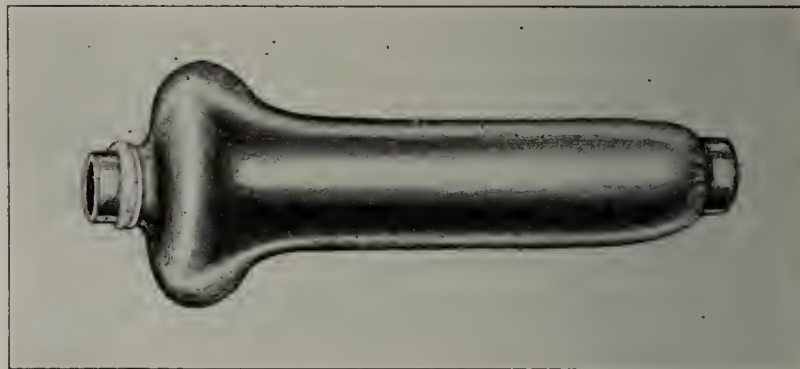


Fig. 8.—Author's rubber-covered tampon. It dresses the wound in extension, lessens pain when properly applied, and facilitates recovery.

the third or fourth day after the operation. Occasionally one will remain a day or two longer; on the other hand, they frequently leave earlier.

31 North State Street.

PARALYSIS OF THE UNGUAL PHALANX OF THE THUMB FROM SPONTANEOUS RUPTURE OF THE EXTENSOR POLLICIS LONGUS

THE SO-CALLED DRUMMER'S Palsy

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The structure of tendons represents so perfect a combination of strength and elasticity that rupture under normal conditions is practically impossible. When such accidents occur as the result of violent strains, either the muscle tears or the periosteal insertion of the tendon gives way, often carrying with it a fragment of the subjacent bone.

Before a rupture of the tendon itself takes place, it must first have been weakened by disease, the resulting degenerative changes rendering it incapable of bearing the normal strain of muscular action. For example, the long head of the biceps may rupture after the tendon structure has first been weakened by inflammatory changes secondary to an arthritis of the shoulder joint.

The particular accident which is the subject of this paper is an extensor paralysis of the distal phalanx of the thumb from spontaneous rupture of the tendon of the extensor pollicis longus. The affection is evidently rare, and the case which is herein described is the only one which has ever come under my observation, nor am I aware of any contributions to this subject in American literature. Most of the observations are of German origin, and more especially the medical reports of the German army for reasons which will be referred to later.

REPORT OF CASE

History.—The patient, a tailor, aged 31, devotes from ten to twelve hours each day to his occupation, and much of this time is spent in sewing with a coarse, heavy needle. In addition he also uses an iron in pressing clothes. He is very insistent that there was no warning pain or discomfort in the affected thumb previous to the onset of the paralysis, which occurred in the following manner:

Oct. 25, 1914, after a day's work, he was preparing to leave the shop, and inserted his right hand in the trousers pocket searching for some object, twisting and turning the hand about as one does when trying to explore its various angles and recesses. While doing this he was suddenly seized with a sharp and very severe pain over the posterior surface of the wrist on its radial side, and the back of the first metacarpal bone. On removing his hand from the pocket he was quite unable to extend the end phalanx of the thumb, while flexion could be readily performed. He had great pain over the dorsal surface of the hand and first metacarpal bone which continued for several days, and this region was very sore and sensitive to the touch for a fortnight. Since the accident he has been unable to use the needle and pursue his accustomed calling. In addition to pain and tenderness, there was also some swelling in the same region.

Examination.—Dec. 1, 1914, there was a complete isolated paralysis of the extensor of the end phalanx of the right thumb (Figs. 1 and 2). The patient could flex quite strongly this segment of the thumb, but there was not the slightest power of extension. In contrast to this, there was very fair ability to extend the basal phalanx of the thumb as well as the first metacarpal bone. All the other movements of the hand and fingers were perfectly normal in every way. The paralysis and disability were strictly limited to the distribution of the extensor pollicis longus muscle or, as it is sometimes termed in our anatomic nomenclature, the extensor secundi internodii pollicis.

When the tendons on the dorsal surface of the thumb were rendered prominent by strong extension, the normal prominence of the extensor pollicis longus was found to be absent. This tendon, as is well known, forms the ulnar border of that small triangular space which the early anatomists termed the snuff-box. The radial border of the so-called snuff-box or *tabatière* is formed by the tendons of the extensors of the basal phalanx and the metacarpal bone of the thumb, which emerge together in this region from a groove in the styloid process of the radius. The prominence of this tendon and the absence of the long extensor are well shown in Figure 2.

If the finger was drawn along the course of the long extensor of the thumb, there became palpable just below the posterior annular ligament a small, movable, rounded swelling which was still slightly sensitive to pressure. This nodule corresponds to the distal end of the ruptured tendon. The proximal end was not palpable.

Electrical examination failed to elicit any kind of response in the extensor pollicis longus muscle. Reactions of all the other muscles of the hand and forearm were normal. There were no reactions of degeneration. The sensations of the hand were normal, and a careful general neurologic examination showed normal pupillary, tendon and skin reflexes and

normal musculature without evidences of atrophy or fibrillation. The urine was free from albumin and sugar, and the visceral examination was negative.

The man was told the nature of the lesion, and a suture of the severed tendon was recommended, but operative intervention was declined.

COMMENT

This peculiar type of paralysis has been well known to German military surgeons for a number of years, under the title of drummer's paralysis or drummer's tendon. In the medical reports of the Prussian army, extending from 1870 to 1904, von Wurthenau¹ collected sixty-two cases, all occurring in drummers. The condition is the result of a chronic tenosynovitis induced by a peculiar method of holding and using the left drumstick, which causes mechanical irritation of the long extensor tendon of the thumb as it emerges from its special compartment in the posterior annular ligament of the wrist. This in time causes pathologic alterations in the tendon and its sheath, and eventually rupture takes place, either during a paroxysm of drumming or more rarely quite spontaneously. It is said that the affection occurs usually in beginners and exclusively on the left side.

It may be assumed that the same mechanism and pathologic consequences were involved in the case of the tailor which is reported above. The fact that there was no warning pain has been observed in other cases and does not exclude previous weakening of the tendon at its site of rupture below the annular ligament.

In a few of the cases, microscopic studies of the diseased ends of the severed tendons have shown hyaline swelling, necrosis and separation of the tendon fibers.

The symptomatology is essentially the same in all of the cases, namely, a sudden paralysis of the ungual phalanx of the thumb which may or may not be preceded by pain or soreness along the course of the tendon. The actual rupture may occur quite painlessly; but more frequently a sharp, piercing pain is felt over the back of the wrist, often shooting up into the forearm. The tendon may be swollen and tender, and if ruptured, a tender, movable nodule is often palpable just below the annular ligament which corresponds to the distal stump of the severed tendon.

Electrical stimulation for obvious reasons is without visible effect on the special extensor movement which is lost. Although the muscle may respond, its contraction is not registered by an extension of the ungual phalanx, owing to the tendon separation. This fact is an important one, for if the paralysis were of neural



Fig. 1 (Case 1).—Rupture of the tendon of the extensor pollicis longus. Note the isolated extensor paralysis of the ungual phalanx of the thumb. Below is a normal hand showing the thumb in full extension.

1. Von Wurthenau: Beitrag zur Trommlerlähmung, Deutsch. mil.-ärztl. Ztschr., 1899, xxvii, 554.

origin, as is held by some writers, reactions of degeneration would be demonstrable.

Another important diagnostic sign is the absence of the prominence of the extensor pollicis longus tendon which normally forms the ulnar border of the snuff-box (Fig. 2). All of the evidence tends to show that the usual seat of tendon rupture is just after its emergence from beneath the posterior annular ligament. This has been confirmed in a number of instances by operation, and the divided tendon found to be the seat of chronic inflammatory and degenerative changes. In addition to drummers, isolated instances of its occurrence in other occupations have also been recorded, namely, in a typesetter, a wood-carver, a farmer and in waiters.

In Duplay's² case, reported in 1876, which appears to be the earliest description of the condition, it had occurred in a cane-maker.

Of special interest are those traumatic cases in which rupture of the tendon has followed some weeks after fracture of the radius at the wrist, the tendon having suffered injury at the time of the accident, but rupture not taking place until after the fracture had healed and the function of the hand was restored. In other cases, rupture of the tendon has followed straining injuries, such as a backward fall on the hand.

The indications for treatment are very clear. If the condition is seen immediately after rupture has occurred, an effort may be made to effect union by fixation of the thumb. In older cases and when union does not take place promptly, the only chance of restoring function is by uniting the divided tendon by some method of suture. In some of the cases it has been impossible to bring the divided ends together because the distance separating them was so great. Under these circumstances the proximal end has been sutured to the tendon of the extensor carpi radialis (Duplay,² Schlatter³ and Zur Verth⁴) or to the extensor indicis longus (Hager⁵).

For anatomic reasons, a better functional result would probably be obtained by suture to one of the tendons of the thumb, either the extensor ossis metacarpi pollicis or the extensor primi inter-nodii pollicis.

It is of interest to add that in drummers, isolated paralysis of the flexor of the ungual phalanx may also occur, caused by paralysis of the function of the flexor longus pollicis. This occurs, however, much less frequently than the extensor type, and is attributed to a faulty method of hooking the end of the thumb over the end of the drumstick to prevent its slipping from the hand. It is like the extensor palsy, a tendon disease, a chronic tenosynovitis with consecutive fragilitas tendinum and rupture. In von Zander's⁶ series, there

were twenty-three cases of the extensor and only three of flexor palsy of the end phalanx of the thumb.

The reasons for excluding a neural origin of these extensor palsies of the thumb are: the acute onset of the paralysis and the associated symptoms of tenosynovitis below the posterior annular ligament; evidences of rupture of the tendon either by palpation of the nodular enlargement of the distal end or by actual demonstration at operation, and the total absence of electrical responses in the extensor pollicis longus, either normal or degenerative. An additional argument against the neural theory is to be found in the joint innervation of the extensor pollicis longus and extensor indicis from a single small branch of the posterior interosseous nerve, which would render isolated paralysis of the one without the other, on anatomic grounds, very improbable.

CONCLUSION

It may be said that the extensor paralysis of the end phalanx of the thumb is a very rare affection. It results from rupture of the tendon of the extensor pollicis longus as it emerges from beneath the posterior annular ligament of the wrist. Trauma and a variety of occupations have been found to be the cause of this

accident, all of which have tended to induce low-grade inflammatory and degenerative changes in the tendon, which predisposes to spontaneous rupture. Drummers are especially liable to this affection; hence the term "drummer's palsy."

If evidences of union do not occur after a brief period of fixation of the part, function can be restored only by a tendon operation.

The term "drummer's palsy" is a poor one and is misleading, for the reason that the lesion is not neural and therefore not a true paralysis, nor is the condition one which is confined solely to drummers.

Therefore, if this term is used, it should be with the understanding that the affection is one of the tendon and not of the nerve.⁷

20 West Fiftieth Street.



Fig. 2.—Extensor paralysis of the end phalanx of the thumb. Observe the absence at the wrist of its long extensor tendon, which forms the ulnar margin of the snuff-box. The tendon of the extensor brevis pollicis stands out prominently. Below is a normal hand for comparison.

7. In addition to the references already given, the following will be found of interest:

- Bruns: Zur Pathologie der Trommlerlähmung, Neurol. Centralbl., 1891, p. 98; *ibid.*, 1895, xiv, 897.
 Cluzet and Nové-Josserand: Paralyse isolée du long extenseur du pouce, Nouv. iconog. de la Salpêtrière, 1913, xxvi, 234.
 Düms: Trommlerlähmung, Handb. d. mil. Krankh., i, 210.
 Henck: Beitrag zur Sehnenplastik, Zentralbl. f. Chir., 1882, No. 18.
 Heineke: Ueber spontanen rupturen der Sehne des Extensor pollicis longus nach Radiusbrüchen, Deutsch. Ztschr. f. Nervenheilk., 1913, xlvii, 229.
 Lindner: Ueber Subcutane Zerreißung der Sehne des Extensor pollicis longus, München. med. Wchnschr., 1890, p. 753.
 Schaefer: Ueber Arbeits Paresen, Inaug. Dissert., Berlin, 1890.
 Steudel: Die Trommlersehne und ihre Behandlung, Deutsch. mil.-ärztl. Ztschr., 1899, xxviii, 554.

2. Duplay: Rupture sous-cutanée du tendon du long extenseur du pouce, au niveau de la tabatière anatomique, Bull. et Mém. de la Soc. de Chir. de Paris, 1876, ii, 788.

3. Schlatter: Subkutane Sehnenzerreißung an den Fingern, Deutsch. Ztschr. f. Chir., 1907, xci, 317.

4. Zur Verth: Ueber spontane Zerreißung der Sehne des langen Dammen streckers, Deutsch. Ztschr. f. Chir., 1909, cii, 569.

5. Hager: Pathogenese und Behandlung der spontanen Sehnen ruptur, Berl. klin. Wchnschr., 1886, xxiii, 360.

6. Von Zander: Trommlerlähmung, Inaug. Dissert., Berlin, 1891.

The Usefulness of Discarded Theories.—The advance of science is not comparable to the changes of a city where old edifices are pitilessly torn down to give place to new, but to the continuous evolution of zoologic types which develop ceaselessly and end by becoming unrecognizable to the common sight, but where an expert eye finds always traces of the prior work of the centuries past. One must not think then that the old-fashioned theories have been sterile and vain.—Edmund B. Wilson, *Science*.

HEREDITARY SYPHILIS

IN CONNECTION WITH CLINICAL PSYCHOLOGY AND
PSYCHOPATHOLOGY *

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Fit morbus hereditarius et transit a patre ad filium
Paracelsus, 1529.

In relation to clinical psychology and its proximate interests, psychopathology, juvenile delinquency and even pedagogics (*Heilpädagogik*), the problem of congenital syphilis looms up with increasing importance as the results of recent studies are examined and older data pondered anew; for we find not only that syphilis in the ascendants may account for nervous and mental abnormalities covering the entire gamut of neuropsychic disturbance—from mere nervousness to complete idiocy—but also that timely and active treatment may improve or even cure¹ such neuropathy or mental enfeeblement, or arrest the progress of deterioration. The subject, besides, is rather singular inasmuch as the diagnosis is not easily inferred, the facts being purposely or not purposely withheld, or come upon by means of barest clues. With a little more knowledge of the effects of inherited lues, many a nervous symptom, neurosis and aberrant characteristic enigmatic before will have been explained.

Acquired syphilis in childhood is not common (occasionally contracted from a wetnurse), nor does its recognition usually present any difficulties. With congenital or hereditary lues, however, lies the rub. In the majority of cases the anamnesis leaves us in the dark, the mother having no knowledge of an infection or denying it or, again, remembering absolutely no occurrence of "secondary" luetic manifestations in the child.

To ferret out the facts one must question *both* parents, not only as to their knowledge of primary infection, but also as to occurring secondary symptoms, in which case one may sometimes elicit enough for a tentative diagnosis. Not infrequently, however, secondaries may be so mild as not to be noticed by the individual (Nonne²). A superficial (that is, rapidly carried out) examination of the parents may show some sign or stigma (of lues, or degeneracy) which may aid in our summing up, or even some stigma of congenital lues; that is, the mother of the child in question may herself have been congenitally luetic and have passed the infection to her offspring—*congenital syphilis in the third generation*. And if she shows no stigmata (she will in all probability have no knowledge of her condition), the problem of detection becomes even more difficult. But, one will ask, did not the child itself show signs of secondaries at birth or in very early infancy? These may also have been so mild as to be overlooked—or possibly there were none (the still undecided problem of "late congenital lues").

In approaching our subject, let us first examine the factor of heredity itself in this connection: How

does syphilis in one or both parents³ affect their offspring?

A. The organism of the disease, *Treponema pallidum*, may be transmitted to the embryo, which is then also syphilitic—the organism circulating in its blood. The morbid products or toxins of this organism have an *inhibiting* potency, and the evolution of the embryo or fetus, if the germ plasma itself continues to unfold, may come to various incomplete issues, that is, (a) it may cease developing and be extruded (abortion); or (b) the fruit grows, but is born before the normal expiration of intra-uterine life (premature birth), in which case it is immature, frail, below weight, possibly marasmic—and hence more vulnerable to disease. This premature child may die directly after birth, or soon thereafter; (c) the fruit may develop for a time, or even to term, and be born dead (stillbirth). Hence the frequent history from luetic mothers as to sterility, abortions, stillbirths, premature children, children dying soon after birth; and hence the importance of inquiring if this was the case, in taking an anamnesis. On the other hand, such a mother *may* bear several children without having had abortions, etc., who remain alive, and with but few or mild symptoms. In a case noted by Milian, such a patient had six living children, though she was luetic.

A study of Nonne's material,⁴ for instance, showed the following: Ninety syphilitic families were examined; eight remained sterile. In the remaining 82 families, 350 pregnancies occurred. Ninety-one, or 26 per cent., ended in abortions, 10, or 2.9 per cent., in stillbirths, 66, or 18.8 per cent., died small, 183, or 52.3 per cent., remained alive. Of the latter, only 119 were examined. Thirty-six were found normal, 83 pathologic. Expressed in other words, 47.7 per cent. of the fruits of the syphilitic parents died or were extruded before term. Only 52.3 per cent. remained alive, and one could reckon that of these, 35.8 per cent. were pathologic. If but one parent was diseased, there was a child mortality of only 37 per cent.; if both were diseased or gave a positive Wassermann reaction, between 47 and 53 per cent. In eighteen families, A. Fournier counted 161 pregnancies of which 137, or 85 per cent., were stillbirths. J. N. Hyde⁵ found that 116 out of 121 syphilitic infants died in the first year, etc. Hochsinger himself speaks of 67 families in which there were 266 pregnancies, of which only 142 came to term, but 76 infants died within the first days; 124 were premature and dead. Lesser⁶ examined 89 children (of 35 families), of whom 32, or 33 per cent., were well, 57, or 66 per cent., were syphilitic. Of these, 29 had signs of congenital lues.

Again, (d) the child may be born at term and show signs of syphilis and nevertheless live on. These signs may be few and not very distinct, may be transient, or may flourish. They are the so-called "secondaries." Or (e) there are no signs whatsoever at birth, in spite of obtaining syphilis, the "secondaries" breaking out a few weeks later. Or (f) there is nothing present for weeks, months or years, the disease being

3. There is still an unsettled controversy as to whether there can be a paternal hereditary syphilis, that is, whether the spermatozoa can pass the syphilitic organism to the embryo, the mother remaining free from disease, or getting it from the paternally infected embryo (or her acquiring an immunity through the carrying of such an infected fruit); or whether the husband must first infect the wife, who then through the placenta, passes it on to the embryo. The latter is probably more widely believed than the former. For our own problem this is of little moment. See *Deutsche medizinische Wochenschrift*, 1914, Nos. 15, 24 and 25.

4. Raven: *Serologische und Klinische Untersuchungen bei Syphilitiker-Familien*, Deutsch. Ztschr. f. Nervenheilk., 1914, li, (Sonderabdruck, Vogel, Leipzig).

5. Hyde, J. N.: Quoted by Hochsinger: *Die Gesundheitlichen Lebensschicksale erbsyphilitischer Kinder*, Wien, klin. Wchnschr., 1910, Nos. 24 and 25. See also his article on Syphilis in Pfaundler and Schlossmann's *Handbuch der Kinderheilkunde*, i, Part 2.

6. Lesser: *Verein f. inner. Med. u. Kinderheilk.*, Berlin, Feb. 9, 1914; Ref. in *Deutsch. med. Wchnschr.*, April, 1914.

* Lecture in the course on clinical psychology at the College of Physicians and Surgeons, Columbia University.

1. Oppenheim, H.: *Lehrbuch*, Ed. 6, ii, 1281. Ziehen also states that he saw the intelligence defect of a 13-year old feeble-minded girl entirely clear up on energetic antiluetic treatment.

2. Nonne, M.: *Syphilis und Nervensystem*, Karger, Berlin, 1909, p. 546.

latent, and becoming manifest only after from eight to twenty-eight years⁷ in the form of "tertiary" lues (so-called "syphilis hereditaria tarda," or late hereditary syphilis, or *tertiarisme d'emblée*).

That tertiary symptoms occur similar to such in the adult without the earlier appearance of "secondaries" still remains a much mooted question. So only recently Finkelstein⁸ again challenged the theory and said he believed that the "secondaries" in such a case either had occurred *in utero*, or appeared after birth but were of so slight a nature as to be overlooked (a few spots on the soles and nothing more, or a slight induration of the soles, of a fleeting nature, or a light anemic yellow discoloration of the skin, or on near examination a very slightly enlarged spleen, or an enlarged and sensitive cubital gland. These may even first be seen in the fifth or sixth month, etc.) This has no very great importance for us, however, who are to remember that whether there be a real syphilis hereditaria tarda or whether this is only an "overlooked" syphilis (*syphilis occulta*), the abnormality of the patient before us may be due to lues even if there be no history of "secondaries."⁹

B. There is a second way in which syphilis of the parents affects their offspring. Such parents are themselves constitutionally affected by the disease, and hence the germ cells uniting to form the embryo may also, one or both, be affected, depleted or invalidated, just how cannot be said; possibly it is a molecular disturbance, possibly chemical through the poisonous metabolism of the treponeme itself; possibly it is but a condition of very low vitality, a marasmoid state. Howsoever this may be, the fact remains that this embryo, without containing the infective organism itself, enters from the start on a darkly checkered career whose fate may be almost as sinister as that of the really infected embryo. Here the development may also be inhibited or retarded; or the fetus may not develop to term;¹⁰ or be born prematurely, or with deformities, dystrophies, aplasias, etc.; or the child at term is marasmic, puny, weak and miserable.¹¹ For us it is especially to be borne in mind that in the general invalidation of such an individual, the nervous system bears its share, at times the very brunt of the defect. Besides, its lack of resistance makes it prone to further injury. This, then, is the effect of germ damage, not germ infection. Such children will give no Wassermann reaction. They are not syphilitic but neuropathically or psychopathically constituted or marred. No doubt both facts A and B may at times be combined. Strictly speaking one might call the cases of germ damage as the really hereditary, and of germ infection as the congenital. In the former, nothing can be accomplished by specific treatment. What a problem this for the sociologist and the eugenic enthusiast!

7. Oppenheim (Lehrbuch, Ed. 6) states that such may break out even in the third or fourth decennium. Fournier gives the possible limits as from 3 to 28, but 12 as the maximum. Rable found the first symptoms to appear between 17 and 18. The greater number of cases seem to occur between the twelfth and fourteenth years.

8. Finkelstein: Deutsch. med. Wchnschr.; June 25, 1914, p. 1346.

9. See Case 1 at end.

10. We see the same in chronic alcoholism; that is, alcohol acts similarly to the poison of syphilis; so does lead; and women chronically poisoned by alcohol, syphilis or lead, all abort or miscarry, etc., and there is a high mortality among their offspring. See Sullivan's study of the children of female drunkards in the Liverpool prisons (Med. Temper. Rev., iii, 4).

11. Many syphilitic children go to pieces on tuberculosis. In Hochsinger's series, 80 per cent. of the deaths occurring after the second year were due to tuberculosis. Rickets also occurs often in these children, more frequently than in non-syphilitic. All this refers to both Groups A and B.

But a third possibility must be borne in mind, namely, C, that such parents may have an entirely healthy child and one that remains so.¹² Such parents may have several children, some of whom are affected, some remaining normal. A normal child may follow a diseased one, and such may again be followed by one with syphilis. No rule whatsoever is observed here.¹³

Not irrelevant in this connection are some recent observations by Nonne and his assistants (see articles of Hauptmann¹⁴ and Raven⁴). It would appear (though it has not yet been definitely established), that the disease condition in the children surviving in syphilitic families is the less severe the more intense the disease was in the parents, as if the virulence of the disease becomes more "attenuated" in the offspring, the more severe or outspread was its passage through the parent. This study leads one also to believe that in families in which one parent remained free (chiefly the wife in Nonne's series), the greatest percentage of affected children occurred, in which case the prognosis was better for the offspring, should it survive, if both, rather than one parent, were affected. This, too, however, Raven points out must still be substantiated in the material of others, as it is not in accord with former findings. More conclusive is the observation that the augury is much graver for the offspring when not the father but the mother is diseased. Fifty-two syphilitic men occasioned 154 pregnancies, of which only one-half matured or remained alive. In twenty cases of maternal syphilis there were seventy-four pregnancies, of which only a fifth came to term and remained alive. A. Fournier also found that in purely maternal syphilis, 84 per cent. of the offspring were affected; in paternal syphilis, 37 per cent.

We keep in mind, then, the possibility of children who are actually syphilitic, such who were germinally affected but not infected, and who now present abnormalities, that is, psychopathic divergencies (but no syphilis), and finally such as may be entirely normal, or again only apparently normal, the abnormality to break out later. These facts necessitate our remembering, in taking the anamnesis of any child, that we must inquire carefully about the condition of other children in the family, for another child may give the clue of a syphilis that otherwise would never be dreamed of.

For instance, a little patient is brought because of headache and fatigue; the mother knows nothing of syphilis—does not know what it is. The child shows no signs of any kind. Syphilis would scarcely occur to one's mind. A brother has epilepsy and enuresis, and is slightly debile. Even that scarcely points to a specific disease, though it brings up the possibility. But a third child has an interstitial keratitis. That makes one take a Wassermann reaction.

Let us now see what the condition may be both in the patient and in the parents of the patient, and in what way the interrogation and examination of the latter may put us on the scent of lues in the child, or help in clearing up the doubt when we suspect it but find no signs: We may get a history, in the parents, of a primary infection. But the father may deny it and the mother in a large percentage of cases is

12. It must therefore be remembered by the pediatrician that a wet-nurse may have a healthy child and yet be luetic.

13. Kassowitz, however, pointed out that in general the results are severer at first and less severe as one gets further from the infection—first abortion, then stillbirth, then living child, etc. But there may be exceptions. Nonne also found that the first and second and still the third children were more severely affected than later ones.

14. Hauptmann: Ztschr. f. d. ges. Neurol. u. Psychiat., viii, No. 1.

entirely ignorant of it.¹⁵ One or other may give a history of "secondaries," or of "tertiary" symptoms, or evidence signs of tertiary syphilis, or of tabes or paresis. And finally, one may happen on signs of congenital syphilis in the parents—the patient having a condition of congenital syphilis in the third generation.¹⁶ Wherever, then there is a positive history, or luetic signs are present in the parents, we must reckon with a possibility (even a rather strong possibility if the patient is one of the first three children) of congenital lues in the child, in which case, signs or no signs, etc., a Wassermann test of the child is imperative. Nonne even remarks that not only on the children of paretics, should one make a Wassermann reaction, but in the children of the children of the same.¹⁷ Of course we shall make a Wassermann reaction on the mother always, even when the mother's history and examination are negative, but a symptom or sign in the child suggests lues; and sometimes in coming out positive it will lead us to a definite diagnosis. But just here we are more often thwarted by the curious fact that the mothers of luetic children may give a negative Wassermann reaction.¹⁸ How explain it? I have already referred to this.³ It has been thought that the mother in carrying a syphilitic fruit may attain an immunity without contracting the disease (Colles' mothers), such a mother being then syphilis-immune but not syphilitic. Lesser,⁶ however, asserted that when such mothers were tested directly after the birth of their syphilitic child, nearly 100 per cent. of them gave a positive Wassermann reaction. He therefore believes that when a negative reaction occurs in such mothers there has been a spontaneous cure, but that such mother has been syphilitic. A negative Wassermann reaction in the mother, then, does not negate the possibility of syphilis in the parents having caused the obtaining abnormalities in the child before us.

Now what may be the various conditions obtaining in the children (or grandchildren) of syphilitic parents? I shall note only what is of importance to us in clinical psychology and as neuropsychopathologists. The severe cortical involvements we need scarcely dwell on, for it is well known and taken for granted that idiocy and imbecility are, in goodly proportion, due to congenital lues,¹⁹ and a careful clinician

will in all such cases make a Wassermann test and look over the individual for stigmata, history or no history. Of far greater importance, and offering decidedly more danger and possibility of oversight, are the milder manifestations; and so we had better start from the least enweighted end of the scale.

We have seen that an entirely healthy child may be born to luetic parents; and again a child may be born who is only apparently healthy, but who has a latent syphilis which may become active later (and which child might give a positive Wassermann reaction, if tested). Such cases are not exactly rare in the literature, and would more often be noted if constantly thought of and properly diagnosed. Suddenly out of a clear sky, symptoms may appear; or the child advances normally up to its tenth or eleventh or twelfth year, and then without apparent or ascertainable cause ceases in its mental development or begins to deteriorate. The first sign may indeed be mere mental defatigation (as in a case of Nonne's), which then soon shifts into the sorrowful state of early paresis.²⁰ Or, again, epileptic seizures may first occur and initiate the mental change and final cessation; or suddenly an amaurosis may be contracted.²¹

Whereas the various visceral bone and skin manifestations are common in the infantile and early periods, the nervous system, when affected, shows severe changes usually about puberty. But even before this time there may be enough evidence if the possibility of such is remembered. So Hochsinger pointed out that, in his very extensive material, such children showed an "irritable weakness" or excitability, and especially a fatigability, of the general nervous system, and nothing more. This, in fact, was his most frequent observation. But there are still other manifestations to bear in mind. Such a child may be just "headachy," particularly at night,²² or it may have a tendency to migraine, chronic vomiting, dizzy spells or epilepsy. A choreic condition may exist; that is, a persistent chorea may be luetic and not rheumatic.²³

A neurasthenia,²⁴ hysteria or hysteroneurasthenic condition may be the clinical expression of a congenital

15. Cassel reported that of 41 mothers of congenitally luetic infants, 34 denied any knowledge of infection. Yet 19 of these, or 56 per cent., gave a positive Wassermann reaction. Lesser found the same in 19 out of 27 cases, Boas in 13 out of 13, and Knöpfelmach in 59 per cent. of his cases. In Cassel's cases 7 showed no signs whatsoever; 11 had a negative Wassermann reaction, 3 showed symptoms, 8 had neither signs nor Wassermann reaction. Again Rietschel, testing the wetnurses at the Dresdener Säuglingsheim, found that 10 per cent. gave a plus Wassermann reaction, though they had shown neither signs nor symptoms of the disease. These facts incidentally show that there is no absolute way of telling that a wetnurse is non-syphilitic, though this is probable if besides the absence of signs and symptoms, both mother and children of mother show a negative Wassermann reaction.

16. See Nonne's recent paper, "Ueber Syphilis Congenita in Dritter Generation," Sonder-Abdruck, Voss, Leipzig, 1914.

17. Nonne: Ueber Syphilis Congenita in Dritter Generation, p. 113.

18. According to R. Miller (Note 50) only about 15 to 20 per cent. of untreated mothers who bore luetic children some considerable time ago give a Wassermann reaction.

19. Lippmann (Deutsch. Ztschr. f. Nerv., xxxix) found syphilis a factor in 40 per cent. of cases. These figures are, however, much higher than that of other observers. Ziehen (Geisteskrankheiten des Kindesalters, Berlin, 1902, No. 1, p. 10) found it to be a probable factor in 17 per cent. and positively in 10 per cent. of his cases of milder congenital feeble-mindedness. Wildermuth (cited by Nonne) holds 11.8 per cent. of idiots to be congenitally syphilitic. Veeder and Jeans (Am. Jour. Dis. Child., October, 1914, p. 283) found 14 out of 33 cases of feeble-minded coming to their wards to be syphilitic. On the other hand, Boas (Die Wassermann'sche Reaktion, Berlin, 1914, p. 126) tested 2,061 feeble-minded in Denmark and obtained a positive Wassermann reaction in but 31. For Denmark, at least, this author concludes, congenital syphilis plays but a small part in the causation of feeble-mindedness. Still more recently Findlay and Robertson (Glasgow Med. Jour., 1914, lxxxii, No. 6, p. 415) state that 60 per cent. of mental defectives seem to be congenitally syphilitic.

20. In a similar way dementia praecox may first evidence itself. In this connection it may be interesting to point out that dementia praecox has been thought of as standing in some direct or indirect relationship to congenital syphilis. See, for instance, Megendorfer: Ueber Syphilis in der Ascendenz von Dementia Praecox-Kranken, Sonderabdruck aus Deutsch. Ztschr. f. Nervenheilk., 1914, li.

21. Cramer: Die Nervosität, 1906, p. 18.

22. In one of my cases, however, the headaches occurred especially and regularly in the mornings on getting up.

23. See Cases 1 and 2 at the end. Milian reported a case (Society Report, Deutsch. med. Wchnschr., 1914) in which a child had chorea. The mother and father gave a negative Wassermann reaction. Later the chorea was cured, but the child remained decidedly clumsy (*ungeschickt*). Both in the child and in the mother the Wassermann reaction later became positive. This child showed the following abnormalities: a somewhat protruding or vaulted forehead, hair growing into the forehead, moderate stump nose and slit-eyes, iris of two colors, linear transverse nail leukoma, irregular position of teeth, abnormalities of outer ear, etc. (These abnormalities are stigmata partly indicative of lues and partly of degeneracy.) Elsewhere (Soc. méd. d. hôp., Nov. 29, 1912) Milian stated that congenital lues is found in a very large proportion of chorea cases, so large that he thought one must ask whether chorea is not a manifestation of hereditary lues. His paper was thoroughly contested. Nevertheless, whenever chorea runs over three or four months (the usual type seen in association with or after rheumatism), and when we get no history of previous rheumatism, hereditary lues must certainly be kept in mind. A cardiac murmur will not aid us in the diagnosis, for in the experience of some, lues, both congenital and acquired, is one of the most frequent factors in causing cardiac disease (see Warthin, Am. Jour. Med. Sc., May, 1914; also Findlay and Robertson, Congenital Syphilis, Glasgow Med. Jour., lxxxii, No. 6); hence in both rheumatic and luetic chorea, murmurs may be heard. Still another etiology must be borne in mind: the chorea may be psychogenic. Ever so many choreas that look "real" are psychic, especially the recurring attacks in neurotic or hysteric children. Suggestive (hypnotic) treatment sometimes clears up such cases almost at once. And we must bear in mind the frequency of a neurotic or hysteric constitution in these congenitally luetic individuals (see next paragraph). It may be remembered, too, that Friedreich's Ataxia has been thought of as a result of congenital lues (see Jahrbuch f. Kinderheilkunde, lxxix, No. 5).

24. See Case 3 at end.

syphilis. It is interesting to remember that Freud²⁵ pointed out that in more than half of the severe hysterias and obsessions, etc., treated by him, the father of the patient was syphilitic. These patients showed no bodily symptoms of lues, and their psychopathic constitution was looked on by him as a "leutic inheritance."

In some cases the child, mentally normal or even unusually advanced, may show a mental unrest, lability of mood, and especially, as Nonne²⁶ has pointed out, disturbance of sleep (see Cases 4 and 5). Nonne, like Hochsinger calls attention to this nervous depletion or "below-parness" in children with syphilitic ascendants; or again, a physical and mental adynamia, or at times a lack of joy and interest in things for one so young.²⁷

A teacher may report of such a child that it has difficulty in attending and learning or that it is easily exhausted on slight brain effort. These children are mentally normal. There are others, however, who show slight enfeeblement (the "debile" of the German and French classification) or backwardness or deeper grades of defectivity running into imbecility. Speech defects of various kinds may occur, and especially often, centrally caused impairment of hearing.

The mental deterioration may be of quite a different character, involving the ethical or moral sense. Though nurtured in a good family and in refined surroundings, such an individual may gradually become ungovernable, coarse and even shameless, have attacks of rage, do violent things, lie and steal, and even stoop to prostitution. (Nonne²⁸ notes two such cases in girls of good family). These changes come on mostly after the second dentition, and are often associated with mental deficiency. In fact, Hochsinger believes that when such character anomalies develop in early childhood and in connection with lessened intelligence, it as a rule "hangs together" with paternal syphilis. Thus many a juvenile malefactor has to thank his miserable state to the unstable nervous system bequeathed him by the syphilis of an ancestor.

The importance of these facts in connection with clinical psychology, of psychopathology and even pedagogics, and especially in relation to juvenile delinquency, is evident, and yet how little do we read of it in our text-books!

Following our careful questioning of the parents as to primary infection, the occurrence of abortions, stillbirths, children dying early, etc., of "secondaries" on themselves (polyglandular swelling, rash, headaches, loss of hair, ulcerated throat, etc.), and finally of "tertiary" manifestations (paralyses, etc.), then as to "secondaries" in the child (the patient) itself, at or soon after birth (snuffles, nasal discharge, indurations, excoriations, eruptions,²⁹ scaling skin, pemphigus, especially near palmar and plantar regions, "sore finger nails," bone, joint or visceral disease, "eye

trouble," and possibly great restlessness, crying,³⁰ sleeplessness, a miserable or cachetic state generally, and lastly, convulsions³¹), we examine our patient for signs of congenital or hereditary lues.

These signs, or "stigmata," as they are called, are sometimes, not always, quite evident, especially in the second period of childhood (later in life some of them may fade out or disappear). They are the saddle or stump nose, Hutchinson's teeth (namely, the upper, permanent, inner incisors; notched crescentrically on the biting edge), opacities on the cornea (marks of earlier interstitial keratitis³²) and rhagades, or radial thickenings and scars, peribuccal or especially at the corners of the mouth or junction of the nose and lip (also at times on the fingers near the roots of the nails, and perianal). These rhagades are the most important signs, and Hochsinger speaks of them as unquestionably pathognomonic. The Hutchinson teeth may at times be due to other serious disturbances of nutrition through acute or chronic disease before the advent of the second dentition. When proper treatment is pursued early in childhood, they rarely are found. They are unusual enough as it is, not by any means seen as often as the text-books make it appear. Far more often one finds the two-notched (or three-ridged) type of tooth, there being several of such, or all being of this form. The teeth are undersized and often irregularly "planted." Difficulty in hearing may also be mentioned here (due to neuritic disease of the acoustic nerve or labyrinth). It is usually double-sided and severe, associated with vertigo and subjective noises. The three conditions of notched teeth, corneal opacity and defective hearing have been described as frequently associated (so-called Hutchinson's trias).³³

Heubner³⁴ pointed out that one may at times also find, added to this trias, a double-seated hydrops, or stiffening of the knee joint. It may occur with little if any pain and cause no increase of temperature; more rarely it may be found with pain, etc., and be somewhat similar to tuberculosis.

Another important set of signs are general undersize (microsomia) including a sexual underdevelopment or delayed puberty (sometimes, in fact, a state of general infantilism³⁵), "saber-legs" (tibiae with the convex bend, anteriorly), and especially an abnormality of the scapula, termed "scaphoid scapula" (described by Graves of St. Louis, some years ago). Nonne found this the most frequent sign in his series of cases (thirty-one times in fifty-eight children). To this "bone-group" one may add the skull, which may at times give its quota of corroboration. Here one notes a bulging of the frontal eminences or a general frontal enlargement (so-called "Olympic forehead"). The

30. When this is noticed chiefly at the time the child is being handled or moved, it is most probably due to bone involvement (epiphysitis). A case brought to the clinic had been diagnosed as "rheumatism": Two succeeding children of this family had the same manifestation as their initial syphilitic symptom, in spite of the fact that the mother had been treated (very probably, though, not with thoroughness).

31. When a hydrocephalus obtains, these symptoms may be due to it. In a series of such cases studied by Hochsinger, chronic vomiting was also noted. The convulsions may, however, be due to gummatous processes, or meningitis, etc., or it may be a "genuine" epilepsy due not to the syphilis but to the defective brain.

32. Lesser (footnote 6) stated that a parenchymatous keratitis may be the earliest, even the only sign, and may in fact first appear in the tenth year (usually, though, between the eighth and tenth). Ladermann saw it appear even much later, and states that even at the age of 20 an individual may develop a keratitis on a congenitally luetic basis, never having had any symptoms before.

33. Is this trias really frequent? I have not seen it often, nor have others whom I have questioned.

34. Heubner: *Kinderheilkunde*, Ed. 2, Leipzig, 1906.

35. Peritz: *Nervenkrankheiten des Kindesalters*, p. 466. Peritz shows several good pictures.

25. Freud: Cited by Loewenfeld, *Ueber sexuelle Konstitution*, etc., Wiesbaden, 1911, p. 1. Dornblüth also states that the syphilis toxin may directly affect the nervous system, and this result evidences itself in neurasthenia, hysteria or epilepsy. See his *Neurosen als Folge von Syphilis*, München. med. Wchschr., 1897, No. 42. That syphilis may be the provoking agent of hysteria as held by Raymond, Fournier, Tourette, and others, is of course not what is meant here. Here I refer to hysteria as the manifestation itself of congenital lues. See also Binswanger, *Die Hysteria*, p. 54.

26. Nonne: *Syphilis und Nervensystem*, Berlin, 1909, p. 558.

27. In a few cases I have noticed an "oldish" look of the face—partly given by the big forehead and some folds under the eyes, but partly too by the soberness of the child.

28. Nonne: *Syphilis und Nervensystem*, p. 559.

29. But there are also non-eruptive cases (Alsberg: *Arch. f. Kinderheilk.*, lx, lxi; Finkelstein: *Säuglingskrankheiten*, i, 128).

frequent coexistence of rickets, however, should be kept in mind, and rickety "bosses" not mistaken for luetic changes. One must also recollect the possibility of hydrocephalus, sometimes found, one of the effects of lues.

Thus far enumerated, the signs when present are easily seen and determined without specialized investigation. Nasal and ophthalmoscopic examination, however, may give valuable, if not (as in the latter case) convincing data. The nose may show signs of gummatous destruction of bones and cartilages (hence the "saddle nose") or septum perforation. Or the soft palate may be ulcerated or even perforated. It has also been pointed out (a fact which, however, helps us nowise in diagnosis), that luetic children frequently have adenoid growths in the nasopharynx, and because of this, enlarged cervical and submaxillary glands. Parenthetically it may here be mentioned, however, that cubital glands, when present on both sides, are mostly syphilitic and of considerable diagnostic value. They may be found at any age up to puberty. In infancy, Götzky³⁶ considers them almost pathognomonic of syphilis, and in older children decidedly suspicious. At times it may be the only clinical sign of latent lues. Unilateral cubital swelling is mostly not syphilitic. Normally these glands are not felt.

The ophthalmoscope may show pigment deposits in the choroid, rather conclusive evidence of a former syphilitic choroiditis or chorioretinitis,³⁷ or changes in the retina itself. The iris may show abnormalities, and synechia may be present. Even an optic neuritis may be found. Nor must one forget the possibility of an Argyll Robertson pupil.³⁸ The vestiges of an old keratitis or one still active may be seen, and this also is of great diagnostic importance.

Before terminating this chapter of signs and stigmata, let me refer to the enlarged spleen, often associated with enlarged liver, frequently found, and finally to the possibility of infantile cerebral paralysis luetic in origin.

The last-named fact is to my mind an important one and ought to be thought of. It is certainly neglected in our textbooks. Fournier found lues in the heredity of nearly all these cases; so did Althaus (cited by Nonne). Of late Bing³⁹ and Peritz³⁵ likewise put great stress on syphilis as the possible etiologic factor. Oppenheim⁴⁰ also states that hereditary syphilis appears not infrequently to be the cause of this condition. Other writers, however, have not thought that it plays much if any part. But let us consider the following: There are ever so many difficult and protracted, even instrumental labors, and yet in comparison but few cases of infantile cerebral paralysis. Here we must think of some predisposing factor. Again Littel and others noted that ever so many of these cases occurred in premature infants. We can understand how a trauma through pressure or pulling can cause meningeal (venous) hemorrhage, but how is such hemorrhage explained by the easy delivery of a premature infant? (Beside, enough cases occur in which no satisfactory cause whatsoever can be given.) Ziehen⁴¹ mentions the fact that small bleedings may occur, and evidently do, with-

out giving any symptoms, and may occur at times even in normal births. He cites Weyhe as having found such bleeding 122 times in 959 necropsies on infants. In twenty-three of these, lues was present. In the best chapter on the subject that I know of, Heubner⁴² analyzes this matter, and also concludes that Littel's etiology is acceptable only in a minimum number of cases and only as a helping or accessory factor. He states that the necropsy studies showed more and more that the brain aplasia when found was not due to meningeal hemorrhage but to simple inhibition of development, and he holds with Ganghofner that the condition is a sign of a certain degenerative condition of the mother. Very interesting also are the findings of Ranke,⁴³ who noted that the brains of newly born luetic infants gave evidence of considerable structural changes, especially localized about the blood vessels, and which lead to meningo-encephalitic processes. In these foci he found the treponeme. His most important statement, however, is that in these brains, bleeding occurred very easily. If one bears these facts in mind, and also that prematurity, so frequently given as the etiologic moment, is also one of the most frequent accidents in syphilis, and that likewise an endarteritis obtains often in young syphilitic infants, and may evidence itself as an acute cerebral children's paralysis⁴⁴ the luetic etiology (hemorrhage due to luetic arteries, or a meningo-encephalitis or mere aplasia due to inhibition of development) of at least a considerable percentage of these cases must appear to us obvious and acceptable.⁴⁵

Not to be confused with luetic stigmata are the stigmata of degeneracy, which are frequently found in congenitally luetic individuals, but indicate hereditary degeneration, or at least are signs pointing to hereditary degeneration or germ damage, but not to syphilis. Where such germ plasma has been vitiated, the individual resulting from it may show the invalidation of the stuff he is made of in both mental and physical abnormalities; these abnormalities are the tags of his inherited taint or defectivity—hence stigmata degeneracionis. There are both psychic and somatic stigmata; they may be found in psychotic individuals, idiots, imbeciles, psychopathic constitutions, etc. They have nothing specifically to do with syphilis (and must not be mixed in with luetic stigmata as some writers do) though syphilis may be one of the causes of inherited degeneracy.

Much has been argued about the diagnostic value of these somatic stigmata. Their presence is no index of the amount of inherited psychopathy, for but few may be present in an individual showing severe psychic degeneracy, while at times, on the other hand, one or more may be encountered in the normal individual. On the whole, however, one may see in them with Ziehen,⁴⁶ when several are present, decided diagnostic intimation of inherited defect.

These stigmata are, for instance, abnormalities of the skull, of teeth, gums and palate, of the external ear, of the hands (webbed fingers or polydactylia, etc.), asymmetries, abnormal hair growth (as across the nose bridge, irregularly into the forehead, especially a double hair spiral), abnormal pigmentation of the iris, abnormalities of the genitals, etc. Possibly left-handedness may be added here, also an abnormally small head,⁴⁷ etc.; sometimes even a single

36. Götzky: Klinische Bedeutung der Kubitaldrüsen-Schwellungen, Ztschr. f. Kinderheilk., 1913, vii, 113.

37. Cases have been described in which the luetic abnormalities in a child were so mild and atypical, with no patent physiologic signs, that no diagnosis was made until by chance the ophthalmoscope showed this choroid pigmentation.

38. Oppenheim (Lehrbuch, Ed. 6, Part 2, p. 1281) states that an ophthalmoplegia interna or even just an Argyll Robertson pupil may be the only sign of disease of the nervous system in hereditary lues.

39. Bing: Lehrbuch der Nervenkrankheiten.

40. Oppenheim: Lehrbuch, Ed. 6.

41. Ziehen: Nervenkrankheiten im Kindesalter, p. 561.

42. Heubner: Lehrbuch, ii, 145, et seq.

43. Ranke: Ztschr. f. d. Erforsch. d. jug. Schwach., 1908, ii, No. 2.

44. Heubner: Lehrbuch, i, 653.

45. Findlay and Robertson (Glasgow Med. Jour., lxxxii, No. 6, p. 408) state that, as evidenced with the Wassermann reaction about 45 per cent., of cases of spastic diplegia seem to be due to congenital syphilis.

46. Ziehen: Die Geisteskrankheiten des Kindesalters, No. 3, p. 31.

47. Möbius: Ueber Entartung, Wiesbaden, 1900, p. 113.

stigma may be most meaningful, as the double hair spiral.⁴⁸

Finally a word as to the Wassermann reaction in these cases. No very great amount of work has been done along this line of study, yet enough to give us some valuable information. As to the Wassermann reaction itself, it should be remembered that this is characteristic but not in the strictest sense specific of syphilis. It is occasionally also found in malaria and certain stages of scarlet fever and often in leprosy. Nonne⁴⁹ believes that rarely and exceptionally it is found in multiple sclerosis. A negative Wassermann reaction means nothing, just as a positive Wassermann reaction does not mean syphilitic disease, for it may occur in a person who once had lues but is now free of subjective or objective signs of disease, that is, is well.⁴⁹ A positive Wassermann reaction means that an individual once was luetic, or that treponemes are still present.⁵⁰

Raven⁴ found in 119 children examined of syphilitic parents, 36 to be entirely well, 83 pathologic. Of these 83, only 27 gave a plus Wassermann reaction. Fourteen had it alone, without signs or symptoms, 13 had a plus Wassermann reaction, plus stigmata (of lues or degeneracy).

R. Müller⁵⁰ found that late congenitally luetic children all gave a plus Wassermann reaction, if clinical signs were present.

H. Boas⁵¹ has the most interesting monograph on the subject. He cites several authors as having found children of syphilitic mothers who at birth gave no positive reaction but later showed syphilis. With Thomson, Boas examined 88 children of luetic mothers at birth; 31 gave a plus Wassermann reaction. In four the reaction very soon disappeared entirely, nor did they as long as observed (from three to nine weeks) develop syphilis. The remaining 27 had luetic manifestations at birth or got them before the third month at the latest, or died and showed luetic changes. Of the 57 who showed no Wassermann reaction, 42 remained well (during their observation of three months), 13 later developed luetic manifestations and gave a plus Wassermann reaction. In one the reaction was positive two and one-half months before symptoms appeared. Two died without having any plus Wassermann reaction or symptoms. Yet their organs at necropsy showed syphilitic changes.

Of fifty-four older children or adults up to 40 years with manifest late congenital lues, all reacted positively (fifty-three other children up to the age of 1 year with manifest symptoms, also all gave a positive Wassermann reaction). Hence Boas concludes that if a child has symptoms which appear to be luetic (congenitally) and the reaction is negative, then very probably they are not luetic.

Veeder and Jeans⁵² also found a plus Wassermann reaction in all their cases in which lesions were present, and say: "We are inclined to be skeptical about the diagnosis of late syphilis in an untreated patient who has a negative Wassermann reaction. A positive

Wassermann reaction may be the only symptom of syphilis for many months or years," etc.⁵³

But how about the latent cases, in which there are no lesions present, and the patients later may come down with a mental degeneration, etc.? I have not seen any statistics of such cases, and it can well be understood why one does not make tests on children who show nothing or very little. Yet it is just to these children who show so very little that I mean to call attention in this article and to point out the importance of looking for lues. Veeder and Jeans, for instance, tested three cases with indefinite and obscure pains and found a positive Wassermann reaction. The Roentgen rays have at times shown up luetic bone changes where none were surmised (Dingelmann and Schmetz, also Götzky). The testing of brothers or sisters of children who, for instance, had a keratitis, showed a plus Wassermann reaction when there were absolutely no signs or symptoms. Careful, in fact the most careful history taking is necessary, with all our alertness and sharpness set into activity; and with the aid of the Wassermann (and possibly luetin⁵⁴) test we shall discover a very large number of congenitally luetic whom we never suspected before.

REPORT OF CASES

CASE 1.—M. X., girl, aged 9, at present a generally high-strung alert, sensitive, somewhat restless child, is timid, but has no complaints. Birth was difficult, very slightly before normal end of term; she was cyanotic, and had to be resuscitated, but showed no abnormal signs or symptoms, though weighing six pounds. During the first year of her life she showed no abnormalities, save that she sighed constantly. At the age of 6 she had her first manifestation of chorea, which began with her attending school. This persisted three years (up to the time of coming under my treatment), at times very mild and at others extremely severe. It would be brought out even on a little excitement. During this entire period she would complain of occasional dizziness, "as if her head were going round." Four years ago she began to have difficulty in hearing, which was at first quite extreme, but gradually grew better, and is now normal. For a year she has had frontal headaches, especially on getting up in the morning. Physical examination shows no stigmata, save a mild scaphoid scapula. In the recumbent position a soft systolic murmur is heard at the apex. Mental examination is normal. When the patient was seen a year ago, the Wassermann reaction was positive (at present negative). The mother of the child has had tertiary manifestations for five years. The Wassermann reaction was at first positive but now is negative. The father died of nephritis (apparently syphilitic). The child's chorea disappeared very soon on antiluetic treatment. Several physicians must have seen this child (who was always with her mother) while the mother was being treated for syphilis, yet not one thought of diagnosing syphilis in her, or giving her antiluetic treatment; nor did the treatment she had received for her chorea seem to help her in the least.

CASE 2.—The father of the child was infected three years before marriage; he was treated for neurasthenic headache and cerebral fatigue. He married after several antileptic "cures." The wife aborted three times, then remained sterile for four years, and finally bore the present patient, who is now 7 years of age; he developed physically and mentally normal, save that learning was very laborious for him, as he could only with difficulty fix his attention. The child was very active, and easily frightened; was a restless sleeper and ate poorly. At the age of 6 he acquired chorea, which would

48. I have been on the lookout for this stigma ever since Ziehen personally pointed it out to me. Wherever I have found it, even if it was the only stigma present, the individual was strongly psychopathic.

49. Nonne, M.: Der heutige Standpunkt der Lehre von der Bedeutung der "Vier Reactionen" für die Diagnose und Differentialdiagnose organischer Nervenkrankheiten, Deutsch. Ztschr. f. Nervenheilk., 1911, xlii, 206, etc.

50. Müller, R.: Versamml. deutsch. Naturforsch. und Aerzte, Sept. 21-27, 1913; ref. in Deutsch. med. Wchnschr., 1913, No. 45, p. 2229.

51. Boas, H.: Die Wassermann'sche Reaktion, Karger, Berlin, 1914.

52. Veeder, B. S., and Jeans, P. C.: The Diagnosis and Treatment of "Late" Hereditary Syphilis, Am. Jour. Dis. Child., October, 1914, p. 283.

53. Veeder and Jeans also report a case (p. 291) which shows that a negative reaction cannot be regarded as showing that the case is cured or quiescent.

54. S. Cannata (Pediatria, xxii, No. 7) states that the luetin reaction is specific for syphilis. The test is not always positive in congenital lues, but nevertheless gives better results than the Wassermann reaction.

not improve under arsenic, but did rapidly under the administration of potassium iodid, as did also his remaining symptoms.⁵⁵

CASE 3.—The father of the patient at the age of 20 was luetically infected. He received several inunction treatments. He died soon after 40 of paresis. The mother, apparently, as is alleged, is entirely well. After one abortion she had four children, of which the first died soon after birth. The other three children (two sons and one daughter) developed physically entirely normally. The eldest of these, however (son) remained behind mentally, and finally had to be given over to an institute for feeble-minded children. The second child (daughter) became chlorotic at puberty. She suffers now from insomnia, nervous tachycardia, and extreme fatigue on bodily and mental exertion. The youngest child (son), who is mentally rather exceptionally developed, suffered since his seventeenth year from habitual headaches, migraine attacks and insomnia. Now, in his twenty-first year, as he was preparing for examination to the bar, he came down with an outspoken neurasthenia. From the report of the family physician, it is learned that this boy, when he was 1 year old, had a periosteal disease of the left tibia, which cleared up on antiluetic treatment.⁵⁶

CASE 4.—The mother was strong and healthy. The father was infected eight years previously and was now showing the first signs of tabes. The child, boy, aged 3 years, was mentally alert and physically normal. He was unusually irritable and unsteady. He slept very restlessly, falling asleep only long after midnight—and then awakening again to remain awake for hours. Occasionally also he walked in his sleep. Hydrotherapy, sedatives, change of climate, etc., did not help, but potassium iodid began to improve the condition, which has steadily (after three years) become about normal.⁵⁷

CASE 5.—Boy, aged 4 years, was brought to Nonne because he slept restlessly at night and had attacks of fear. The child showed nothing on examination, no signs of rickets, degeneration or lues. History of the father showed syphilis in the latter, ten years previously. Sedatives and tonics gave no relief. Under potassium iodid treatment the immediate improvement was striking.⁵⁷

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STUDY OF A RECENT TYPHOID EPIDEMIC WITH ESPECIAL REFERENCE TO THE USE OF ANTITYPHOID VACCINES

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In spite of the wealth of statistics collected from such reliable sources as the European and United States army reports, considerable difference of opinion exists as to the advisability of giving antityphoid vaccine to persons presumably infected. Wright¹ in his earlier communications emphasized a negative phase directly following administration of vaccines, and advised against their use in the presence of an epidemic. Leishman² and others are not positive of the existence of a negative phase and Russell³ in a recent article insists that a negative phase does not exist. He notes, however, that a single injection of vaccine confers little or no immunity to typhoid fever.

A recent epidemic of typhoid fever at the St. Louis City Hospital offered us further opportunity for study along these lines.

There are, exclusive of patients, about 400 people in the personnel of City Hospital. This epidemic was traced to the kitchen and dining rooms where employees, nurses and doctors were served, so that probably 250 persons were exposed to infection. The total number of cases of typhoid was forty-three, or the percentage one would expect under such circumstances.⁴

Twenty-three cases developed among those who had received no vaccine. The average duration of the disease in these patients was a little under six weeks. There were no very severe cases and no deaths in this series. These cases may, therefore, be considered rather mild.

Twenty patients received one or more doses of vaccine. A summary of these cases may prove of interest.

Dr. A. received three injections of vaccine two years ago. The usual technic of giving 500,000,000, 1,000,000,000 and 1,000,000,000 dead bacilli at intervals of about ten days I presume was followed. The disease in him ran a very mild course. He left the hospital at the end of seventeen days.

Miss H. had three injections, the last on September 13. Her temperature ranged from 99 to 101 for four days beginning September 14. Such a temperature might be expected from a moderate reaction. A few rose spots were in evidence on September 17. Stool cultures, however, contained typhoid bacilli, and up to November 1, the organisms were still present.

Miss J. had three injections of vaccine, the last on August 28. At the time the last injection was given, she complained of headache and malaise. She had a moderate reaction following this injection. She had not recovered, September 2, and was sent to the ward. A blood culture taken the following day contained typhoid bacilli. The stool culture was also positive, as was the Widal reaction. The course of the disease was rather mild at first, but later the patient became very ill. She was discharged October 26.

Miss M. had one injection on August 31, with little discomfort. On September 9, she received a second injection. She had a moderate reaction from which she did not recover and was sent to the ward September 14. The diagnosis of typhoid was confirmed by laboratory findings during the following week. The disease ran a mild course and patient was discharged October 8.

D. S. A. had his second injection on September 8. He did not recover from the reaction, and was sent to the ward, September 14, with a diagnosis of typhoid. The disease in this case was moderately severe. He was discharged October 18.

In E. K., the disease ran a similar course to the preceding following his second injection on September 8. He was discharged October 22. These patients were both well when the second dose of vaccine was given.

Dr. B. had a severe reaction following his first injection on August 27. He had a severe cold at the time, to which his symptoms were in part attributed. On September 3, rose spots appeared and he was sent to the ward. On September 6 he was given a second injection without increasing the severity of his symptoms. His course was of average severity for three weeks, the fever then subsided and reached normal, where it remained for two days. He then suffered a relapse. He was discharged October 23.

4. Two patients developed typhoid in the hospital during August and September. One, a fracture case, convalesced, and the other, a patient with tertiary syphilis, died in the third week. The necropsy protocol stated that death in this last case was due to acute endocarditis and bronchopneumonia, but typhoid ulcers were found in the intestine. These patients were widely separated, and as the infection could not be traced to the same source as the others of this series, they are not included. Neither of these patients received any vaccine.

55. Nonne's Case 388, *Syphilis und Nervensystem*, Berlin, 1909.

56. Case of Binswanger's (see his *Neurasthenie*, Jena, 1896, pp. 55-56).

57. Nonne: *Syphilis und Nervensystem*, Berlin, 1909, p. 558.

1. Wright, A. E.: On the Results Which Have Been Obtained by Anti-Typhoid Inoculation, *Lancet*, London, Sept. 6, 1902, p. 654.

2. Leishman, quoted by Russell, F. F.: *Antityphoid Vaccination*, *Am. Jour. Med. Sc.*, December, 1913, p. 803.

3. Russell, F. F.: *Am. Jour. Med. Sc.*, December, 1913.

Dr. S. gave a history of an illness resembling typhoid ten years ago, but decided to take vaccine. He had a moderate reaction following his first injection on September 15. He was at the infirmary at the time, but was sent to the hospital on September 26 with a mild case of typhoid. He was discharged October 19.

Miss M. S. had a moderate reaction following the first injection, but recovered in two days. After the second injection, September 12, she continued to have elevation of temperature and was sent to the ward September 17 with the diagnosis of typhoid fever. She is at present convalescing.

Dr. I. was on vacation from August 16 to September 8 in a locality where there were no known cases of typhoid. On September 10 he took his first injection of vaccine. The reaction was comparatively mild, but elevation of temperature persisted and the case was diagnosed as of typhoid on September 15. The disease ran a severe course with two relapses. He was convalescing at the time this paper was written.

Miss F. M. received one dose of vaccine on September 3. She had a mild reaction lasting two days. She was well for two weeks then had a mild attack of typhoid lasting about seventeen days.

Miss R. received one injection of vaccine on September 3. She had a mild reaction but the temperature ranged between 99 and 101 for five weeks. The Widal reaction as well as blood and stool cultures were negative and she did not develop rose spots. As a positive diagnosis of typhoid could not be made, she is not included in the series.

The remaining nine patients each received one dose of vaccine. All had moderate reactions, which terminated without remission in typhoid. All were of moderate severity, but all recovered.

There was apparently little difference in the severity of the disease in those who received vaccine and in those who did not. Complications were rare, consisting of a few small hemorrhages. There were furuncles in three cases, phlebitis in one case and pyelitis in two cases. Relapse was common, but not severe; five patients in all had temperature above 100 after having been normal for two or more days. Among the nurses and physicians who were directly under my care, rose spots were very pronounced in every case, and four cases developed two or three crops.

Of those who did not develop typhoid, 261 received one or more doses of vaccine, 136, two or more, 14, three doses and 8 had been immunized before August, 1914. The vaccine used was made by Parke, Davis & Co., and consisted of a suspension of dead typhoid bacilli which had been grown on agar slants in a normal salt solution containing 0.5 per cent. of trikresol. This vaccine resembles that used in the United States Army.

It will be noted that practically all vaccine was given between August 28 and September 14, or during the time when all of the cases of typhoid developed. The fact that only 20 of the 261 who received the vaccine developed typhoid speaks against any marked increase of susceptibility and the fact that 20 did develop typhoid is against any marked increase of resistance following recently given vaccine.

The appearance of symptoms directly following injections in so many cases may be explained in at least two ways. These patients were either well along in the stage of incubation when the injections were given, and therefore the vaccination was only an incident which caused them to be watched more closely, or the vaccine, acting as many other foreign substances do, temporarily lowered their resistance and thus precipitated the onset of the disease.

If the latter idea be accepted, it is possible to conceive of a few who, had it not been for this temporary lowering of resistance, might have overcome the infection.

CONCLUSIONS

The use of antityphoid vaccine in persons who are harboring typhoid bacilli does not increase the number of those who develop typhoid.

A single injection, or more, directly preceding or during the incubation period of the disease, does not render the individual immune.

The course of the disease does not seem to be modified by injections of vaccine directly preceding the onset in those who develop typhoid.

The advisability of giving antityphoid vaccine to those presumably infected seems questionable and may in a few instances precipitate an attack.

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CLINICAL OBSERVATIONS ON ASIATIC CHOLERA IN MANILA IN 1914*

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After an absence of four months, cholera appeared in the city of Manila in July, 1914. The present epidemic, in which there were reported more than 1,100 cases, suspects and "carriers," did not differ greatly from the ordinary small epidemic. All patients, excepting those who died without medical attention, were treated at San Lazaro Hospital.

Of the number mentioned, 330 were genuine cases of cholera, 170 not cholera, and 570 were carriers, so-called; 99 were found dead and sent to San Lazaro morgue for confirmation of diagnosis. The total number of deaths with and without medical attention was 190.

The percentage of recoveries among those receiving medical attention at San Lazaro was 72.5.

When a patient is admitted to the hospital, a stool specimen is at once taken and sent to the Bureau of Science for bacteriologic examination, and no patient is discharged until at least two successive stool specimens taken on different days are reported negative for cholera vibrio.

When a case is beyond doubt clinically cholera, it is carried on the hospital records as cholera, and a case pronounced cholera at necropsy is taken up as such. When a case is merely possible or even probable cholera, either clinically or at necropsy, the final diagnosis depends entirely on the laboratory findings, so that there is little chance for error in the ultimate status of a case. The clinical diagnosis of Asiatic cholera was confirmed bacteriologically in 85 per cent. of the cases.

In reviewing the literature of cholera outbreaks, one notes in almost every epidemic the virulence or violence of the individual infections gradually decreasing as the epidemic lessens. In the present epidemic, it

* Read before the Annual Meeting of the Philippine Islands Medical Association, Manila, Nov. 5, 1914.

is rather suggestive that although the first few patients were violently ill, the decline in the virulence did not follow in the usual manner, it being the rule that for every group of extremely ill patients, there followed immediately a group of less ill patients and then a few who developed but one or two mild symptoms of the disease. This cycle repeated itself throughout the epidemic in too regular a manner to be disregarded. Had these groups of patients come from single neighborhoods, one would at once interpret the sporadic outbreaks as from single sources of infection. This relation of cases, however, could not be determined save in a few instances.

Of the 330 patients treated, 56 per cent. were violently ill on admission to the hospital and demanded emergency treatment. Five per cent. became worse within a few hours after admission and were given emergency treatment. Sixty-one per cent., then, of all patients admitted were extremely ill; the remaining patients, either because of mild infection or the supportive treatment, failed to become very sick.

The diagnosis in most cases presented no difficulty, the symptom-complex of otherwise unexplained diarrhea and vomiting, cramps in the skeletal muscles and suppression of urine being accepted as sufficient for isolation in quarantine.

The clinical diagnosis in children was much more difficult, no reliable history being obtainable and the symptoms being frequently atypical. It was found after carefully examining a number of patients that practically all acutely ill cholera patients slept with their eyes partly opened. In an extremely sick patient, as soon as the cramps were relieved and sleep or coma followed, the postorbital pad being sunken from loss of body fluid, the eyeball rotated slightly upward and the lids remained apart, two-thirds of the pupil frequently remaining visible. With the return of a cramp the eyes would be forcibly closed, then widely opened, and the palpebral aperture would assume its normal size.

Among children acutely ill or even moderately sick, this feature was almost invariably present and was considered, in the border-line cases, as of diagnostic importance.

The present-day treatment of cholera is still in an unsettled state, considerable experimentation going on with vaccines, antitoxins, etc. While undoubtedly the condition of profound collapse existing in a patient with acute cholera is due in a large measure to intoxication, the circulatory disturbance from the loss of body fluids is the most urgent condition requiring relief. The simple administration of antitoxin in this state, unless given in large enough doses to combat the circulatory failure, would in many cases be insufficient to tide the patient over the crisis.

At the onset of this epidemic (and an epidemic could be safely predicted because of the widely scattered sources of the first few cases), it was decided to restrict the routine treatment to the combating of two conditions, namely, the circulatory disturbance from the loss of body fluids, and the nephritis. No attempt was made toward the specific neutralization of toxins, nor was any attempt made to check, by sedatives, the diarrhea or vomiting.

Intravenous injections, without the routine use of cardiac stimulants, constituted the sole means of circulatory support in patients who showed no evidence of previous circulatory disorder. The solution used routinely was composed of 0.45 per cent. sodium

chlorid and 0.25 per cent. sodium bicarbonate, introduced slowly through a needle of 0.5 mm. bore directly into the unexposed vein at the rate of about 1 liter in forty-five minutes.

By this method, considerable time was saved in the preliminary introduction of the solution, the rate of flow having but little apparent effect, save that the tendency to cramping was less marked.

The amount of fluid introduced was entirely dependent on the condition of the patient; in the exceptional case, a few hundred cubic centimeters being sufficient, while in others from 10 to 12 liters were given within twenty-four hours. It was found, by giving sufficient solution to bring the blood-pressure nearly to normal, that vomiting and cramps were to a large extent avoided, while if a larger amount were given intravenously, the patient would almost at once have violent abdominal cramps and vomiting.

Usually, the slow introduction of warm solution into the circulation of an acutely ill patient acted as a mild hypnotic, the patient passing into quiet sleep, awaking only to ask for water. Repeated injections of the solution were made into the same vein, with almost no pain and no infections.

Contrary to expectation, the introduction of a needle into the collapsed vein of a cholera patient presents little difficulty. The vein appears as a blue line beneath the skin, and by the sense of touch one penetrates it, skill being easily acquired.

The vein usually selected for injection was the median cubital; occasionally it became necessary to use one of the dorsal veins of the foot or of the fingers, and more rarely the jugular.

The apparently good results obtained from the slow, frequent, intravenous injections suggested the desirability of continuous proctoclysis as a means of supplying fluid. This method was tried in a few children in the first 100 cases and in all subsequent patients in whose cases there had been a loss of body fluid. In the case of average severity, the introduction of fluid by proctoclysis was sufficient to cause the pulse to return to normal in from eight to twelve hours. In the more severe types, intravenous injections were given to tide the patient over the crisis. The solution was always given at slightly above body temperature by keeping hot water bottles over the rectal tubes and, while the introduction of fluid in this manner increased the number of stools, the patients appeared to receive considerable comfort from the warm solution.

Before the introduction of proctoclysis as a routine measure, a number of cases of the cholera sicca type were admitted to the wards. These patients almost always died in spite of the numerous intravenous injections. At necropsy, the small intestines of these patients were found to be filled with fluid, while the large intestines were comparatively free. Later when such cases were admitted they were given routinely a large enema and continuous proctoclysis, the solution running in a small stream rather than in drops. At the same time the circulation was supported by intravenous injections. Usually, these patients responded in an hour or so with copious stools and, having mechanically purged themselves, began to show signs of recovery; the rapid proctoclysis having emptied the small intestines, seemingly by siphonage.

Acute nephritis, the most common and most feared sequel of cholera, was rather frequent in the first hundred cases treated. In subsequent cases, reestablish-

ment of kidney function was much quicker, perhaps because the continual lavage of the large intestine aided the elimination of toxic materials without the loss of body fluid.

In the first hundred cases, in which proctoclysis was rarely used, 76 patients had suppression of urine, 13 for seventy-two hours or longer, 9 of whom developed uremia with seven deaths.

In the second hundred cases with proctoclysis, 69 patients had suppression of urine, 9 for seventy-two hours or longer; 3 developed uremia, 2 of whom died, both being uremic on admission.

In the third hundred cases, 70 patients had suppression of urine, 9 for seventy-two hours or longer; 3 developed uremia and died.

It is interesting to note, in passing, that one patient had complete suppression of urine for 144 hours, having had during this time continuous proctoclysis. The longest time of complete suppression with recovery was ninety-six hours.

In attempting to demonstrate the value of continuous proctoclysis as an aid to kidney elimination, a number of cases were selected which had suppression of urine after the acute choleraic symptoms had subsided. Proctoclysis was used in these cases until the return of kidney function was evidenced by the voiding of two or three hundred c.c. of urine, and at this stage the proctoclysis was discontinued. Within a few hours there would be noted in such cases a distinct decline in the urinary output, as well as a progressive restlessness and flushing of the cheeks. Proctoclysis was then renewed, and within a few hours, urine would be excreted in nearly normal amounts, patients voiding, when encouraged, every hour. This procedure was repeated sufficiently often to demonstrate, apparently at least, the value of continuous proctoclysis in all cholera cases until there is complete return of normal renal function.

The routine use of hot-water bags to maintain body temperature was discontinued after much deliberation. Since the low body temperature in cholera patients is due almost solely to circulatory depletion and not to thermogenic irregularities, the judicious introduction of solution intravenously at about 39 C. (102.2 F.) speedily causes the skin to return to a more nearly normal temperature, the subsequent surface temperature, together with the pulse, being important indexes of the need of intravenous injections.

On analysis of the clinical records of 330 cases, a number of interesting facts were found. The appearance of the disease, as would be expected, was most frequent among the Filipinos, there being 303 cases. Among the Japanese there were 12 cases, for the most part in fishermen, whose hygienic surroundings are notoriously poor. Ten Americans were infected, one of whom died of uremia. Two Germans, one Italian, one Indian and one Chinese were also infected.

The distribution among the sexes was unequal, 36 per cent. being females.

The occurrence of the disease with reference to age was as follows:

Between 1 and 4 years occurred 12 per cent. of the cases, the mortality being 50 per cent.

Between 5 and 14 years occurred 9 per cent. of the cases, the mortality being 29 per cent.

Between 15 and 39 years occurred 62 per cent. of the cases, the mortality being 22 per cent.

Between 40 and 76 years occurred 17 per cent. of the cases, the mortality being 42 per cent.

The youngest patient, a baby girl of 2 months, recovered; her mother having died of cholera. The oldest patient, a woman of 76, died.

Thirty-four per cent. of the patients received intravenous injections, the average amount being 2.5 liters. Thirty-nine per cent. of the cases received proctoclysis alone.

The average total time of illness among the patients who died in the hospital was seventy-two hours; of this the average time of illness previous to admission to the hospital was seventeen hours.

The average time of convalescence, which comprehends the complete disappearance of all symptoms and two consecutive negative stool examinations on separate days, was thirteen days.

The commonest complication met was bronchopneumonia, nearly all the children between the ages of 1 and 4 years who died after the acute choleraic symptoms passed succumbing to this condition.

Acute parotitis was seen in three cases and acute arthritis in one case. Chronic morphinism was the causative factor in the death of one patient who passed safely through the acute stages of cholera, but whose kidneys failed to functionate, death from uremia following.

Among women, a large percentage of whom were pregnant, three were delivered, nearly at term, of dead fetuses and recovered; a fourth died in the acute stages of cholera; a post-mortem cesarean section delivered a dead full-term fetus. Two patients aborted at about the third month and recovered; a third aborted previous to admission to the hospital, attended by a midwife, and recovered after passing through a severe choleraic infection, together with puerperal sepsis.

Aside from the isolation of cholera cases and the disinfection of infected houses, the efforts of the bureau of health to control the epidemic were, to a large extent, directed toward the isolation and quarantining of vibrio carriers. As soon as a case of suspected cholera was isolated at San Lazaro, the stools of all the members of the household were examined bacteriologically at the Bureau of Science, and persons found to harbor cholera vibrios were sent to San Lazaro and placed in quarantine.

In all, 570 persons, regardless of social standing, were isolated. These persons as a rule submitted to the confinement cheerfully, although not infrequently the bread-winner of the family was quarantined.

The "carriers" were confined to the hospital until at least two consecutive negative stool specimens were obtained on separate days. The average time required was seven days; the longest time in which vibrios were found was forty days. As a routine measure, a saline cathartic was administered on admission; subsequently salol in 0.6 gm. doses was administered three times daily.

Undoubtedly this isolation of vibrio carriers plays an important part in the controlling of an epidemic; we believe that clinical cholera may be spread from person to person, yet it is difficult to understand why more of these known carriers do not develop cholera. Much more must depend on the virulence of the vibrio than on the resistance of the individual, an instance in this hospital during the present epidemic appearing to demonstrate this.

July 18, R. A. was admitted to the tuberculosis pavilion. From the time of his admission until July 28, he averaged six stools daily; the character, soft and mucoid, with small

amounts of blood, suggested the persistent diarrhea seen occasionally in tuberculous patients. July 28, he had eight stools of the same character; a careful examination failed to show the presence of entamebas and, as a precautionary measure, a bacteriologic examination for cholera was made, the patient in the meantime being isolated from the other patients.

In the evening of July 25, D. D. was admitted to the same ward; the next day he had one normal stool; on the following day, July 27, he had nine stools, soft, yellow and without blood or mucus. July 28, he had seven stools of the same character; examination of the stools failed to show entamebas; this patient, too, was isolated and examined for the cholera vibrio.

The specimens from R. A. and D. D. were reported by the Bureau of Science on the 31st as positive for the cholera vibrio. In the fear that the infection might spread through the ward with serious consequences, specimens were taken from all the patients in the ward.

August 3, twelve of these patients were reported as positive and were isolated. On the 6th, specimens were taken from the remaining presumably non-infected patients and four new infections were found. On the 8th, no new infections were detected, while on the 10th, five previously negative patients were found to be carriers and were isolated. In all, twenty-three patients were found to harbor the cholera vibrio in a ward of thirty-two patients.

While neither of these patients, R. A. and D. D., developed a single symptom of cholera aside from the diarrhea, it seems reasonable to assume that they represent the mildest manifestations of the disease. Certain it is that their body resistance was at a minimum; the tuberculous patients admitted to the wards of San Lazaro Hospital are almost always *in extremis*, their vitality is extremely low; usually they are the ones refused admission at other hospitals.

In addition to the foregoing cases, one other patient developed symptoms of possible effect from the infection:

C. M., admitted May 22, was usually somewhat constipated; August 3 and 4 he had no stools, on the 5th he had three normal stools, on the 6th, the day he was found to be a carrier, he had four stools, soft and brownish. On the 7th he had twelve stools, for the first time watery; on the 8th, the day of his death, he had three soft yellow stools. This patient developed no symptoms of cholera other than the diarrhea, and died from gradual cessation of respiration. Nearly all of the twenty-three patients found to be infected died of tuberculosis and five of these were examined by necropsy. R. A., the first patient found to be infected, died two days after the detection of the infection. No anatomic evidence of cholera was found at necropsy, the gross pathologic diagnosis being generalized tuberculosis. A culture taken from the small intestine failed to show the presence of the cholera vibrio.

D. D., the second patient found to be infected, died nine days after the detection of the infection. At necropsy, there was found a slight injection of the mucosa of the duodenum, with no other lesion suggestive of cholera. The anatomic diagnosis, as in the previous case, was generalized tuberculosis. The culture taken from the small intestine was positive for the cholera vibrio. Three other patients failed to show gross anatomic evidence of cholera, two of them, however, being positive for vibrio from intestinal culture.

Of nearly 600 vibrio carriers quarantined in San Lazaro, but one patient developed true clinical cholera:

L. Z., a Filipino woman aged 40, admitted to the tuberculosis department July 11, 1914, was allowed to leave the hospital for twenty-four hours, September 6, to visit her relatives. On her return to the wards she was isolated from the other patients and a stool specimen taken for bacteriologic examination; this specimen was reported positive for the cholera vibrio, and she was at once removed to quarantine.

From September 6 to September 21, she was in her usual fair physical condition. September 22, after being a known vibrio carrier for sixteen days, she began having watery stools, six in the first twenty-four hours, but with no other complaint. Twenty-four hours later she was having copious watery stools and began vomiting for the first time. September 24 she complained of chest pains of indefinite character, violent cramps in the skeletal muscles, copious vomiting and frequent painless watery stools, and had complete suppression of urine; she was for the first time confined to bed and was given continuous proctoclysis with no other treatment.

September 24 she had 16 stools and there was no urine.

September 25 she had 17 stools and 390 c.c. of urine.

September 26 she had 9 stools and 960 c.c. of urine.

September 27 she had 7 stools and 860 c.c. of urine.

September 28 she had 3 stools and the urine was normal, the general condition good, and recovery was uneventful.

CONCLUSIONS

1. The epidemic was of about the usual severity.
2. The epidemic was composed of a number of small sporadic outbreaks.
3. The sources of infection were multiple.
4. The slow introduction of solution intravenously is the more beneficial method.
5. Continuous proctoclysis is a valuable aid in treatment.
6. Cholera vibrio carriers are not only a public menace, but are themselves in danger of contracting cholera.

A PSYCHOSIS OF SEVENTEEN YEARS' DURATION WITH RECOVERY*

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The following case is unusually interesting, chiefly by virtue of its long duration—almost seventeen years; the presence of a clinical picture commonly associated with dementia; the eventual recovery. The first two features, namely, the duration and the symptom complex, are difficult to explain when viewed in the light of the unexpected and favorable outcome. The possibility of a retrospective diagnosis is also to be considered.

The clinical history is based on the case notes, which are to some extent supplemented and amplified by personal recollections of various members of the patient's family and of the nurse who attended her during many years of her illness.

REPORT OF CASE

Clinical History.—A. R., a woman aged 41, of American parentage, was admitted to the hospital in 1897, in her twenty-fourth year. She was the youngest of seven children. Her oldest sister died insane. The mother, brothers, sisters and the patient herself are all subject to nervous headaches.

Personal History.—The patient attended parochial and later public schools, until her sixteenth year. She was at least an average scholar, and reached the senior grammar grade. In disposition she was cheerful, sociable, and self-sacrificing. She married at 21 and had three children during the following four years. The death of the second child, a month preceding the birth of the third, was said to have made a profound impression on her. The third child was born after an extremely difficult and protracted labor, which, however, was non-instrumental. She sustained severe lacerations.

* Read before the Philadelphia Psychiatric Society at its Annual Meeting at the College of Physicians and Surgeons, Jan. 8, 1915.

tions¹ and following it she was said to have developed "blood poisoning."

When admitted four months later she was much reduced physically—weighed only 70 pounds—and her limbs were so contracted that "her knees touched her chin." (At present the patient has a decided stoop and rounded shoulders.) Her mental state during the first three months at the hospital was marked by restlessness, confusion and incoherence. There was a distinct febrile reaction extending over a period of two months.

Summarizing her mental condition during her hospital residence, it would appear that for the first ten years she was confused and stuporous, completely disoriented, never responded to questions, and was extremely filthy in her habits. The first three years of this period were spent in bed and nourishment was accomplished solely by artificial means. From the tenth to the fifteenth year there were alternating periods of violence and depression. Though she was still an untidy, apparently demented patient, yet there was a decided improvement, for in the thirteenth year she began to converse, but with a tendency to mimicry. To some degree she developed an interest in her surroundings; began to do a little embroidery and succeeded in partially orienting herself. During the past two years there has been some childishness in behavior, with irregular intervals of mild depression, but this cleared up fairly rapidly, and eight months ago she was considered well enough to go home on a trial visit. Since that time she has remained apparently normal.

Present Mental Status.—At present she is a voluntary patient; her mental state would not justify detention on the old commitment papers. She is perfectly clear and alert, neat and tidy in appearance, interested in her environment, and does remarkable embroidery and fancy sewing. Her memory for events which preceded and followed her illness is intact.

Concerning the illness itself, there is an almost complete amnesia for the first ten years; for later occurrences there are here and there fragmentary recollections. There is perhaps some blunting of the general intelligence, which might easily be accounted for by such a long absence and complete dissociation from current events and progress. Our feeling is that this restriction in one field is perhaps no greater than would be noted in any person who for at least ten years had been completely severed from all human intercourse and interests.

Certainly those mental attributes which one would ordinarily expect to show some ill effects and deficiencies after such a long drawn out exhaustive process are not at all affected. Attention, memory, orientation, and the emotional reactions are not disturbed. The residual mental timidity will doubtless be overcome and the narrowing of the conceptive faculty eventually be expanded by the birth of new interests. The reeducation which will result from once more living in a world peopled by normal beings should remove even the traces of her unusual experience.

It must be mentioned that on several recent visits to her home she has, in the opinion of relatives, "not done well." They inform us that unless her wishes were acceded to she would retaliate with a more or less childish attitude and behavior.

The patient herself feels that her family regarded her as childish and inefficient; prevented her doing even the simplest things and constantly distrusted her judgment even in ordinary matters. However, her reactions at both this and a general hospital, where she recently underwent a surgical operation, have been normal; so much so that her stay with us is now entirely a matter of volition and should she definitely ask for a discharge, her request would be granted.

Physical Examination.—At present the patient is well nourished and active; weighing 146 pounds. There is a

double mitral murmur which is well compensated. Slight enlargement and retroversion of the uterus exists, with moderate leukorrhea. A cervical polyp has recently been removed. Both ring fingers show symmetrical contractures and the terminal phalanges cannot be extended. (The patient has been told that these deformities resulted from constantly sitting on her hands.)

Urine: Specific gravity 1.030, many leukocytes, epithelial cells and mucous shreds. Neither albumin nor sugar.

Blood: Red blood cells, 3,495,000; hemoglobin, 89 per cent.; white blood cells, 7,833.

Blood Pressure: Systolic, 118; diastolic, 80; pulse pressure, 38.

Wassermann: Negative.

COMMENT

We have, then, a woman now in early middle life, who, after passing through a tedious mental illness embracing more than one-half of the third, the entire fourth, and extending into the fifth decade of her life, during the greater portion of which she exhibited a symptom complex which led to her being classified as hopelessly demented, seems finally to have experienced complete mental restoration.

DIFFERENTIAL DIAGNOSIS

Before considering the question of attempting to establish a diagnosis at this late date, I would like to digress for a few moments. The classification of mental disease is admittedly inexact and incomplete. That this is so is clearly proved by the fact that new subgroups are constantly being split off from what were formerly believed to be clinical entities. The larger number of cases fall more or less naturally into the existing classification, but there remains a not inconsiderable group which will not fit. These "clinical misfits" are usually appended to some known group and labelled "allied to"; it would perhaps be more desirable to permit them to stand merely as cases presenting a certain group of symptoms with the hope that further clinical investigation will clear up their complexities. The reported case appears to be of this character, and the retrospective diagnosis is gone into merely as a matter of speculative interest.

Manic-Depressive Psychosis.—The ten years during which she was described as being disoriented, confused and stuporous, seem to place her unquestionably outside the manic-depressive group. Any definite emotional reaction—breaking into the monotony of a practically vegetative existence—would certainly have been noted and recorded. Again, her later violence and excitements appear to have been largely purposeless, suggesting Kraepelin's subpraecox group, the periodic type, rather than a frank maniacal phase. The favorable outcome which might be adduced as pointing to an emotional disorder seems to be entirely outweighed by the clinical evidence.

Dementia Praecox.—This classification might perhaps be made to measure up to the symptoms, but could hardly in this case be made to cover the result, namely, recovery. There is still considerable diversity of opinion regarding the essential nature of the pathologic process in praecox. Many alienists question the validity of "recovery" even in a recent case, and insist on some grade of dementia as an implied and necessary requirement for final diagnosis—in fact, they believe that this constitutes the clinical basis of the disease. Dementia is here interpreted in its strictest sense, that is, a definite mental subtraction involving permanent

1. Gynecologic examination three years after admission revealed a perineal laceration from vagina to rectum, and a slight cervical tear.

deterioration in one or more fields. Those who maintain that recovery is not all incompatible with *prae-cox*, apply their theory only to the fairly recent case—the one in which the symptom complex is merely highly suggestive, and the diagnosis very largely a matter of individual opinion. In a psychosis of seventeen years' duration, terminating in a recovery, this diagnosis is practically impossible from either point of view.

Infective-Exhaustive Psychosis—Etiology.—There are certain factors which suggest an infective-exhaustive psychosis. A young woman bearing three children within the comparatively short period of four years—the final labor being extremely difficult and protracted and resulting in extensive laceration—must be regarded as being in a state of greatly lowered vitality, an easy victim for some infectious process. Immediately after there was "blood poisoning" (septicemia?). Adding to this pathologic array, the psychic factor of the death of her second child, and considering the fact that we are here dealing with a nervous organization whose resistance is probably less than normal (hereditary?—one sister insane), we would seem to have sufficient physical and psychic trauma to precipitate even an unusually severe mental disturbance. That there was a definite febrile process is clearly evidenced by the clinical chart.

This was originally believed to represent an atypical enteric fever, but we are now inclined to think it was probably the reaction to a puerperal infection. The temperature curve was irregular and the pulse rate comparatively high. The disease may be prolonged for months and the temperature curve is irregular (Osler). Our patient has a double mitral murmur. This, of course, may have been present from childhood or may have developed much later in life—and there may indeed be no connection between it and the supposed septicemic process. It is also perfectly compatible with typhoid fever. However, the following sequence seems to be the most natural and logical one.

1. The lacerated and devitalized pelvic tissues acted as an open portal for bacterial invasion.

2. Bacterial infection did occur and gave rise to a septicemia.

3. The toxins of this disease left a permanent effect on the heart valve. It might be added that our patient did not suffer from any of the diseases of childhood, which are most likely to have valvular disease as a sequel, and that endocardial involvement is perhaps somewhat more frequent in septicemia than in other infections.

Unfortunately we have but meager information relative to our patient's condition at home during the four months' period previous to her hospital admission. We know that she had been restless at night, talking loudly and incoherently, and refusing food. At any rate there seems to have been a more or less definite demarcation between this early active stage of from four to six months' duration, and a later period of stuporous confusion lasting many years. The possibility of an acute confusional insanity, *die akute Verwirrtheit* (amentia) of Kraepelin gradually merging into an exhaustive state, is at least to be thought of. Kraepelin recognizes this possibility. Speaking of acute confusional insanity he says: "In the rarer cases of longer duration (more than two to six months) we must consider the development of an infective-exhaustive state."

SYMPTOM COMPLEX

A review of the later symptom complex presented leaves the impression of confusion and stupor as basic symptomatic elements. On such a foundation the detailed clinical structure can be most naturally erected. Disorientation, physical lethargy, and later purposeless motor activity, refusal of, or rather indifference toward food, idea and word poverty, untidiness, in fact complete neglect of personal needs, all strongly suggest either a permanently injured or a very deeply clouded brain. Similar symptoms are frequently noted in deeply exhausted mental states. Again, lack of, or at best very tardy and partial, insight separates the infective-exhaustive group from psychoses in which there is a definite emotional reaction.

DURATION

The duration in this case is longer than any I have been able to find in the literature. In the recent edition of Kraepelin's *Psychiatry* (Ed. 8, ii), under a general grouping of the infectious insanities, the author further classifies (a) the febrile deliriums; (b) the infectious deliriums; (c) acute confusional insanity, and finally (d) the infective-exhaustive type. Under this last heading he describes a group of cases, varying in severity and merging with one another clinically, due to toxins operating primarily or secondarily, whose effects may be exerted over long periods of time. In the severest cases there is practically a cessation of psychic life. At the onset there may be a confused, depressed mental state with perhaps anxiety, persecutory ideas, feeling of personal unworthiness, visual and auditory hallucinosis. This is succeeded by a clouded mentality embracing inattention, memory loss, poverty of thought, disorientation, and a general blunting in the intellectual spheres.

Though there are wide variations in the clinical pictures, the patients for the greater part are passive rather than active or resistive, are usually bed-ridden, speak rarely, and in fact may be mute, refuse all nourishment and must be fed, neglect their personal needs and are filthy. There are often disturbed obstinate and incoherent periods, and childishness and playfulness may develop. Duration is a matter of many months, but about 50 per cent. show, coincidently with a gain in body weight, a general mental improvement. They become brighter and more approachable, exhibit awakening interest in their surroundings, begin to occupy themselves. There usually remains, however, a long period during which increased sense of fatigue, defective memory, irritability and emotional uncertainty are manifested. The ultimate outcome is recovery. Corresponding to this picture, Tanzi, in his textbook of mental diseases, classifies the more profound exhaustive states under the name of "*amentia attonita*." The diagnosis rests on a state of "inactive stupor without emotions or memory." The author feels that in some of these cases a differential diagnosis from dementia *prae-cox* is impossible during the course of the psychosis, and that the clinical riddle can only be read in the light of the favorable result. The complete emotional indifference which Tanzi regards as the predominating factor is explained by "a suspension of the processes of perception and representation." The perceptions are so deformed and the mental images so contradictory and interfere with each other to such an extent that the psychic processes

become distorted and chaotic. "Feeling remains starved for want of food—that is to say, from lack of images and ideas; the will is paralyzed from want of motives."

Both of these authorities and also other investigators concede to the infective-exhaustive group the possibility of an extremely tedious course. The cases which came under their observation have, however, been a matter of many months rather than of many years.

Without regard to its other features, the case reported, by reason of its unusual duration and the remarkable outcome, seems entitled to rank as a psychiatric curiosity.

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USE OF THE DIRECT VISION CYSTOSCOPE WITH WATER DILATATION FOR PROCTOSCOPIC EXAM- INATIONS

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Examination of the rectum and lower sigmoid by some method which permits of visual inspection of their interior is a diagnostic procedure of the first class. Tubular specula have been utilized for such examinations for many years. In the lateral position they permit of the inspection of a limited area of the mucous membrane which presents at the distal end while the instrument is being withdrawn. In a normal case, the tube may usually be introduced for a considerable distance with comparative ease; but the presence of those pathologic conditions most demanding investigation very frequently adds such technical difficulties or even dangers to this procedure as largely to destroy its value.

The introduction of the principle of atmospheric inflation in rectal work by Van Buren and by Kelly was a great advance, and has constituted the essential feature in modern proctoscopy. Under favorable conditions this method allows of very satisfactory examination of the lower bowel. The exaggerated knee-chest position is, however, not only difficult to maintain, but it is so objectionable to most patients that the average surgeon for the latter reason alone fails to make many proctoscopic examinations which he knows should be made. Also, with this method, as with the method first mentioned, serious technical difficulties are often encountered in the presence of those very pathologic conditions most demanding accurate investigation.

The advantages of a satisfactory means of examining the lower bowel with the patient in the ordinary lithotomy or cystoscopic position instead of in the knee-chest position and using an instrument five-sixteenths inch instead of seven-eighths or $1\frac{1}{4}$ inches in diameter are self evident.

During the past two years I have used a simple, direct vision, water medium cystoscope of the Elsner-Braasch type for examinations of the rectum and lower sigmoid, and this method has proved entirely satisfactory in practically all cases. It is as painless as an ordinary enema, even less so, for it is never

necessary to fill the bowel completely with the water. The patient is not kept in an uncomfortable position, and it is not necessary to expose even the genitalia during the examination. The details of the mucosa are much clearer when seen through a homogeneous water medium than they are when the wet and often slimy mucosa is viewed through an air medium, and there is no reflected glare when artificial light is being used.

Particles of mucus and feces do not make the examining medium turbid, and when they are in the line of vision they can be readily washed away by the irrigating fluid. Under the guidance of the eye, and without the possibility of danger, the beak of the cystoscope may be guided past mucous folds or even tumor growths until the entire length (8 inches) of the cystoscope has been introduced. The normal relationships of the bowel are scarcely, or not at all, disturbed. Ulcers, fistulous openings, diverticuli, and papillomatous and other tumor growths may be viewed with the same ease and accuracy as in cystoscopic examinations. The technic is almost exactly the same as for the use of the direct vision cystoscope in bladder work.

The first case in which I employed this method was one of carcinoma involving the rectovaginal septum. In this patient, the usual proctoscopic examination seemed out of the question; but after an examination of the bladder for a suspected involvement, the cystoscope was introduced into the rectum in the hopes of getting a partial view of the involvement of this region. I was surprised to find that the view was quite as good as that obtained in the bladder, that particles of feces did not make the medium turbid, that whenever the bowel became distended the fluid could be withdrawn just as in bladder examinations, and that by guiding the instrument with the eye, the beak could be made to pass one and then another of the mucous folds until the entire length of the cystoscope had been introduced, after which a good view of the bowel could be obtained as far up as the illumination would carry. All of this was accomplished with even less discomfort to the patient than had been caused by the preceding cystoscopic examination.

Since this first experience, the cystoscopic method of examining rectal cases has been used with increasing frequency until, at present in my own work proctoscopy by means of a direct vision cystoscope has come to bear about the same relation to the knee-chest proctoscopy as does cystoscopy by water dilatation to the Kelly method of examining the bladder under atmospheric dilatation.

This method is not intended to supplant the standard procedures now commonly employed in proctoscopy. I believe, however, that it is a valuable addition to the means now usually employed, because it is entirely painless, it does not require undue exposure or a position repugnant to the patient, and in many cases, especially those with some real pathologic condition, the view obtained is actually superior to that procured by any other method.

For this work, the simple, direct vision cystoscope of the Elsner-Braasch type is preferable to the more complicated telescopic instruments. It requires only enough fluid to separate the surfaces to be observed and gives a view free from distortion; there are no lenses to become soiled by fecal matter, and turbidity, even that due to hemorrhage, does not obscure the view if fresh fluid is flowing through the instrument.

Before the examination, the patient should evacuate the lower bowel, preferably by means of an enema. If fecal particles remain, they may be washed away by the irrigating fluid. I use plain water at room temperature. Whenever this becomes turbid or the patient complains of a sense of fullness, the fluid is drained off through the cystoscope exactly as in irrigating the bladder. The total amount of fluid used is seldom half that of the ordinary enema.

In my experience this simple method of proctoscopy has proved so satisfactory and free from discomfort to the patient that with it many examinations have been made which otherwise would probably have been neglected.

A Case of Pachymeningitis Hemorrhagica Interna, with Positive Wassermann Reaction.—The literature mentions syphilis as an occasional cause of hemorrhage from the meninges (Oppenheim, Beck and Hahn). In this connection the following case is interesting. It would also seem to be unusual because of the youth of the patient and the absence of other signs of syphilis, acquired or hereditary.

History.—The patient was a Russian girl, aged 16, well nourished and without history of any previous illness. The only feature in her family history worthy of note is the fact of her father's death from esophageal varix. The patient's illness was of sudden onset, three days before admission to hospital, with severe headache and an irregular fever; the headache being at the base of the skull and persistent. Rigidity of the head and neck accompanied the first symptom. The patient was hurriedly sent to the hospital three days after the onset because of being in a semidelirious, semicomatose condition.

Examination.—The girl was unconscious, moaning and resisting when handled, otherwise lying in a constrained posture with facial expression of pain. The pupils were dilated and reacted poorly to light; the fundi showed no change. There was a marked degree of rigidity of the muscles of the neck; none of the limbs. Hyperesthesia was general, the patient crying out and resisting whenever handled. The knee-jerks were diminished. Temperature 100 to 101 F. Pulse 90 to 100. Respirations 26. Blood examination showed a leukocytosis of 21,000. Lumbar puncture on two occasions produced a serosanguineous fluid, without clotting, and showing on microscopic examination numerous red blood cells. The fluid was under increased pressure. Blood-Wassermann test positive.

In the course of a week the patient gradually became less rigid, less sensitive to external stimuli and each day more attentive to her surroundings. Her recovery was more rapid after a profuse bleeding from the nose. On recovery there was amnesia for the period of her acute symptoms; otherwise no mental residuals. A month later the patient appeared in excellent health.—HAROLD W. WRIGHT, M.D., Santa Barbara, Cal.

Public Responsibility and Tuberculosis.—In all talks to laymen the health officer should try to imbue his hearers with his own enthusiasm and devotion to the tuberculosis cause. He should tell them that tuberculosis is not merely a medical disease, but that it has a very large social aspect. Bad housing, overcrowding, dangerous congestion, and even underfeeding exist, alas, not only in our large cities, but also in smaller communities. Wealthy and influential citizens should be shown what great good they can accomplish by becoming interested in the amelioration of such conditions as are conducive to the spread of tuberculosis. They will themselves benefit in the end from a clean and healthy community. Personal service to the consumptive poor, and kind, generous, and considerate actions toward those afflicted with tuberculosis, rich and poor alike, will create a better and more helpful feeling throughout the community.—S. Adolphus Knopf, *Public Health Reports*, Dec. 18, 1914.

Special Article

PRACTICAL PHARMACOLOGY

(Continued from page 1073)

XIII

ANTISEPTICS AND DISINFECTANTS

DERIVATIVES OF BENZENE—(Continued)

THERAPEUTIC USES

One part of phenol in five hundred or a thousand parts of water is actively antiseptic for most of the common pathogenic bacteria, and a 1 per cent. solution is actively germicidal for nearly all of the nonsporulating forms, destroying them in a few minutes at ordinary temperatures. Anthrax spores, however, are not destroyed by a 5 per cent. solution in twenty-four hours.

Phenol is applied to the skin in dilute solution or preferably as an ointment to relieve itching as in piles. It is also useful as an application to small painful ulcers. The statement is often made that the pain of burns is increased by phenol, but such increase of pain is transient and an anesthetic action is then obtained. Phenol cannot be applied to large surfaces because of the danger of absorption.

It is often used as an antiseptic in the form of gargles and mouth-washes, but in most cases it can have little value as an antiseptic. Any benefit derived must be due to the allaying of irritation and the cleansing of surfaces, for phenol cannot be kept in contact with the bacteria long enough to have any important influence on their multiplication.

It is said to be of some value in vomiting. This is probably explained by its capacity for lessening the irritability of the gastric mucous membrane, by its anesthetic action. In that case it can have little more than momentary value. It has been used to relieve gastric fermentation, but it is not recommended for this purpose.

The antiseptic and disinfectant uses of many of the agents which have been discussed require no further consideration. Salicylic acid, the salicylates, including salol and aspirin, and the other derivatives of salicylic acid, are used widely for the relief of joint symptoms in articular rheumatism, and for the reduction of fever which attends that condition. Salicylic acid has no influence on the endocarditis that accompanies rheumatism so frequently, however, and, as previously stated, it does not prevent the recurrence of the rheumatic attacks.

The salicylates afford relief in rheumatism only while medication is continued. They are used for the relief of headache and other neuralgic affections, in chorea, in tonsillitis and in various catarrhal inflammations.

The salicylates cause some increase in the excretion of uric acid. For this reason, perhaps, they have been used in gout, but they are of little value in that condition. There is no evidence that any slight influence which they may have on the secretion of bile is of value in the treatment of constipation. Sodium salicylate is said to be useful in certain conditions of the eye, including iritis, keratitis and glaucoma.

* This is the thirteenth of a series of articles on useful drugs—on practical pharmacology for the general practitioner. As soon as completed, these articles, elaborated by additional subjects, will be published in book form.

The caustic action of salicylic acid is utilized for the removal of corns and calluses.

Large doses of the salicylates are contra-indicated late in the course of pregnancy because of their tendency to produce abortion.

Phenyl salicylate, or salol, is said to have an especial field of usefulness as an antiseptic in diarrhea and enteritis.

Its comparative insolubility in the gastric contents has led to its employment for coating pills intended to pass through the stomach and dissolve in the intestine, but the amount required to coat one or two large pills constitutes very nearly a full therapeutic dose.

DOSAGE

Phenol is crystalline at room temperature, and owing to the inconvenience of handling it, the liquefied phenol is usually employed. The dose of the liquefied phenol is 0.05 c.c. (1 minim), corresponding to about 0.04 c.c. (4/5 grain) of the crystalline.

Salicylic acid is seldom administered as such internally, sodium salicylate being commonly employed, or methyl salicylate (oil of sweet birch or oil of wintergreen) or aspirin may be used.

Methyl salicylate and sodium salicylate are usually given in doses of 1 gm. (15 grains), which may be repeated every hour or every two hours until the maximum permissible amount is given. This is indicated by ringing in the ears, perhaps some dizziness, and occasionally some slight mental disturbance such as confusion.

About 6 to 8 gm. (90 to 120 grains) are usually required to induce the symptoms indicative of the limits of tolerance, but if the larger amount fails to induce the usual symptoms, the dose may be given less frequently, or a smaller dose every two hours. After the symptoms appear the administration is usually limited to about three doses per day.

For headache and neuralgia much smaller amounts are employed, 1 gm. (15 grains) being usually sufficient.

Phenyl salicylate, or salol, is given in smaller amounts than is sodium salicylate because of the danger of phenol poisoning from such large doses. For whatever purpose salol is used, the dose should not usually exceed 0.5 gm. (8 grains).

Aspirin, or acetylsalicylic acid, is given in somewhat smaller doses than is sodium salicylate in the treatment of rheumatism, the symptoms which indicate the limits of dosage being the same as with sodium salicylate.

It is given in doses of 0.3 gm. (5 grains) for the relief of headache.

Benzoates might be given in larger doses than the salicylates were there any occasion to administer them internally.

Cresol is not often used internally, but the dose is said to be 0.05 c.c. (1 minim).

Creosote is given in doses of 0.2 c.c. (3 minims) three times daily, but it should be discontinued when it disturbs the appetite and digestion.

Guaiacol is given in doses of 0.1 c.c. (1½ minims) in an emulsion or dissolved in a bland oil contained in capsules, and if this dose is borne without disturbance it may be increased cautiously to 0.6 c.c. (10 minims). The carbonate of guaiacol may be given more boldly, since it is inactive until it is decomposed, the dose being 1 gm. (15 grains). It is incompatible with alkaline hydroxid.

The dose of thymol for ordinary purposes is said to be 0.1 gm. (1½ grains), but in the treatment of hookworm disease, it must be used more boldly as follows: For children under 5 years, the fine powder is given in doses of 0.5 gm. (8 grains); from 5 to 10 years, 1 gm. (15 grains); from 10 to 15 years, 1.5 gm. (22 grains); from 15 to 20 years, 2 gm. (30 grains); and over 20 years, 3 to 4 gm. (45 to 60 grains).

It is especially necessary to prevent its absorption when such large doses are used; hence oils and fats should be avoided in the diet.

Betanaphthol is used in doses of 0.1 to 0.3 gm. (1½ to 5 grains).

If the intestinal contents measure as much as 4 liters, the larger dose mentioned above would constitute a dilution of one part of betanaphthol in about thirteen thousand parts of the contents—a dilution in which its antiseptic action is extremely feeble at best. Such a dose probably has little antiseptic action beyond the small intestine.

Betanaphthol is sometimes used externally in the form of an ointment.

MATERIA MEDICA *

Sodii Salicylas.—Sodium Salicylate, U. S. P.

Sodium salicylate occurs as white pearly scales or as an amorphous powder; the commercial product usually has a slight buff or pink tinge. It is odorless and has a sweetish taste. It is very soluble (1:0.8) in water and freely soluble (1:5.5) in alcohol. Sodium salicylate is preferably administered in solution or in gelatin capsules. The widely used compressed tablet if given on an empty stomach may act as an irritant, producing nausea and occasionally vomiting. A mixture of sodium salicylate with sodium bicarbonate in the form of an effervescent draught is an acceptable method of administering the salt. The following prescription may be used for a mixture of this kind:

	gm.	
R Acidi salicylici.....	10	3 iiss
Sodii bicarbonatis.....	20	3 v
Misce et fac chartulas xx.		

Sig.: Dissolve the contents of one paper in a glass of water and drink as effervescence is about completed.

If an effervescent mixture is not desired it may be directed to be dispensed in the form of a "shake" mixture with water; care should be taken to have it recently prepared, as the alkali tends to decompose the sodium salicylate on standing.

Methylis Salicylas.—Methyl Salicylate, U. S. P.

An ester of salicylic acid ($\text{CH}_3\text{C}_7\text{H}_5\text{O}_3$) which occurs in oil of sweet birch and oil of wintergreen, or which may be produced synthetically, the products from the three sources being identical. Up to the present time there is no reliable method of differentiating between them.

Pure methyl salicylate is a colorless liquid having a characteristic strongly aromatic wintergreen odor and a sweetish, warm, aromatic taste. It is nearly insoluble in water but is miscible in all proportions with alcohol and the fatty oils.

For internal use methyl salicylate or either of the natural oils is best directed to be dispensed in capsules. It is also readily absorbed from the skin and

* Owing to lack of space, a part of the materia medica of this group has been omitted from THE JOURNAL. It will be included when the series is published in book form.

is frequently applied in the form of a liniment. A type prescription for this kind of application is the following:

R	Methylis salicylatis	c.c.	
	Linimenti saponis.....	50 |	℞ xii
M. Sig.: Use as a liniment.			

The soap liniment in the foregoing formula may be replaced by one of the fatty oils like olive oil, or, if an additional counter-irritant is desired, by chloroform liniment.

Betanaphthol.—Betanaphthol, U. S. P.—Naphthol.

Beta-hydroxy-naphthalene ($C_{10}H_7OH$) is a monatomic phenol occurring in coal-tar, but usually prepared by treating naphthalene with sulphuric acid and subsequently decomposing the naphthalene sulphonic acid thus formed.

Betanaphthol occurs as colorless or pale buff-colored crystalline scales or a crystalline powder having a faint phenol-like odor and a sharp pungent but not persistent taste. It is only slightly soluble (1:950) in water but very soluble (1:06) in alcohol. For internal administration it is usually directed to be dispensed in the form of powder or capsules, preferably in combination with bismuth subnitrate or bismuth subcarbonate.

R	Betanaphtholis	gm. 1 |	gr. xv
	Bismuth subnitratis.....	10 |	3 iiss
Misce et fac chartulas xx			

Sig.: One powder before meals.

For use as an antiseptic, protective ointment it may be prescribed as follows:

R	Betanaphtholis	gm. 2 |	gr. xxx
	Petrolati	30 |	3 i

M. Sig.: Use externally.

URINARY ANTISEPTICS AND DISINFECTANTS

HEXAMETHYLENAMIN

Numerous balsams, oleoresins and volatile oils were used formerly as antiseptics for the urinary tract, but these have been almost entirely superseded of late by hexamethylene-tetramin, or, as it is officially known, hexamethylenamin, which is sold under a great many different trade names, including urotropin, formin, aminoform, formamin and many others.

Hexamethylenamin is not actively antiseptic, but it is decomposed in acid urine with the liberation of formaldehyd, which is the active agent. Hexamethylenamin has no antiseptic action in the tissue fluids or in neutral or alkaline urine. Strongly acid urine liberates the formaldehyd much more effectively than does feebly acid urine; hence it is better to use even small doses of hexamethylenamin while adopting measures to insure marked acidity of the urine than to use large doses of the drug while the urine is alkaline or only feebly acid. The acidity of the urine can be increased by the use of acid sodium phosphate (NaH_2PO_4). Note that this is not the official sodium phosphate⁵ U. S. P. VIII, which is disodium phosphate (Na_2HPO_4).

Since the disinfectant and antiseptic activity of hexamethylenamin depend on the liberation of formaldehyd by acid mediums, it is obvious that it can have no material antiseptic value in the spinal fluid

during spinal meningitis. Large doses were used for this purpose after it had been observed that hexamethylenamin is secreted into the spinal fluid.

It is obvious that the hexamethylenamin should not be decomposed before it reaches the urine; hence acids and acid salts, including monosodium phosphate, and acetylsalicylic acid, should not be mixed with it, even though they are used simultaneously.

Hexamethylenamin is used to prevent the growth of micro-organisms in the urinary tract, and to destroy them when they are present in the urine during infectious diseases such as typhoid fever.

It is used as an antiseptic in cystitis and as a prophylactic in operations on the urinary tract. It is sometimes used to prevent nephritis in scarlet fever, but very large doses cause albuminuria.

A solution of formaldehyd is a solvent for uric acid, and on this basis hexamethylenamin has been used to dissolve calculi; but it is practically useless for that purpose.

It is one thing to hold a substance in solution or prevent its precipitation when one uses a concentrated solution of formaldehyd, and quite another matter to dissolve calculi in weak solutions such as one may secure in the urine.

Hexamethylenamin is sometimes used in infections of the respiratory tract, but formaldehyd can be applied directly in such cases and there is no evidence that hexamethylenamin has any value in such conditions.

DOSAGE

Hexamethylenamin is frequently administered in doses of 0.3 gm. (5 grains), though many practitioners prefer much larger doses, from 1 to 2 gm. (15 to 30 grains) being administered three or four times a day to patients who do not manifest the unpleasant secondary symptoms that are sometimes caused by it.

MATERIA MEDICA *

Hexamethylenamina.—Hexamethylenamin, U. S. P.

This preparation is known and used under a variety of trade names, and in foreign pharmacopeias is generally recognized by its chemical title, hexamethylene-tetramin ($(CH_2)_6N_4$, a product formed by the condensation of ammonia and formaldehyd with the elimination of water.

Hexamethylenamin occurs as colorless, lustrous, odorless crystals having, when in aqueous solution, an alkaline reaction on red litmus paper. It is freely soluble (1:1.5) in water, and soluble (1:10) in alcohol. Hexamethylenamin is incompatible with acids, acid salts and combination acids like aspirin, which react with it and liberate formaldehyd. It is also incompatible with salts of ammonia, from which it separates ammonia. To avoid possible decomposition it is best administered by itself either in simple solution or in the form of powder, capsules or cachets.

Argenti Nitras.—Silver Nitrate, U. S. P.

Silver nitrate is a germicide of extraordinary activity against the gonococcus. Solutions of from 1:10,000 to 1:2,000 have been used for injection into the urethra and solutions of 1:5,000 into the bladder, but even dilute solutions are irritant to the urethra, and silver nitrate has been largely replaced in recent years by the less irritant organic silver compounds.

⁵ Jordan, Anson: Urinary Antiseptics, Brit. Med. Jour., Sept. 13, 1913, p. 648.

* Owing to lack of space the materia medica of copaiba and oleum santali has been omitted from THE JOURNAL. It will be included when this series is published in book form.

Surfaces should be cleansed before applying the solution, the action of which may be stopped at once by applying a solution of sodium chlorid which precipitates the insoluble silver chlorid. This should be borne in mind when solutions are prepared, and only distilled water should be used for the purpose.

Silver nitrate has come into wide-spread use for treating the eyes of the new-born to prevent infection, especially where there is reason to fear gonorrheal conjunctivitis. Immediately after the head appears on the perineum the face is wiped clean and a drop of 2 per cent. solution of silver nitrate is dropped into each eye.

It is used in various forms of conjunctivitis but it should not be used indiscriminately, as it is capable of doing much harm when used in unsuitable conditions.

Some other uses of silver nitrate will be discussed when the astringents are considered.

Protargol, or silver proteinate, contains 8.3 per cent. of silver combined with albumin. It is used as a non-irritant substitute for silver nitrate in gonorrhea and in diseases of the eye, nose and throat.

Dosage.—Silver nitrate is used in solutions varying from 1:50 to 1:10,000. Protargol is used in solutions up to 20 per cent. The solutions of the latter are best prepared by sprinkling the protargol on the surface of the required amount of water and allowing it to dissolve spontaneously.

(To be continued)

Therapeutics

PREVENTION IS GREATER THAN CURE

(Continued from page 1075)

XXV

CEREBROSPINAL FEVER

EPIDEMIC CEREBROSPINAL MENINGITIS; SPOTTED FEVER

This disease occurs in epidemic and sporadic forms, the latter form being often difficult to diagnose. The epidemics are generally small in number of affected persons and more or less localized. While young children and young adults are most often attacked, it occurs not infrequently in camps, or in other groups of closely associated individuals. Hardship, privation, exhaustion and poor sanitation seem to allow it to occur. The sporadic form is always more or less present in most cities, and so-called "basillar meningitis" is doubtless generally this disease. Some epidemics in cities show a large number of very young children affected by it. Epidemics appear, both in this country and in Europe, most frequently in the winter and spring months, and the greatest number of sporadic as well as epidemic cases occur during March, April and May.

ETIOLOGY

The cause of epidemic cerebrospinal meningitis is the *Diplococcus intracellularis meningitidis*, also called meningococcus, which was first described by Weichselbaum, in 1887. These cocci are found in the spinal fluid. In appearance they are very much like gonococci, and lie in pairs either in or near the leukocytes. These germs are also found in the secretions of the nose and nasopharynx. They have been found in the blood stream, in the lungs, in the joints, and in other

parts of the body. The meningococcus is of low vitality and is readily killed by sunshine, drying and by freezing; therefore, with ordinary precautions the danger of contagion is slight. As in so many other diseases, carriers of this germ have been found, and they probably play a considerable part in the spread of epidemics and in the occurrence of sporadic cases. In those suffering from this disease the germ has also been found in the conjunctiva, and even in the pleura, and the meningococcus has been found in some instances¹ in the lungs of those who have had pulmonary inflammations without meningitis. The frequency with which this germ has been found in contacts has greatly varied, Goodwin and von Schelly² having found it in the nasal secretions in as many as 10 per cent. of contacts.

The way in which these germs in the nasopharynx reach the meninges and cause cerebrospinal fever has long been discussed. It seems probable, as they are early found in the blood, that the blood stream is the method of conveyance, although the possibility, especially in young children, of their reaching the meninges through the sphenoidal sinuses and first causing perihypophysial inflammation has been long considered and discussed. It is also possible that the blood may spread the infection from the bronchial mucous membrane.

Flexner³ produced meningitis in monkeys by injecting the infection intraspinally, though injections into the blood by other investigators had not caused the disease.

From these facts meningococcus cerebrospinal meningitis should be made a reportable disease, whether occurring in sporadic or epidemic form, and carriers should be sought, and when discovered, isolated and treated.

SYMPTOMATOLOGY

The disease generally begins suddenly, although there may be such prodromes as aches and pains, especially in the head, with a general feeling of weariness. Soon the headache becomes intense, and most severe in the back of the head. This headache is accompanied by fever, generally there is vomiting, and there may be early, in fulminating cases, delirium and stupor. Soon there is pain in the back of the neck, with more or less stiffening of the muscles, and tenderness and pain along the spine. Pain in the extremities and body occurs, stiffening of muscles or groups of muscles, and convulsive movements may be present. Deafness is a frequent symptom. Ringing in the ears may be present. The vision may be disturbed. The disease may be so rapid as to cause death within twenty-four hours or even less, but the usual duration is from two to four weeks. Even when the disease is protracted six weeks or more, death may still occur. In prolonged cases a peculiar intermittency or remission of symptoms often occurs.

Herpes frequently occurs on the mouth or face. The frequent occurrence of petechiae has given this disease the name of "spotted fever." Other eruptions, of urticarial type principally, often occur. The spleen is generally enlarged; the appetite is almost absolutely lost; there may be very obstinate constipation, rarely diarrhea. Albuminuria may occur; there may be polyuria or sugar may be found in the urine from irri-

1. Jakobitz: Ztschr. f. Hyg. u. Infectiouskrankh., 1907, lvi, 175.

2. Goodwin and von Schelly: Jour. Infect. Dis., 1906, p. 21.

3. Flexner: Jour. Exper. Med., 1907, ix, 142.

tation of the central nervous system. In some instances there is inability to void the urine, not infrequently due to the administration of opiates for the severe pain.

The height of the fever, while generally indicating the intensity of the disease, does not always do so, as a serious and dangerous attack may be accompanied by but little fever.

There is hardly any part of the body that may not show a complication from this disease. The most frequent complications are, perhaps, pleuritis, pericarditis, pneumonia and arthritis. Inflammations of the parotid glands and of the kidneys are not infrequent. Acute and permanent disturbances of the special senses, due to localized inflammations in different parts of the cerebrum, are not infrequent.

The prognosis has varied enormously in different epidemics, said to be from 20 to 75 per cent. With the serum therapy offered by Flexner and his co-workers this mortality has been very greatly reduced. In young children the mortality is greater than in adults. Even when the symptoms apparently ameliorate, the prognosis should be guarded, as many times a dangerous exacerbation occurs.

DIAGNOSIS

As the success of treatment in this disease depends so much on an early and immediate diagnosis, and the diagnosis is many times so difficult except by expert methods, it is essential, in discussing the therapy of this disease, to insure that the diagnosis is correct. This whole subject has recently been very ably discussed by Du Bois and Neal⁴ of New York. These physicians, specializing in the clinical and laboratorial findings in this disease, are able to present valuable statistics. They have examined 992 cerebrospinal fluids, and state that the conditions to be differentiated from meningococcic meningitis are streptococcic and pneumococcic meningitis, that due to the *Streptococcus mucosus capsulatus*, influenza, tuberculous meningitis, poliomyelitis and meningismus, particularly when it occurs in pneumonia.

There is always a leukocytosis in this disease, ranging from 25,000 to 40,000 per cubic millimeter. This leukocytosis is found early, and persists during the activity of the disease. Hess⁵ of Chicago found that the relative numbers of neutrophils and lymphocytes varied from time to time in this disease. He found that the eosinophils disappeared early in the infection and did not recur until convalescence was established. As sporadic cerebrospinal meningitis cases are often difficult to diagnose, and they many times simulate typhoid fever, besides the absence of a Widal reaction, a leukocytosis would preclude typhoid fever. Also, leukocytosis is not present in intermittent fever, and quinin should not be administered in meningitis; hence, an examination of the blood, by showing absence of malarial plasmodia and the presence of a leukocytosis would show the disease not to be malarial fever.

Meningismus is a condition now recognized as occurring not infrequently in serious illnesses, especially in children. It is most frequently seen in pneumonia, gastro-enteritis, and typhoid fever. While the cerebrospinal pressure may be increased in this con-

dition, there may be no germ invasion, and no real inflammation, and though many meningeal symptoms may be present, they may all rapidly improve. The subject of meningismus is also discussed by Du Bois and Neal.⁴

Du Bois⁶ states that the rigidity of the neck of infants in epidemic cerebrospinal meningitis is many times so easily overcome as to make one doubt its existence, but when the infant is turned on its side, the head is seen to be markedly retracted. Du Bois and Neal consider that the most important signs of meningitis are stiffness of the neck, variations of regularity in the rate and depth of respiration and MacEwen's and Brudzinski's signs. "MacEwen's sign is that which shows a change in the percussion note over the lateral ventricles due to increased intraventricular pressure;" while "Brudzinski's sign consists in the flexion and eversion of the legs and arms when an attempt is made to flex the head on the chest." Irregularities of the pupils, conjunctivitis, strabismus and nystagmus are all important signs of meningitis. Very young infants may show a bulging fontanel. Conjunctivitis is common in epidemic cerebrospinal meningitis, but these investigators find that it is rare in other meningeal conditions. Ptosis of the eyelids and strabismus they find more common in tuberculous meningitis. The so-called Biot's breathing, that is, markedly irregular respirations, both in depth and time, they find present in true meningitis. Cheyne-Stokes respiration is more frequent in tuberculous meningitis, and the pulse is more likely to be irregular in rate and volume in this than in other meningeal conditions. Paralysis they find infrequent in epidemic cerebrospinal meningitis, frequent but transitory in tuberculous meningitis, and always present in real poliomyelitis. The temperature is irregular in cerebrospinal meningitis; generally low in tuberculous meningitis; has a high rise and drops quickly in poliomyelitis.

The petechial eruption of so-called spotted fever they found to occur but infrequently, they having found it only sixteen times in 112 cases. On the other hand, herpes is frequent.

N. P. Barnes⁷ of Washington states that he has frequently found, in true cerebrospinal meningitis, that a rash could be caused by directing an electric light and reflector on any portion of the body. He has found this sign absent in other forms of meningitis. He also calls attention to the fact that he has noted dilatation of the pupils produced in all his cases when Kernig's sign was being elicited. Kernig's sign alone was found by Du Bois and Neal not to be important in young children.

Conner and Stillman⁸ of New York made a study of the respiratory irregularities of meningitis, and especially of Biot's "meningitic rhythm," which rhythm lacks the regular alternation periods seen in the Cheyne-Stokes type of respiration. These investigators found that Cheyne-Stokes breathing occurred in 53 per cent. of all cases of meningitis, and in 63 per cent. of all cases in children, and it was much more frequent in tuberculous meningitis. They found that "Biot's breathing, when it occurs, may be regarded as almost pathognomonic of meningitis,"

6. Du Bois, Phebe L.: Differential Diagnosis and Treatment of Epidemic Cerebrospinal Meningitis, THE JOURNAL A. M. A., March 15, 1913, p. 820.

7. Barnes, N. P.: Interstate Med. Jour., 1913, xx, 9.

8. Conner, Lewis A., and Stillman, Ralph G.: A Pneumographic Study of Respiratory Irregularities in Meningitis, Arch. Int. Med., February, 1912, p. 203.

4. Du Bois, Phebe L., and Neal, Josephine B.: Summary of Four Years of Clinical and Bacteriologic Experience with Meningitis in New York City, Am. Jour. Dis. Child., January, 1915, p. 1.

5. Hess, Julius H.: Leukocyte Counts in Pneumonia and Cerebrospinal Meningitis, Am. Jour. Dis. Child., January, 1914, p. 1.

while the Cheyne-Stokes type they found to be of no special diagnostic value in adults, but in children, if associated with other suggestive symptoms, it points decidedly toward meningitis.

Of course the most important diagnostic determination is made by spinal puncture. It may be well first to note that Dixon and Halliburton⁹ have recently investigated cerebrospinal pressure. After hemorrhage they find a fall in this pressure. They found that variations in cerebrospinal pressure alter the cerebrovenous pressure. They experimented also with various drugs, and found that suprarenal pressor substance affected the cerebrospinal fluid only indirectly, and that the cerebrospinal pressure falls more rapidly than the blood pressure. There is a rise in spinal pressure after the administration of amyl nitrite. They found that deficiency in oxygen or an increase in carbon dioxid in the blood raised the cerebrospinal pressure. In other words, they concluded that there may be constant variations in the amount of the cerebrospinal fluid and consequently the cerebrospinal pressure, due to different conditions of the circulation, but that the amount of change was insignificant compared with that caused by secretory activity of the walls of the cerebrospinal canal.

The Lange gold chlorid reaction of the cerebrospinal fluid of infants and young children as giving evidence of cerebrospinal disease, and especially of syphilis, has been recently tried in over sixty children, by Grulee and Moody¹⁰ of Chicago, who give their technic, but from their findings come to the conclusion that the test is only an aid in diagnosis.

In spinal puncture Du Bois and Neal find that "a clear fluid increased in amount indicates usually one of the following conditions: tuberculous meningitis, poliomyelitis, syphilitic involvement of the central nervous system, brain tumor, or meningismus. A cloudy fluid is the result of a meningitis due to the meningococcus or some of the other pyogenic organisms." As above suggested, in meningismus there is increased cerebrospinal fluid, but it is normal in character. The amount of fluid withdrawn by Du Bois and Neal has varied greatly; they have withdrawn as much as 100 c.c. "In a true meningitis the fluid is inflammatory in character—of the nature of an exudate, and shows an increase in albumin and globulin, and in the number of cells." In meningismus they consider the increased fluid as a transudate. With a cloudy fluid and the finding of the meningococcus, the diagnosis of so-called cerebrospinal fever is positive.

PREVENTION

In the first place, it may be mentioned that rarely it has been noted that the disease has attacked an individual more than once. In the second place, carriers have become more or less immune, but it is self-evident that, having been discovered, although close contact is needed, and though the germ is not sturdy and is readily killed after leaving the body, they must be isolated and treated. Therefore, the persons immediately surrounding a case of meningococcic meningitis should have the secretions of the nose and nasopharynx examined for this germ. It has not been shown just what local treatment of the nose and throat

of these individuals is advisable, but antiseptic sprays, swabbings and gargles are certainly indicated.

Vaccinations, with dead meningococci, of children who have been directly exposed to the disease, and of the nurse or other persons, who must care for cerebrospinal fever patients would seem to be advisable in preventing the spread of the disease. It has been suggested that a moderate amount of immunity would be sufficient to prevent this particular infection. How long immunity would last is not known. Vaccination with this germ causes a febrile reaction, with leukocytosis. Meningococcus vaccines are now prepared, and can be readily obtained. Sophian and Black¹¹ have discussed this subject. Meningococcic vaccine has been injected, and antimeningococcic serum has been sprayed into the noses and throats of carriers, with some success. It has not been shown how constantly this treatment is successful.

TREATMENT

It is hardly necessary to urge that the disease should be made reportable, and be reported as soon as the diagnosis is positive. A patient with any primary meningitis should be more or less isolated until the germ of infection has been determined.

Flexner has given us a specific treatment, and the method to be followed in its administration cannot be better described than by once more referring to Du Bois and Neal.

If the fluid taken from the spinal canal is cloudy, they immediately inject antimeningitis serum, warmed to the body temperature, and injected slowly. They consider a syringe as dangerous, and adopt Koplik's gravity method. They state, in general, that the dose for an adult is from 20 to 40 c.c., and for infants and children from 3 to 20 c.c., the amount largely depending on the quantity of fluid withdrawn, and the dose should usually be from 5 to 10 c.c. less than the amount of fluid withdrawn. They state that occasionally in true meningococcic meningitis they have obtained no fluid from the canal in spinal puncture, so-called dry tap. In such cases they have injected a small amount of the antiserum, with careful watching of the patient to note changes in pressure as determined by the character of the pulse and respiration. In severe cases they inject the antiserum every twelve hours until there is improvement. In moderate and mild cases they usually repeat the injection once a day for four days. The bacteriologic findings of the fluid withdrawn at the last injection, and the condition of the patient, determines whether the antiserum should be given longer. They state that usually from four to six injections are necessary, but they have given sixteen or more. On successive punctures and injections the patient is turned first on one side and then on the other, which they think insures the emptying of the lateral ventricles in rotation. In other words, a patient who lies on his right side for one puncture will be placed on his left for the next.

A number of times they have seen the patient go immediately into a condition of shock after the injection of the serum, with the respiration shallow, the face pale, and the pulse rapid and thready. They have never, however, seen a patient die in this condition, and if the needle is still in place they withdraw some of the serum. Artificial respiration is resorted

9. Dixon and Halliburton: *Jour. Physiol.*, 1914, *xlvi*, 128.

10. Grulee, C. G., and Moody, A. M.: The Lange Gold Chlorid Reaction on the Cerebrospinal Fluid of Infants and Young Children, *Am. Jour. Dis. Child.*, January, 1915, p. 17.

11. Sophian, Abraham, and Black, J.: Prophylactic Vaccination Against Epidemic Meningitis, *THE JOURNAL A. M. A.*, Aug. 17, 1912, p. 527.

to if the breathing has ceased, and hypodermic stimulation of the heart is given. This condition of shock does not occur frequently with the smaller doses that are now administered. The serum they have lately used contains 0.2 per cent. of trikresol, and as they have used trikresol serum over five hundred times in patients of all ages, they do not believe that fatalities are due to the phenol contained. However, on account of objection having been made to trikresol, they are ready to try chloroform as a preservative.

Barnes¹² states that antimeningococcus serum differs from ordinary antiserums in that it is destructive to the meningococci, and at the same time neutralizes the endotoxins set free during the destruction of the germs.

If a case of cerebrospinal fever shows a tendency to become chronic, Du Bois and Neal make an autogenous vaccine and give it every four or five days, "in doses of from 250 to 1,000 million" bacteria. They are not convinced of the value of this treatment, but they have not seen it do any harm.

The general treatment of cerebrospinal fever demands the best hygienic surroundings obtainable, and a quiet, cool, darkened room, as in any meningitis. The bowels should be thoroughly moved in the beginning, and then, daily, or every other day, the patient should receive a laxative, if needed.

As the vomiting is reflex, stomach sedatives are of no avail. As the central condition is improved or the patient becomes more stupid, the vomiting will cease. Food in the early stages should not be pushed, as there is great repugnance to it. Plenty of water, and later simple cereal gruels and milk should be the early diet. The subsequent diet should depend on the height of the fever and the ability of the patient to digest. In the stage of convalescence food should be pushed, if it is well digested. Through the acute illness, starches should be given to prevent acidemia. If the pain is sufficient to require sedatives, much food should not be given, as it will not well digest.

A most important symptom of this disease is likely to be pain, and there is no excuse for allowing a patient, because it is a young child, to suffer pain. Morphin or codein represent the most efficient and the safest drugs, the dose, of course, being regulated according to the age of the patient and the effect. Generally it is better to administer a very small dose hypodermically than a large dose by the mouth; the action of the whole dose is obtained, and there is no doubt as to whether or not it is absorbed. Ergot given in aseptic form, intramuscularly, not only seems to act as a sedative to the nervous system and possibly diminishes congestion, but it certainly prolongs the action of any dose of a narcotic. Less morphin, codein or other narcotic will be required to stop pain and cause rest if ergot is coincidentally given. If the blood pressure is low, this is another indication for the administration of ergot. Generally, if the blood pressure is high, ergot should not be given.

Local applications of cold and ice to the head (the hair being cut short) and to the spine, may inhibit the inflammation, and sometimes seem to be of great value. At other times these cold applications seem to increase the pain. This seems to be especially true if the temperature is low. Exactly what these cold applications do to the blood vessels of the parts inflamed is a question that has not been determined. Cold sponging of

the body is hardly advisable, as it tends to increase the internal congestion. Theoretically, it would seem more sensible, and practically it is often better to use hot applications, as hot sponging, and even hot baths have been advised, for very young children, to relieve the congestion of the central nervous system.

Painful joints may be wrapped in cotton and kept warm, much as is done in rheumatism. Conjunctivitis should be treated with a simple boric acid wash. The throat and nose should be cleansed with simple saline sprays or mild antiseptic gargles.

There would seem to be no excuse for the administration of quinin, strychnin, caffein, or any other cerebral stimulant. It would also seem inadvisable to administer alcohol in any form. If the blood pressure is high, hot sponging, small doses of nitroglycerin and more brisk catharsis are indicated.

The patient should remain in bed for at least a week after the cessation of the fever, and convalescence should be slow, and the return to activity should be delayed. During convalescence it is well to administer small doses of sodium iodid, as iodid seems to be efficient in aiding the absorption of exudates. Iron and other tonics may be indicated.

Stiffening of the muscles and joints may require massage, and, if there are any adhesions in the joints, the orthopedist should be consulted as to whether passive movements or forcible breaking up of these adhesions under an anesthetic is advisable.

The frequency with which mental deterioration occurs can only be determined by a long careful study of many cases. Cerebral degenerations and disturbances may develop after many years and yet apparently have been caused by this disease.

The various complications that may occur have already been mentioned, and their treatment would be that usual for the localized inflammation modified by the general condition of the patient from the cerebrospinal fever.

INFLUENZAL MENINGITIS

That the *Bacillus influenzae* can cause meningitis has long been known. It has been well described by Rhea¹³ of Montreal. The serum treatment of influenzal meningitis was presented by Wollstein.¹⁴ Dr. Flexner has produced an anti-influenzal serum which may now be used in this disease. The success of such treatment has not yet been determined.

A brief but careful review of recent literature up to about a year ago, on meningitis other than that of cerebrospinal fever, has been presented by Heiman and Feldstein.¹⁵

(To be continued)

13. Rhea, Lawrence J.: Cerebrospinal Meningitis Due to *Bacillus Influenzae*, Arch. Int. Med., August, 1911, p. 133.

14. Wollstein: Jour. Exper. Med., 1911, xiv, 73.

15. Heiman, Henry, and Feldstein, Samuel: Résumé of the Recent Literature on Meningitis (not Including Meningococcus Meningitis). Am. Jour. Dis. Child., September, 1913, p. 199.

Distinctive Poison-Containing Bottle.—R. J. Lackner has invented a bottle to contain poisons which will give warning of its dangerous contents every time the bottle is opened. The device consists in a specially constructed cork containing a highly odoriferous substance the odor of which escapes immediately the cork is removed from the bottle and warns not only the person opening the bottle, but those in the immediate vicinity. By this means Lackner believes many lives would be saved that are now sacrificed by the mistake of getting hold of the poison-containing bottle.

12. Barnes: Interstate Med. Jour., 1913, xx, No. 9.

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CLIMATE AND THE DISTRIBUTION OF PLAGUE

Epidemiology often affords unique instances of immunity to disease that call for careful inquiry to explain them. The freedom of certain areas from invasion by infections which have devastated neighboring regions is frequently a phenomenon that, when understood, will reveal secrets of importance in respect to the implantation of disease. An instance of what is here referred to is found in certain parts of India. Although much of that country has suffered severely from the plague, the Madras Presidency has been affected to a relatively slight degree. To account for this immunity has been one of the many problems confronting the British commission appointed to deal with the plague in India. The ninth report,¹ just issued by the advisory committee appointed by the secretary of state for India, the Royal Society of London and the Lister Institute, deals with this subject.

As a starting point it must be emphasized that the evidence that in India bubonic plague is determined by the simultaneous occurrence of the disease among rats, and that the rat flea is the agent whereby the virus is transported from rat to man, is overwhelming. It became important, therefore, to determine whether the conditions in Madras as regards rats, fleas and allied factors were such as to be unfavorable to the spread of the plague; or whether certain districts had escaped because the infection could not easily reach them. A comparative examination of rats and fleas found in severely or moderately infected areas and in the plague-free districts of the Madras Presidency has shown that in none of them, in the light of the commission's experience elsewhere, was the number of the rodents and their parasites too small to permit the development of an epidemic among them.

From the fact that severe epidemics have occurred in localities in which the rats and fleas are far less numerous than in the places which have escaped infection, it must be assumed that other factors account for

the comparative deficiency in rats and fleas. The immunity can scarcely be due to a lack of susceptibility to plague in the case of rats caught in the places that have been free from plague epidemics; for, as a matter of fact, actual investigation has shown that the rats caught in the plague-free districts are extremely susceptible. It is not unlikely that during the course of a succession of severe plague epidemics in a place, a race of rats is ultimately established, the individuals of which are comparatively immune to the disease. This is probably brought about by the destruction of susceptible rats in the recurring epidemics and the survival of the more immune which are capable of transmitting their immunity to their offspring. The existence of highly susceptible rats in the Madras district may be interpreted to mean that the areas in which they are found have long escaped the plague.

The India Plague Commission is inclined to the belief that the physical features and climate of the Madras Presidency are the important influences in limiting the distribution of the plague in it. When rat fleas are separated from their host, they speedily succumb to the combined effects of a high temperature and drying. The seasonal variations in the number of fleas caught on rats is in accord with the effect of climatic factors on the insects. Unfavorable conditions are found in the hot and dry plains, in contrast with the cooler and moister sea-coast districts. As plague is carried from place to place in the bodies of infected fleas, any local conditions affecting the survival of these insects apart from a host are of importance in determining the liability of the neighborhood to plague. Even when infected rats are transported from place to place, there is nevertheless an interval when infected fleas are separated from their host before they may find access to man, during which they are subject to prevailing climatic conditions. Plague-free Madras may thus owe its comparative immunity in part to the warm climate obtaining over the greater part of the presidency. Invasion is further restricted by the fact that a low-lying comparatively hot and dry plain separates the areas at present infected from the more humid and cooler coastal regions, especially in the north of the presidency. In certain years, especially when the temperature has been lower and the humidity higher than normal, plague has extended to the places immediately adjacent to more commonly infected areas. There is, however, little tendency for the plague to flourish in places beyond its usual limits.

The districts which have suffered most resemble each other in being the most elevated and coolest regions of the presidency; but they also have the characteristic in common that they are in closest proximity to infected areas outside the Madras Presidency. It is not intended to overlook the fact that a number of circumstances, some more, others less favorable to the development of the disease, are usually at work

1. Ninth Report Issued by the Advisory Committee Appointed by the Secretary of State for India, the Royal Society of London and the Lister Institute, Jour. Hyg., Plague Supplement IV, 1915. The results of a preliminary inquiry were published as the seventh report, supplement to the Journal of Hygiene, 1912.

together. Meteorologic conditions which are believed to have such a large influence on the duration of life of the rat flea when separated from its host, so that a cool, moist atmosphere often allows it to survive ten times as long as in hot dry air, can no longer be overlooked. Evidently fleas would have some difficulty in arriving alive at any place which was surrounded by a zone of country in which a high temperature, especially in conjunction with a low humidity, continuously prevailed. On the other hand, traffic conditions are certainly not without some bearing in the distribution of the plague.

It is difficult to estimate the relative importance of the facilities afforded for the transport of insects from infected to uninfected localities and the climatic agencies. Probably they have unlike significance in different places. According to the latest India plague report, the extraordinary susceptibility of Madras rats to plague, in conjunction with the absence of any historical record of the disease in this part of India, suggests that the present immunity of the province is not exceptional and that the Madras Presidency has escaped plague not altogether because of the measures which have been adopted to prevent its spread during the present pandemic, but largely owing to climatic or other peculiarities.

IMPROVEMENT OF MEDICAL CONDITIONS IN CHINA

THE JOURNAL last year announced the appointment of a commission by the Rockefeller Foundation to study medical and health conditions in China. The report of this commission has just been received. A casual review of it reveals vividly the tremendous need for better medical, hospital and nursing service in that country. The commission believes that better medical teaching is the first step, and with that idea it studied carefully existing medical schools. Seventeen schools were visited, together with various universities and secondary schools, both missionary and governmental, and a large number of hospitals. Everywhere the lack of funds, personnel and equipment for effective work was apparent. In only one or two medical schools was there anything that resembled adequate teaching facilities. The central government maintains schools at Peking and Tientsin, and there are government-supported schools in some of the provinces. Missionary medical schools are found in almost every province. These were started as dispensaries and hospitals, and the necessity for native assistants, as the work grew, led to the training of young men for such purposes, and finally some of them were educated in medical science by the hospital physicians. In only a few places, likewise, were adequate hospitals found, but many, mostly under missionary management, were doing good work under great difficulties. The report emphasizes that the need for medical work

in China is great, and the opportunities for progress in all lines are equally great.

Though there is opposition in some quarters to western medical methods, this is rapidly breaking down, and the objects of the commission were approved by officials and prominent citizens in all the places visited. The commission recommends that the foundation undertake medical work in China in cooperation with missionary and other existing institutions; that a high standard be maintained for medical instruction, which should be in the English language; that the time is not ripe for large public health work on account of lack of suitably trained men, though existing hospitals should be assisted and two model tuberculosis hospitals established; that the first educational work organized should be at Peking, if possible in connection with the existing Union Medical College; that the Christian College for medical education at Canton and the Yale Mission at Changsha should be assisted, and that the two competing medical schools at Shanghai, both under American auspices, should be made over into a single institution. Other recommendations refer to fellowships, scholarships, the development of hospitals, the training of nurses in the hospitals aided by the foundation, and the training of a few selected women in the United States. The requirements of the situation are so great that the development of effective service will be the work of years.

The report is a record of a splendid piece of work, accomplished in a comparatively short time, by a body of experts happily selected for the task. It is a document of great human as well as medical interest in the picture which it reveals of conditions in an awakening country.

TYPHOID FEVER IN THE PHILIPPINES

There are statistics available to indicate that typhoid fever is somewhat more prevalent in certain parts of our insular possessions in the Far East than it was in former years. It would probably be overhasty to say that the disease is on the increase. At the Philippine General Hospital in Manila there was a fairly uniform relationship of the number of typhoid patients admitted to the total admissions, during 1911 and 1912. During the first half of the year 1913 there was a marked increase. The factors concerned are not easy to detect; for it is doubtless true that the people concerned are becoming more accustomed to hospitalization, and the incidence of a severer type of malady like typhoid may thus indirectly come more prominently to our attention. We are reminded in any event that the importance of recognizing the incidence index of typhoid fever in the Philippines cannot be overemphasized, because once this infection gains a foothold, it will be difficult to eradicate owing to the peculiar environment and poor hygienic conditions under which most of the people live.

It is desirable to learn more about the clinical characteristics and mortality of the disease among the native inhabitants of the tropical countries than is known at present. Interest attaches, therefore, to a summary by Dr. Gutierrez¹ of the conditions observed in the large government hospital at Manila, where most of the cases of typhoid fever treated occur among native Filipinos. It is based on a study of 125 Filipinos out of a total of 137 cases admitted to the Philippine General Hospital during a period of a little less than two years.

In the Philippines there is noted the same seasonal incidence which is characteristic of typhoid in Europe and the United States, where the greatest prevalence is seen during the autumn months, continuing into the winter, and declining in the spring. The variation in seasonal distribution is perhaps not so marked; and in view of the limited series of cases, conclusions must be expressed with reserve. The sex incidence offers no features of novelty. The age incidence likewise corresponds in a general way with that observed in other countries.

With respect to the clinical features, Dr. Gutierrez points out that although the fever course of the typhoid seen in the Philippine General Hospital is essentially the same as in the United States and in Germany, the temperature is much lower and the fastigium is not so typical. This may account for the fact that delirium and the typhoid state are not so common as in other countries. Relapses occur about as frequently; abortive types appear to be rather common, and are often difficult to diagnose. For this reason, in the Philippines every continued fever with slow pulse and enlarged spleen should have a serum reaction and other confirmatory tests, along with blood culture in all cases of doubt.

Intestinal hemorrhages have occurred in nearly one-seventh of all cases. The only explanation suggested for this large number is the neglect of the gastrointestinal canal consequent to delay among the Filipinos in receiving medical attention. Perforation is likewise common. Although the mortality seems high when the records are superficially examined, the peculiar conditions encountered must be borne in mind before evaluating the statistics. The Filipinos undoubtedly have a lowered resistance consequent on their modes of life and limited diet. Many patients come to the hospital in a hopeless condition and thus help to swell the death rate. We are assured, however, that as the diet of the natives is being improved and the cases are admitted to the hospital earlier in the course of the disease, a more normal death rate is being approached.

This is what may be expected in an institution which, during the few years of its existence, has

worked so effectively for the relief of the sick in Manila and in the provinces, has contributed much to scientific medicine, has helped to raise the standard of hygiene and of medical practice in the Far East, and has abundantly justified the expectations of those who have confidence in the efficiency of American institutions.

THE RIPENING AND STORAGE OF CERTAIN FOODS

The fruits of plants and storage organs, such as roots and tubers, have always furnished a considerable component of the diet of mankind, and are therefore entitled to serious consideration in respect to their chemical composition and nutrient virtues, as well as from the point of view of their economic availability. Every one makes the distinction between ripe and unripe products of this sort in every day life; yet there is a surprising dearth of information in many directions as to precisely what the basis for such differentiation is. Why one variety of apples, picked in October, is deemed ripe and ready to be eaten raw, whereas another, growing in the same field, is designated as a "winter variety" which is unfit for consumption until several months later, unless it is cooked, is rarely considered by the consumer. The fact of a difference between fall and winter, or early fall and late fall varieties, has become associated in his mind with color, form, type and names — rarely with anything directly suggestive of a real chemical or biochemical basis for these distinctions.

In many of these plant products the act of ripening is attended by a process of real respiration, in which carbon dioxide is produced and given off with more or less vigor by the part involved. Usually this concerns primarily a conversion of insoluble carbohydrates into soluble sugars, which latter are then in part used up in the respiration functions. Ripening effects a loss in the total carbohydrate content of the fruit, for example, as well as an attendant development of soluble carbohydrates. Apples which are ripe early have developed a considerable content of sugar by transformation of starch, the content of which is correspondingly decreased. The unripe apple is relatively rich in starch and poor in sugars. The speed with which the ripening changes proceed varies widely with species and varieties of plants as well as with the temperature of the environment. They proceed apart from all connection with the original plant, as we commonly note when green fruit, prematurely removed from its vegetative connection, proceeds to ripen properly.

The United States Department of Agriculture has recognized the desirability of increasing our knowledge of what constitutes "ripening," as is witnessed by two investigations recently reported from the gov-

1. Gutierrez, P.: Typhoid Fever in the Philippines, *Philippine Jour. Sc.*, (B), 1914, ix, 367.

ernment laboratories at Washington.¹ With respect to the composition of bananas during ripening, they show that the most conspicuous change is the long recognized conversion of starch into sugars. It is most rapid while the fruits are turning from green to yellow. During this period, the respiration rate increases manyfold, becoming greatest at the time when the rate of starch hydrolysis is most rapid. Starch hydrolysis then gradually slackens, later ceasing altogether. Next to the starch and respiration changes, most conspicuous are those of water. The peel loses, while the pulp gains in water by a steady transfer of the latter to it from the peel during ripening. The quantities of protein, ether soluble and mineral matter, show little alteration during this process.

Somewhat comparable changes take place during the storage of an entirely different food product, the sweet potato. The carbohydrate metabolism of this tropical form is different from that of the ordinary variety of potato. Sugar is developed far more readily, with the result that the storage of sweet potatoes is accompanied by considerable losses as a result of decay brought about by micro-organisms which invade the tissues. These destructive changes are not yet wholly preventable by any of the methods of storage in common use.

During its growth, the sweet potato root is characterized, according to Hasselbring and Hawkins,¹ by a very low sugar content. The reserve materials from the vines are almost wholly deposited as starch. Immediately after the roots are harvested, there occurs a rapid transformation of starch into cane sugar and reducing sugars. This initial transformation seems to be due to internal causes, and is largely independent of external conditions. Even at a temperature of 30 C. (86 F.), both cane sugar and reducing sugars accumulate during this initial period in excess of the quantity used in respiration, while during subsequent periods the quantity of reducing sugar diminishes at that temperature as a result of respiration. These initial changes seem to be associated with the cessation of the flow of materials from the vines. In sweet potatoes stored at a temperature of from 11.7 to 16.7 C. (53 to 62 F.), the moisture content remains fairly constant. There is a gradual disappearance of starch during the first of the season (October to March) and probably a reformation of starch accompanied by a disappearance of cane sugar during the latter part of the season (March to June). The changes in reducing sugar are less marked than those in cane sugar. The changes in starch and cane sugar appear in a general way to be correlated with the seasonal changes in the temperature. In sweet

potatoes kept in cold storage (4 C., 39.2 F.), there is a rapid disappearance of the starch and an accompanying increase in cane sugar. These changes do not attain a state of equilibrium at that temperature, as the sweet potatoes invariably rot by the action of fungi before the changes have reached their maximum. At both high and low temperatures, cane sugar is the chief product formed by the conversion of starch in the sweet potato. The quantity of invert sugar in the root at any time is comparatively small.

To the casual observer it may seem like a matter of minor import to ascertain why sweet potatoes are sweet and what constitutes a really ripe banana. In these days when the limitations of the seasons are no longer allowed to set restrictions on the food demands of mankind, and when questions of effective economical methods of transportation and storage are seriously studied, it becomes essential for practical as well as theoretical reasons to unravel the details of the biologic processes involved.

THE STATUS OF A THERAPEUTIC AGENT IN DIABETES

The lactone or inner anhydrid of alpha-glycoheptonic acid (sold under the name of "hediosit"¹) was introduced into the therapy of diabetes a few years ago by Prof. Georg Rosenfeld of Breslau, an investigator of carbohydrate metabolism. The features which seemed to recommend it, aside from its lack of toxicity and a very moderate degree of desired sweetness, were the alleged property of decreasing the glycosuria of the diabetic, along with some food value secured by the oxidation of the substance in the organism. The product appeared, therefore, to resemble glucose in its nutritive value, without exhibiting the lack of utilization experienced by the true sugars in diabetics. Hediosit has been fed in quantities of from 10 to 30 grams (3 drams to 1 ounce) per day without obvious untoward results, thus suggesting a means of supplying some energy in addition to antiglycosuric effects. Larger doses may lead to a laxative action.

The quantitative limitations in the use of this new product are such that at best it can replace little food in the dietary, and its value as an energy-yielding compound must be controlled by exact investigation. Studies by Lenel,² in Professor Umber's clinic at Charlottenburg-Westend, have an important bearing on the behavior of hediosit. Under normal alimentary conditions it was observed that upward of a quarter of the administered quantities is lost again in the stools. When a laxative effect is present, the loss in this way may amount to as much as 80 per cent. But the quantities remaining in the feces do not represent the entire amount escaping oxidation. The urine likewise con-

1. Gore, H. C.: Changes in the Composition of Peel and Pulp of Ripening Bananas, *Jour. Agricultural Research*, 1914, iii, 187. Hasselbring, H., and Hawkins, L. A.: Physiological Changes in Sweet Potatoes During Storage, *ibid.*, 1915, iii, 331. The earlier literature is reviewed in these papers.

1. New and Nonofficial Remedies, 1915, p. 144.

2. Lenel, R.: Die Ausnutzung des Alpha-Glykoheptonsäurelaktons (Hediosit) beim Diabetischen und Nichtdiabetischen, *Arch. f. exper. Path. u. Pharmakol.*, 1914, lxxvii, 335.

tains some of the unchanged product. In some cases Lenel has administered the lactone intravenously in order to insure its entrance into the circulation. Under these conditions as much as 100 per cent. of the introduced substance has been recovered; and the recoveries after oral administration are likewise frequently very considerable, amounting to nearly half of the 20 grams administered.

It had been hoped by the German investigators, following the experience of Abderhalden and others with parenteral introduction of other substances, to develop similarly the production of enzymes, which might be able to metabolize the lactone and thus lead to its more perfect utilization in the organism. As yet there is no evidence that this can be successfully done. In several cases there was an apparent failure to recover the usual large output of the lactone after its introduction intravenously during a series of days. A study of the urines showed, however, that the apparent utilization was due to a retention associated with deficient kidney function. With these suggested limitations in the dosage, as well as the capacity of the organism to oxidize the new compound, its nutrient value as a substitute for the untolerated sugar is exceedingly limited at best. The antiketogenic properties are debated; the antiglycosuric effects uncertain. In view of this, the major claims for what promised to be a useful therapeutic product remain to be more convincingly demonstrated.

Current Comment

PUBLIC EDUCATION IN MARYLAND

The organization of the Council on Health and Public Instruction of the American Medical Association, at the St. Louis meeting in 1910, was a definite recognition of the obligation on the part of the organized medical profession to educate the public, and to make its special and technical knowledge available as far as possible for the guidance of the people. Like all other activities of the American Medical Association this work can reach its highest development only through the coordinating and cooperating work of the state associations. For this reason, each state association was asked to establish a state committee on health and public instruction if it had not already done so, or to delegate this work to one of its existing committees. Many states are now taking up this work. Probably in no state has it been developed to any higher point than in Maryland, in which the work of the Committee on Public Instruction was early inaugurated and has been carried on vigorously and enthusiastically. In a recent issue of the *Bulletin of the Medical and Chirurgical Faculty of Maryland* appears an editorial review of the work of this committee for 1914. After stating that without question this work is one of the most important and valuable factors of the state association activities, attention is called to the health week held in Baltimore, with its

accompanying public health exhibit, and to the smaller meetings and exhibitions held throughout the state, as well as to the large number of lectures and public talks on health topics given by members of the faculty in different towns and cities. A noticeable feature is the number of members taking part in this work, thirty-five speakers being furnished from the members of the state society. The subjects were generally popular questions of hygiene. The addresses were given throughout the entire year in churches, school-houses, colleges and town halls, and before labor organizations, women's clubs, local business men's organizations and similar bodies. One hundred and eighty such addresses were given throughout the year. The work of the Committee on Public Instruction in Maryland is worthy of commendation and should be duplicated, as far as possible, in each one of our states.

A MODEL CONSTRUCTION CAMP

The construction camp of the United States Reclamation Service at Elephant Butte, N. Mex., where the government is constructing an irrigation plant, is an example of what may be done in a construction camp. It is described by Dr. J. Dale Graham.¹ The camp has 3,000 inhabitants, 1,200 of whom are employees of the Reclamation Service, and there are many families with children. Most of the laborers are single men, and live in cottages or barracks. These are screened, lighted with electricity, sewerage and provided with water. Septic tanks are provided for the disposal of sewage, both in the official and the other divisions of the town, which are separate. A regular system of garbage and waste disposal is provided, wastes being burned and edible garbage being hauled from the city and fed to hogs, which are kept a long distance away. Flies in both the upper and lower towns are at a minimum, and fly traps are provided to trap those which do appear. The commissary, where well kept foods at reasonable prices are to be had, is under government control. All markets are screened, and ice and cold storage are provided. Shower baths, urinals and lavatories are provided in men's quarters, and private cottages have modern conveniences. There is a well-equipped hospital containing two private rooms and wards to accommodate twelve beds, or more in an emergency. The personnel includes a physician, a nurse, an orderly and a housekeeper. A consulting surgeon is available. Reports to the engineering department on the medical service, the sanitation of the camp and the statistics of illness, absence from work, etc., are made each ten days, every month and at the end of the year by the head of the sanitary division. The business of the physician of the camp has become not so much to treat the sick as to create and maintain conditions which will keep illness at a low ebb. Physical examination of applicants for work is carried out, vaccination for smallpox and typhoid are required, and it is said that typhoid vaccination has not caused any employee the loss of time from work. In the parts of the town not taken care of by the septic

1. Graham, J. D.: Engineering News, Dec. 31, 1914.

tanks, privies of approved pattern are employed, which are kept in good condition by the use of lime and oil, and are carefully screened. Amusements are systematically provided, and liquor is to the greatest extent kept out of the camp, so that it has not proved to be a nuisance. After three years of experience, Graham concludes that the price of good sanitation in such a place is an eternal fight, but that anything tending to create a better moral and sanitary environment increases the efficiency and output of the employee.

CARCINOMATOUS INVOLVEMENT OF NERVES

The lancinating pain characteristic of carcinoma long since directed attention to the possibility that the attacks of pain depend on direct involvement of the nerves in the affected region. The recorded observations indicate that at least in occasional instances of carcinoma associated with especially severe pain, carcinomatous infiltration of the nerves takes place to such an extent as to constitute a reasonable and tangible explanation of the pain. On the other hand, carcinomatous infiltration of nerves may be encountered without having been associated with even the slightest degree of pain, and of course carcinoma may be associated with pain without demonstrable involvement of the corresponding nerves. The true relationship between pain in carcinoma and the condition of the nerves, consequently, still remains obscure and invites further careful investigation by modern methods. The statement is sometimes made that carcinomatous infiltration of nerves is unusual,¹ but in all probability thorough and systematic examination will show it to occur more commonly than is ordinarily believed. Thus Ernst² enumerates single instances of carcinoma originating in a variety of places, in each case of which there was infiltration of the nerves of the region; and Fenger,³ to whom we owe an early (1874) and exceptionally thorough but overlooked study of this question as it applies to carcinoma of the stomach, found that in four of twenty-nine cases the carcinoma had extended into the end branches and stems of the vagi, forming either separate spindle-shaped swellings or bulbous enlargement of the nerve at its entrance into the tumor.

1. Moschovitz: Virchows Arch. f. path. Anat., 1915, ccxviii, 352.

2. Ernst: Beitr. z. path. Anat. u. z. allg. Path., 1902. Supplement, vii, 29.

3. The Collected Works of Christian Fenger, Philadelphia, W. B. Saunders, 1912, i, 30.

Hydrogen Peroxid as a Household Remedy.—Solution of hydrogen peroxid is an unusually popular household remedy. It is frequently used as a gargle, a mouth wash, and a local application in cuts, burns, and other wounds. The commercial product may be preserved with acetanilid, may contain an excess of acid, or be altogether devoid of free oxygen. The presence of acetanilid, while perhaps not objectionable as such, entails heterogeneous decomposition products that are nauseating if not otherwise harmful. A preparation containing an excess of free acid might do considerable harm when used as a tooth wash, and a preparation that is devoid of free oxygen may be otherwise contaminated and when used on a wound might prove to be a source of infection rather than a preventive.—*Public Health Reports*, Jan. 29, 1915.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

DISTRICT OF COLUMBIA

Red Cross Building Cornerstone Laid.—On March 27, President Wilson and former President Taft assisted at the laying of the cornerstone of the new building for the American Red Cross to be erected at a cost of \$800,000 as a memorial to the heroic women of the Civil War. The building is to be completed by April, 1916.

ILLINOIS

Smallpox at the University.—The occurrence of three cases of smallpox at the University at Champaign has led the State Board of Health as a precautionary measure to issue an order that any student not entirely well must not leave the university for the spring vacation until it is shown that he is not suffering from smallpox. This is to prevent possible epidemics at the homes of students. All persons exposed to the disease at Champaign have been required to submit to vaccination.

Fined for Illegal Practice.—J. D. Larson, who is not a physician, confessed to the Winnebago County court at Rockford that he had been practicing medicine without a license. He was fined by the court and warned not to repeat the offense. His methods included telling his patients their ailments after looking into their eyes and then giving them books or tracts to read on the subject. He also prescribed and dispensed some of his own pellets. Although the authorities had much evidence in regard to specific cases, Larson did not fight and it was not necessary to present this evidence. He is still in Rockford and maintains an office with one Campbell, it is said, with a sign on the door reading "Health Home." The public prosecutor's attention has also been called to this.

INDIANA

Physicians Organize.—Physicians of East Chicago met March 9 and perfected an organization, electing Dr. Alexander G. Schlieker, president; Dr. Robert Spear, vice-president, and Dr. Solomon M. Goldberger, secretary and treasurer.

Personal.—Dr. Tilman O. Armfield, secretary of the Elwood Board of Health, was held up and robbed, March 23, presumably by a drug addict as his hypodermic syringe and his supplies of cocain and morphin were taken from him.—Dr. James W. Milligan, chief physician of the Indiana State Prison, Michigan City, has been appointed superintendent to the Southeastern Hospital for the Insane, Madison, succeeding Dr. Edward P. Busse. Dr. Milligan will assume charge of the institution on June 1.—Dr. John A. Lambert, Indianapolis, has been elected medical director of the Meridian Life Insurance Company, Indianapolis.—Dr. Horace R. Allen, Jr., Indianapolis, is spending several months on the Pacific Coast for rest and recreation.—Dr. Albert Seaton, Indianapolis, has been elected assistant medical director of the State Life Insurance Company.—Dr. George W. McCaskey, Fort Wayne, has returned home after several months spent at Lorain, Miss.—Dr. William I. Wolpert, Elizabeth, is reported to be seriously ill with nephritis.

Hospital Notes.—The Bartholomew County Hospital has been erected at Columbus at a cost of \$100,000. The institution will be provided with a tuberculosis annex for which a tax levy and bond issue were provided in the law passed by the legislature in 1913.—The contract for a new building of the King's Daughters' Hospital, Madison, has been awarded for \$15,000.—The new hospital for Daviess County at Washington was formally opened, March 18. The Graham heirs presented the building and grounds for the Daviess County Hospital Association and the institution has accommodations for fifteen patients.—The formal opening of the free medical clinic of the Floyd County Anti-Tuberculosis League, New Albany, took place March 16. An illustrated address was delivered by F. L. Sampson, secretary of the Hazelwood Sanatorium, Louisville.—Plans are being promoted for a free clinic at St. John's Hospital, Anderson.—The Franklin Tuberculosis Sanatorium Company announces that it has dissolved.

KANSAS

Personal.—Dr. Athens V. Lodge, Kansas City, has been elected grand medical director of the Sons and Daughters of Justice.

State Board Appointments.—Among the appointments made by Governor Capper of Kansas, March 19, are State Board of Health, Drs. Oliver D. Walker, Salina; William M. Earnest, Washington; Charles H. Lerrigo, Topeka; Charles H. Ewing, Larned; Harry L. Aldrich, Caney, and Clay E. Coburn, Kansas City; State Board of Medical Examination and Registration, Drs. George M. Gray, Kansas City; Lewis A. Ryder, Topeka; Charles W. Jones, Olathe, and Albert S. Ross, Sabetha, and Advisory Commission Sanatorium for tuberculosis patients, Drs. William H. Bauer, Sylvia, and David R. Stoner, Quinter.

KENTUCKY

Personal.—Dr. Samuel M. Stedman, Versailles, while cranking his automobile, March 19, fractured his arm.—Dr. Frank Boyd of the Illinois Hospital staff, Paducah, has been appointed district federal medical examiner.—Dr. Moreau S. Browne, Winchester, is reported to be critically ill at his home following an attack of influenza.

Hazlewood Sanatorium Opened.—Hazlewood Sanatorium, Louisville, for the treatment of tuberculosis, was opened April 1. A medical advisory board has been appointed composed of nine residents of Jefferson County and an equal number from the state at large. The advisory board from Jefferson County consists of Drs. Ap Morgan Vance, chairman; J. Rowan Morrison, secretary; and Drs. Cuthbert Thompson, Irvin Lindenberger, Ben. C. Frazier, J. Royden Peabody, Frank W. Fleischaker, Thomas L. Butler and Henry Enos Tuley. The board is advertising for a resident physician.

LOUISIANA

New Society Organized.—Physicians of Assumption Parish met at Napoleonville, March 22, and organized the Assumption Parish Medical Society with a charter membership of seven. Dr. L. E. H. Duffel was elected delegate to the State Medical Society.

Personal.—Dr. Joseph A. Estopinal, Arabi, St. Bernard Parish, has been appointed chief of the ear, nose and throat clinic of the Illinois Central, and Yazoo and Mississippi Valley railroads.—Dr. William F. Pettit, New Orleans, was painfully injured in a collision between his motor car and a grocery truck, March 20.

Hygiene Lectures.—Superintendent Gwinn of the New Orleans Normal School has organized a lecture course on "The Medical and Social Aspects of Hygiene." The lectures are being given on Fridays. They commenced on March 26 and will continue until May 28. The lecturers and their subjects are as follows:

- March 26—Dr. C. C. Bass, "Prevention of Malaria."
- April 9—Judge A. H. Wilson, "Physical Health and Juvenile Delinquency."
- April 16—Dr. J. A. Gorman, "Oral Hygiene."
- April 23—Dr. Dandridge P. West, "Nutrition in Infancy and Childhood."
- April 30—Dr. Isadore Dyer, "Hygiene of Skin."
- May 7—Dr. Marcus Feingold, "Hygiene of the Eye."
- May 14—Dr. Chas. J. Bloom, "Significance of Physical Measurements of Children."
- May 21—Dr. E. M. Hummel, "Nervous and Mental Hygiene."
- May 28—Dr. Edmund Moss, "How Teachers May Help the Medical Inspector."

MARYLAND

The Fight Against the Mosquito Pest.—On March 23, Surgeon-General Gorgas came to Baltimore to confer with the city officials regarding the abolition of the pest mosquitoes. General Gorgas expressed the opinion that it is impossible to destroy the mosquito absolutely, and that it is almost wholly a matter of drainage, thereby removing the breeding places of the mosquito.

Personal.—Dr. Fred Caruthers, returning to his home in East Baltimore, March 26, was held up and robbed by a negro.—Dr. J. Carroll Monmonier, Jr., Catonsville, has been elected chairman of the committee on sanitation of the Confederate Civic Association of Baltimore County; Dr. Albert L. Wilkinson, Raspeburg, chairman of the subcommittee on public instruction; Dr. William J. Todd, Mt. Washington, chairman of the subcommittee on sewerage and water supply, and Dr. Frederick Beitler, Halethorp, chairman of the subcommittee

on sanitary legislation.—Dr. Clapham P. King, Baltimore, one of the physicians to the Serbian Red Cross unit, who has been ill with typhus fever in Serbia, is reported to be convalescent.—Dr. Jacob H. Hartman, one of the founders of the Baltimore Eye, Ear and Throat Hospital, was given a banquet, March 18, at which a handsome silver service was presented to him on behalf of the staff of the hospital.

MASSACHUSETTS

East Boston Physicians Organize.—Physicians of East Boston met March 19 and organized the East Boston Medical Association, electing Dr. Frank H. Tilton, president; Dr. Robert Bonney, vice-president; Dr. John D. Taylor, secretary, and Dr. Alexander L. McLaren, treasurer.

Proposed Hospital for Cambridge.—Plans have been prepared for the proposed Cambridge City Hospital, for which \$150,000 has been appropriated by the legislature. A site has already been secured at a cost of \$60,000 on which a series of buildings will be erected consisting of a main hospital building, a main administration building with two wings, two stories and basement in height, with all necessary equipment, including solariums, outpatient and Roentgen-ray departments, etc.

MICHIGAN

State Board Named.—The following five members of the State Board of Registration in Medicine were appointed by the governor, March 17: Drs. Arthur M. Hume, Owosso; Enos C. Kinsman, Saginaw; Duncan A. Cameron, Alpena; Frederick C. Warnshuis, Grand Rapids, and Arthur L. Robinson, Allegan.

Personal.—Dr. George H. Southwick, Grand Rapids, is ill with smallpox at the Municipal Isolation Hospital.—Dr. Alexander H. Scott, St. Joseph, is reported to be seriously ill at the home of his daughter in Brunswick, Ga.—Dr. Celestin Le Golvan, Iron Mountain, has started for France to serve in the army.

Hospital News.—The new tuberculosis hospital of Detroit, which is to form one of the units of the Hermann Kiefer Hospital, will be built on Schmittziel Avenue and will consist of a main portion seven stories high with two wings, six stories high and will accommodate 345 patients. The building will be of reenforced concrete, brick and stone and will cost about \$400,000.—A meeting of the citizens of Cheboygan was held March 16 to discuss a proposed hospital for the city.—The Dodge Brothers automobile factory in Detroit has a fully equipped hospital with separate wards for men and women, an operating room, physician's room, etc.

MINNESOTA

President Remsen to be Orator at University.—Dr. Ira Remsen, president emeritus of Johns Hopkins University, has been selected to deliver the principal address at the formal opening of the new chemistry building of the University of Minnesota, May 24.

Personal.—Dr. Edwin S. Muir, mayor of Winona, who underwent operation at the Eitel Hospital, Minneapolis, March 15, is reported to be out of danger.—Dr. Arthur B. Ancker, superintendent of the City and County Hospital, St. Paul, and Mrs. Ancker, are taking a trip to Panama via New York.—Dr. L. Emil Belcourt, Argyle, has enlisted in the Canadian Army Medical Corps.—Dr. E. J. Thompson, Finlayson, is said to be seriously ill at his home.

NEW MEXICO

Still No Medical Practice Act.—The third session of the legislature since New Mexico was admitted to the Union has adjourned without enacting a new medical practice act. At each session a bill is presented. The first legislature passed a law, backed by the New Mexico Medical Society, but the governor vetoed it. This year Senator F. F. Doepp of Carlsbad, himself a physician, introduced a bill amending the present practice act in important particulars. It passed the Senate but died in the House. The usual arguments that it was a law to create a medical trust backed by the American Medical Association were made by newspapers. The usual statements that "we would be prevented from taking what we like for our own belly-ache," were made. The fight will be continued and some day it is hoped New Mexico will join the rank of progressive states in the matter of a medical practice act. As it is now, it is the dumping ground for all the other states in the Union.

NEW YORK

Hospital for Babylon, L. I.—Elbert C. Livingston has given a plot of ground valued at \$5,000 as a site for a hospital provided the South Side Hospital Association of Babylon, L. I., shall erect a hospital thereon valued at \$25,000.

Funds for Adam Hospital.—Dr. John H. Pryor made a plea before the board of aldermen of Buffalo, March 16, for the J. N. Adam Hospital, Perrysburg, and obtained a maintenance appropriation of more than \$80,000. This makes a total allowance for the hospital of \$134,084 for salaries and maintenance.

Takes Charge of Sanatorium.—Dr. Harry Jay Brayton, West Brighton, for three years a member of the Iola Sanatorium, Rochester, has been appointed superintendent of the Municipal Tuberculosis Sanatorium, Syracuse, and assumed his duties April 1. The sanatorium is expected to open on July 1, and Dr. Brayton has charge of the purchasing of the furniture and equipment and employment of all assistants and help.

New Christian Science Bill Reported Favorably.—A new bill designed as an amendment to the state health law was reported favorably by the assembly judiciary committee on March 24. The bill reads: "Nothing in this act shall be construed to affect the practice of Christian Science for the relief of the sick and suffering provided no drugs or other material remedies are employed, and provided further that no quarantine or sanitary regulations are violated."

Boylan Law Strengthened.—At the conference between delegations interested in the drug crusade in New York City and representatives of the State Board of Pharmacy and the State Pharmaceutical Society, a compromise antidrug bill was agreed upon which will strengthen the Boylan law. Under the new bill, which is called the Bloch bill, a druggist can refill a prescription containing a habit-forming drug only for the person for whom it was originally compounded. Physicians must make a physical examination of a patient before giving him a drug cure. A bill to prevent the use of habit-forming drugs in patent medicines will be urged next years by Howard Clark Barber, superintendent of the Society for the Prevention of Crime.

New York City

Personal.—Kings County Medical Society has adopted resolutions of unqualified endorsement of the administration of Dr. Joseph H. O'Connell as health officer of the port of New York.—The will of the late Dr. Edward N. Hassenmeyer, who died April 30, 1914, makes his father, Augustus Hassenmeyer, the sole beneficiary.

Health Department Acts for Industrial Hygiene.—Health Commissioner Sigismund S. Goldwater has completed plans for the formation of a division of industrial hygiene which will be part of the bureau of infectious diseases. A plan of work has been drawn up which includes a general industrial survey and the location of unhygienic plants. The new division will be in charge of Dr. Louis I. Harris, who will be assisted by Prof. W. Gilman Thompson.

Clinical Society Organized.—The New York Throat, Nose and Lung Hospital Clinical Society has been organized at that institution with the following officers: president, Dr. Theodor Blum; vice-president, Dr. Vincent J. Orlando; secretary, John L. Courier, D.D.S.; and treasurer, Dr. Timothy D. Sullivan. The first regular meeting will be held April 15, at the hospital at 259 East Fifty-Seventh Street.

Transfer of Quarantine to Federal Government.—The Chamber of Commerce of New York in a report to the council favors the transfer of the local quarantine affairs of the port of New York to the federal government. The service has cost the city \$22,000 a year. A new detention hospital will soon be required, and this will cost the city a quarter of a million. The local service has been effective, but it is believed it may be improved under government supervision.

Hospital Buys Site.—The trustees of the Presbyterian Hospital have taken an option of the former American League baseball grounds on Washington Heights. This tract of ground contains about six city blocks and is valued at \$2,000,000. The purchase of this site has been made possible by the bequest of the late John S. Kennedy, by whose will the hospital received \$2,500,000. It is planned to use a large part of the site for hospital purposes, but considerable space will be used by buildings for special purposes, scientific and educational, in connection with Columbia University. No plans have yet been made for the disposition of the present hospital property on the Middle East Side.

Cancer Lectures and Clinics.—The Faculty of the Cornell University Medical College announces a course of instruction on cancer, for senior students and graduates in medicine, of eighteen lectures to be given at the medical college on Tuesdays and Thursdays from March 30 to May 27. Coincident with the lectures there will be a series of clinics in two sections at the General Memorial Hospital at One Hundred and Sixth Street and Central Park, West, on Mondays and Wednesdays from 9 a. m. to 12 noon. The lectures will be delivered by Drs. Richard Weil, Stanley R. Benedict, James Ewing, Lewis G. Cole, Arthur F. Holding, William B. Coley, Charles L. Gibson, Edward L. Keyes, Jr., Harold C. Bailey, Burton J. Lee, John A. Hartwell, H. H. Janeway, Silas P. Beebe and Arthur F. Coca, and the clinics will be given by Drs. Richard Weil, H. H. Janeway, Arthur F. Holding, William B. Coley, William A. Downes, George H. Mallett and Silas P. Beebe.

NORTH CAROLINA

Hospital News.—The Wake Hospital, Raleigh, erected at a cost of \$75,000 will be completed in May.—Plans have been perfected by the Associated Charities of Charlotte for the establishment of a free medical dispensary to be located in the basement of the city hall.

Personal.—Dr. Henry F. Long, Statesville, suffered a loss of \$4,000 by the burning of his house on March 18.—Dr. Samuel P. Burt, Louisburg, was injured by the overturning of his automobile, March 18.—Dr. John C. Montgomery, Charlotte, who has been under treatment in Hot Springs, Ark., on account of rheumatism, is reported to be much benefited.

OREGON

New Medical Building Assured.—An official report states that the Oregon legislature has made an appropriation of \$50,000 for the first building on the new campus of the University of Oregon, Department of Medicine.

Suggests Destruction of Coyotes.—Dr. Calvin S. White, Portland, state health officer, has given it as his opinion that the best and most sure remedy for the rabies, which is exceedingly prevalent in Eastern Oregon, is the destruction of coyotes, among which the disease has been found.

Personal.—The University of Oregon, Department of Medicine, has secured the services of Dr. Harold B. Myers, Portland, formerly connected with the University and Bellevue Hospital Medical College of New York City, as professor of materia medica and pharmacology, and of Dr. Howard D. Haskins, Cleveland, formerly connected with Western Reserve University, School of Medicine, as professor of physiologic chemistry.—Dr. Earl V. Morrow, Marshfield, has left for New York City on his way to Calais, France, where he will enter the American Red Cross service.—Dr. Earle B. Stewart has been appointed physician to the Oregon Soldiers' Home, Roseburg, vice Dr. Elmer V. Hoover, resigned.—Dr. Harry F. McKay, Portland, has been reappointed a member of the State Board of Medical Examiners.

PENNSYLVANIA

General Hospital for Connellsville.—The physicians of Connellsville are planning a general hospital to supplant the cottage state institution, which can treat only accident cases. Patients suffering from sickness or in need of surgical attention have to go to Pittsburgh.

Two New State Hospitals Planned.—Two new insane asylums will be built by the state according to the terms of bills being drafted by Judge Isaac Johnson, Bromley Whorton and F. J. Torance of the Board of Public Charities. One of the institutions will be in the eastern end of the state and the other in the western and each will accommodate about 1,500 patients. The bills provide for the appointment of a commission to select and buy sites.

Personal.—Dr. Wilbert L. Grounds, Emporium, has been appointed assistant surgeon at the Roaring Springs Hospital.—Dr. Charles B. Jones, Summerville, was awarded damages amounting to \$15,000 in his suit against the Pennsylvania Coal and Coke Corporation, March 18. The injuries for which damages of \$60,000 were sought, were caused by the crossing of telephone wires and high tension current lines which so charged a telephone line which the plaintiff was using, that he sustained injuries resulting in the loss of both thumbs and severe nervous shock.—Dr. Edwin S. Dorworth, Belefonte, was the guest of honor at a meeting and dinner of the Centre County Medical Society, March 11.

Philadelphia

Hospital News.—The new medical building of the Jewish Hospital, erected at a cost of \$70,000, was opened for inspection by the public, March 21. The building is of the most modern fire-proof construction and three stories in height. The second and third floors each contain two wards and sun parlors.

Medical Council.—The new Federated Medical Council in Philadelphia, a central union of existing bodies to educate the public along health lines, includes Dr. Samuel McClinck Hammill, chairman; Dr. William N. Bradley, secretary; and Drs. Howard Carpenter, Charles A. E. Codman, Charles A. Fife, C. Lincoln Furbush, J. Claxton Gittings, Howard K. Hill, Henry D. Jump, William D. Robinson and John F. Sinclair.

Maternity Opened.—The new Maternity of the Germantown Hospital, erected at a cost of about \$35,000, was opened to receive patients, March 1. The building is of brick, 38 by 140 feet, and is divided into two portions, one for partly free patients and the other for pay patients. In the first portion there is one large ward, two small wards, operating, sterilizing and linen rooms, etc., the pay wing being devoted entirely to private rooms.

Graduate Course in Tuberculosis at Blockley.—The tuberculosis wards of the Philadelphia General Hospital offer unusual facilities for postgraduate instruction in diseases of the lungs and physical diagnosis. The chiefs of staff of the tuberculosis department will give a postgraduate course of daily instruction, except Saturdays and Sundays, to cover the period of three weeks from Monday, April 12 to Friday, April 30, inclusive. The success of the new graduate course in neurology at the same institution seems to warrant this advance in medical education. The members of the staff will take personal charge of the instruction from 4 to 6 p. m. daily. Aside from bedside teaching, clinical talks on terms and definitions, methods of physical examination and diagnosis, principles of social service work, treatment, specific therapy, immunity, etc., will be included.

SOUTH CAROLINA

Association Organized.—Physicians of Lancaster County met in Lancaster, March 13, and organized the Lancaster County Medical Association and elected the following officers: president, Dr. Jeff D. Funderburk, Lancaster; vice president, Dr. Walter C. Twitty, Kershaw; secretary-treasurer, Dr. John A. Winstead, Lancaster.

Hospital Incorporated.—The Magdalene Hospital has been incorporated at Chester with a capital stock of \$20,000. The officers of the corporation are: Dr. Stewart W. Pryor, Chester, president and treasurer; Drs. Ralph H. McFadden, Yorkville, and George A. Hennies, Chester, vice presidents; and Dr. Henry B. Malone, Chester, secretary.

Personal.—Dr. Thomas W. Jackson, health officer of Spartanburg, has been assigned to duty with the Serbian sanitary force and has sailed for Europe.—Dr. Julius H. Taylor, Columbia, has resigned as a member of the board of regents of the State Hospital for the Insane.—Dr. George Benet, Columbia, has started for Europe with the Harvard Medical School contingent for service in the American Hospital, Paris.—Dr. Samuel M. Pitts, Saluda, sustained a loss of \$1,500 by fire, March 10.

VIRGINIA

Refuses to Tax Physicians.—The state senate has refused to restore the license tax on physicians and surgeons which was repealed last year.

The Work at Pine Camp.—The Municipal Tuberculosis Colony, Richmond, has had an average of thirty-three patients a month during the past year. During the last three months of the year the average was reduced on account of the insufficiency of funds. The average daily cost per patient has been \$1.15.

Personal.—Dr. Allen W. Freeman, Richmond, has resigned as assistant state health commissioner to become epidemiologist for the U. S. Public Health Service at Washington.—Dr. Isaac H. Leon, Richmond, is said to have been fined \$100 in the federal district court, recently, for using the emblem of the American Red Cross for trade and advertising purposes.

WISCONSIN

Schools Closed on Account of Epidemic.—All schools, theaters and the public library in Antigo were closed during the

second week of March on account of an epidemic of scarlet fever. Twenty-five cases of the disease were reported.

Personal.—Drs. Michael E. Corbett and Bernard C. Gudden, both of Oshkosh, have been appointed trustees of Sunnyview, the new Winnebago County Tuberculosis Sanatorium.—Dr. Joseph C. Elfers, Sheboygan, has returned from abroad.—Dr. William W. Reed, Jefferson, recently celebrated his ninetieth birthday anniversary.

Hospital Items.—At a meeting of the citizens held in Mondovi, March 9, the proposition of buying the Mondovi Hospital from Dr. Philip B. Amunson, Mondovi, was considered. A soliciting committee was appointed to raise \$10,000, and on the securing of this fund permanent organization is to be perfected.—At a meeting of the board of directors of the Wisconsin Deaconess Hospital, Green Bay, bids were submitted for the erection of a new building which is to cost about \$60,000.

CANADA

Personal.—Dr. W. H. Jakeman has been appointed bacteriologist to the board of health, New Westminster, B. C.—Dr. Andrew Croll, Saskatoon, vice-president of the Saskatchewan Medical Society, is on the staff of the General Hospital with the Second Canadian Contingent.

Manitoba Medical Society.—The joint annual meeting of the Manitoba Medical Society and the Winnipeg Medical Society took place on February 19. Dr. Herbert A. Gordon, Portage La Prairie, delivered the presidential address which dealt with the advance of modern therapeutics. The following officers were elected: president, Dr. John S. Poole, Neepawa; secretary, Dr. Roslyn B. Mitchell, Winnipeg (reelected).

University News.—The following medical graduates have been elected to serve six years on the Council of Queen's University, Kingston: Victoria Reid, M.D., Toronto; Thomas H. Farrell, M.D., Utica, N. Y.; Edward C. Watson, M.D., Detroit. Queen's University medical faculty has asked the Canadian Militia Department for a definite reply with regard to its offer of a stationary hospital for overseas service. Action is imperative at the present time, as many students have offers of hospital positions in both the United States and Canada. Major Frederick Etherington, M.D., Kingston, who has charge of the recruiting for this hospital, is besieged with applications from doctors and nurses. The staff of the hospital will number 135.

GENERAL

Grant for Medical College in China.—The China Medical Board of the Rockefeller Foundation has recommended a grant of \$16,200 annually for five years to the Yale Medical College, Changsha, China. The money is to be used for the support of six American physicians at the institution.

Pediatricians to Meet.—The annual meeting of the American Pediatricians' Society will be held May 24 to 26 at the Laurel House, Lakewood, N. J., under the presidency of Dr. George N. Acker, Washington, D. C. Dr. Samuel S. Adams, 1801 Connecticut Avenue, Washington, is secretary of the association.

A Warning.—The attention of physicians is again called to the activities of certain young men in Pennsylvania who are attempting to secure subscriptions for THE JOURNAL and offer magazines through a bureau which they call the National Educational Association, the plea being based on the desire of the young men to secure free scholarships. When last heard of the scheme was being pushed in Philadelphia.

Higher Standards of Preliminary Education.—The University of Virginia, Department of Medicine, and the School of Medicine of the University of North Carolina, announce that beginning in 1917 the requirements for admission will be increased to two years (sixty semester hours) of collegiate work, including courses in physics, chemistry, biology and French or German.—The Eclectic Medical College, Cincinnati, announces that hereafter one year of collegiate work, including the specified sciences, will be required.

Pathologists and Bacteriologists Meet.—Arrangements have been completed for the meeting of the American Association of Pathologists and Bacteriologists in St. Louis, April 2 and 3. The sessions will be held at the Washington University Medical School and at the St. Louis University. The headquarters of the association will be at Hotel Jefferson. Invitation lunches will be provided for members of the associa-

tion by the Washington University Medical School and by the St. Louis University Medical School. The annual dinner of the association will be at the University Club, Friday, April 2, at 7 o'clock.

Consolidating Service Sanatorium.—Col. George E. Bushnell, M. C., U. S. A., Fort Bayard, N. Mex., has been detailed to visit the Public Health Service Sanatorium at Fort Stanton, N. Mex., and the Navy Sanatorium at Las Animas, Colo., and report on the advisability of consolidating these institutions with the United States General Hospital (the Army Sanatorium) at Fort Bayard, N. Mex. Colonel Bushnell's report will be considered by the secretaries of the Army, Navy and Treasury. Colonel Bushnell is the present commandant of the Fort Bayard institution and during his regime this old adobe army post has been converted into the finest institution of its kind in the world at an expenditure of \$1,000,000.

Prize for Social Hygiene Pamphlet.—The American Social Hygiene Association has been offered a prize of \$1,000 by the Metropolitan Life Insurance Company to be awarded to the author of the best original pamphlet on social hygiene, for adolescents between the ages of 12 and 16 years, approved by a committee of judges to be selected by the association. The contest closes July 31, 1915, at midnight. Manuscripts must be typewritten, on one side only of plain white paper, 8 by 10½ inches; must be in English; must not exceed 3,500 words, and must not have been previously published. The winning manuscript is to become the property of the donor of the prize, and the right to purchase any manuscript submitted at 5 cents a word is reserved by the donor and the association. Manuscripts and requests for further information should be addressed to the American Social Hygiene Association, Inc., 105 West Fortieth Street, New York, N. Y.

Bequests and Donations.—The following bequests and donations have recently been announced:

German Hospital, Chicago, \$5,000 by the will of Jacob Rehm.

Mercy Hospital, Chicago, two-thirds of the estate of Mrs. Harriet Haynes, St. Charles, valued at \$500,000.

Presbyterian Hospital, New York City, \$20,000; New York Association for Improving the Condition of the Poor, St. Vincent's Hospital, Hospital Guild of the New York Medical College, and Bellevue Hospital, each \$10,000; New York Ophthalmic Institute, \$5,000, by the will of William Washington Cole.

White Plains (N. Y.) Hospital, \$2,500, by the will of Mrs. Clara F. Hitchcock.

Clearwater, Fla., Hospital, \$100,000, for endowment fund, donation by Morton F. Plant.

Clark County, Ky., Medical Society, a subscription of \$1,000 as a donation to the Winchester (Ky.) Hospital Fund.

Mercy Hospital, Kansas City, a donation of a large house and grounds valued at more than \$50,000, by the will of J. C. Gates, Kansas City.

Official Bulletins on Narcotic Drugs.—A number of inquiries have been received regarding the official bulletins containing the laws and regulations, both state and national, on habit-forming drugs. Full information on this subject can be secured from government publications. The full text and preliminary regulations of the Harrison law are contained in Internal Revenue Regulations No. 35, issued Jan. 15, 1915. Supplementary regulations appear in Treasury Document 2172, issued March 9, 1915. These publications relate to the federal law. In reprint No. 240 from the Public Health Reports of Nov. 13, 20 and 27, 1914, supplement to Public Health Bulletin No. 56, a special bulletin published by the United States Public Health Service, can be found all the state laws and regulations relating to poisons and habit-forming drugs. These three pamphlets contain full information regarding the law on this subject. The passage of the Harrison law has stimulated the enforcement of state laws and has made it possible, through the system of records provided for, to enforce some of the state laws that have heretofore been unenforceable.

Pan-American Congress to Meet.—The seventh Pan-American congress will meet in San Francisco, June 17 to 21, inclusive. It assembles pursuant to invitation of the President of the United States issued in accordance with an act of Congress approved March 3, 1915.

The countries and colonies embraced in the Congress are the Argentine Republic, Bolivia, Brazil, Canada, Colombia, Cuba, Chile, Costa Rica, El Salvador, Ecuador, Guatemala, Honduras, Haiti, Hawaii, Mexico, Martinique, Nicaragua, Panama, Paraguay, Peru, Santo Domingo, United States, Uruguay, Venezuela, British Guiana, Dutch Guiana, French Guiana, Jamaica, Barbadoes, St. Thomas and St. Vincent. The organization of the Congress is perfected in these countries and the majority of them have signified their intention to be represented by duly accredited delegates.

The Congress will meet in seven sections, viz.: (1) Medicine; (2) Surgery; (3) Obstetrics and Gynecology; (4) Anatomy, Physiology, Pathology and Bacteriology; (5) Tropical Medicine and General Sanitation; (6) Laryngology, Rhinology and Otolaryngology; (7) Medical Literature.

All members of the organized medical profession of the constituent countries are eligible and are invited to become members. The membership fee is \$5 and entitles the holder to a complete set of the transactions. Advance registrations are solicited and should be sent with membership fee to the treasurer, Dr. Henry P. Newman, Timken Building, San Diego, Cal.

The Palace Hotel will be headquarters.

The first Pan-American medical congress was most successfully held in the United States in 1893. Five intervening congresses have been held in Latin-American countries. The officers are Charles A. L. Reed, president, Cincinnati; Ramon Guiteras, secretary-general, New York City; Harry M. Sherman, chairman, committee of arrangements, San Francisco; Philip Mills Jones, special committee on hotels, San Francisco.

FOREIGN

Trypanosomiasis Contracted in Research Work.—Our Italian exchanges state that Prof. A. Lanfranchi, director of the veterinary institute of pathology at Bologna, contracted trypanosomiasis two years ago in the course of his six years' study of trypanosomes. He then took a course of treatment at the Paris Pasteur Institute and was apparently cured, but the trypanosomiasis has recently broken out again. He has gone to Paris for treatment.

Deaths in the Profession Abroad.—G. Forssner, a leading Swedish clinician, professor of internal medicine at the University of Upsala, succumbed January 19 to edema of the glottis in the course of an acute infection of the throat, aged 38.—H. Petersson, a prominent member of the national public health service in Sweden, aged 58.—A. Marcacci, professor of physiology at the University of Pavia and author of numerous articles on experimental physiology and physiologic chemistry.—Giuseppina Cattani, privat-docent for general pathology at Turin and later at Bologna, one of the first women to be admitted to the practice of medicine in modern Italy, aged 55.—The cable brings word of the death of another victim to exanthematous typhus among noted specialists in infectious diseases, Prof. Georg Cornet of Berlin, aged 57. He was the first to discover the tubercle bacillus outside of the body and preach its non-ubiquity, thus providing a basis for prophylaxis. He was assistant to Robert Koch in the Institute for Infectious Diseases at Berlin, and the list of Cornet's works, especially on tuberculosis, is long and imposing.

WAR NOTES

Personal.—Dr. Rufus A. Van Voast, Cincinnati, who is on duty as an auxiliary surgeon with the Second Regiment of the French Foreign Legion, has written urging the Americans to aid the French in the campaign being waged against typhoid fever.—Dr. Charles McDonald of Washington, head of the American War Relief Hospital in Budapest, who recently arrived in New York, predicts that when warmer weather comes typhoid will become very prevalent in the Austrian army. He says conditions, relative to sanitation in the camps, are similar to those prevailing in the American camps in 1898. Conditions among the wounded are deplorable. As many as 70,000 wounded had been in Budapest at one time.

Oversupply of Hospital Trains in Germany.—A Berlin exchange announces that the hospital trains that have been equipped by various organizations, municipalities and private beneficence now number over 150, and far exceed the demand. Some of these trains stand unused on the sidings for weeks at a time, and hence the Red Cross calls a halt on further donations of the kind, saying that the capital could be used to better advantage otherwise.

Results of Antityphoid Inoculation.—A statement was recently made in the House of Commons by the British Under-Secretary of State for War that only 421 cases of typhoid fever had developed in the British forces during the present war and that of these, 305 had not been inoculated within two years. Among those who had been inoculated within two years, there was only one death and this individual had received only one inoculation instead of the two provided for by the regulations.

High-Speed Bullets Do Not Cauterize.—Dr. Alexis Carrel asserts that the theory that the speed of steel-jacketed bullets of high velocity is sufficient to generate heat and cauterize wounds, is incorrect, on account of the variation in the speed of the bullets at the point of contact. He finds that the wounds caused by projectiles are much less serious than in former wars and confirms his former assertion that the most serious cases in the great majority of wounds that become infected are due to shrapnel.

Prophylaxis of Epidemics in Austria.—The authorities in Styria, that province of Austria of which Graz is the capital, have ordered that linen or cotton napkins are not to be used for the present in public eating and drinking places. Paper napkins are to take their place and are to be burnt after once using. A placard to this effect has to be posted in each restaurant and saloon.—All men going to the front in Austria are now systematically vaccinated against typhoid, smallpox and cholera. In case time does not permit, the course for the latter may be completed at the front.

The Need of England for Medical Officers.—The current issue of the London *Lancet* calls attention to a need for medical men. Alfred Keogh, Director-General of the Army Medical Service, states:

1. The need of medical men, both for home and foreign service, is acute. We want every qualified man who is physically fit and willing to serve.

2. We are in special need of general practitioners, but would be glad to take on expert surgeons, ophthalmologists, radiographers, etc.

3. We could give suitable men immediate employment.

4. At present we are not, except in special cases, sending men over 40 years of age overseas, but we should gladly take on older men for home service.

5. We do not wish to denude the country of civil practitioners, but every man who can arrange for his work to be done at home should come forward as early as possible if we are to keep up an adequate supply of medical attendance to our armies in the field. This is really a national emergency, and we hope that the medical profession, who have already done so much, will assist the responsible authorities to meet it.

Should any qualified man wish to obtain a temporary commission in the Royal Army Medical Corps he should apply to the Secretary, War Office, Whitehall, S. W., for the necessary forms.

Aid for Belgian Physicians.—The report of the treasurer of the committee of American physicians for the aid of the Belgian profession, for the week ending March 27, 1915, lists the following contributions:

Dr. H. N. Torrey, Detroit, Mich.....	\$ 10.00
Faulkner County Medical Society, Conway, Ark.....	25.00
Newburyport Medical Club, Newburyport, Mass.....	20.00
Lieut. Col. F. P. Reynolds, M.C., U. S. A., Honolulu, H. T....	25.00
Dr. Waldo Richardson, Seattle, Wash.....	5.00
Mrs. O. W. Johnson, Racine, Wis.....	5.00
Dr. Joseph Brettauer, New York, N. Y.....	25.00
Dr. Lewis Gregory Cole, New York, N. Y.....	25.00
Dr. J. N. Hall, Denver, Colo.....	5.00
Dr. J. B. Rogers, Independence, Ia.....	5.00
Medical Society of the Co. of Westchester, White Plains, N. Y.	25.00
Dr. Alex. Marcy, Jr., Riverton, N. J.....	10.00
Dr. S. R. Woodruff, Bayonne, N. J.....	5.00
Dr. G. C. McMaster, Pittsburgh, Pa.....	5.00
Dr. Charles G. Mixer, Boston, Mass.....	10.00
Dr. S. G. Laws, Spartanburg, S. C.....	5.00
American Surgeons' Clinical Tour of 1914, Galesburg, Ill.....	150.75
Colorado Chapter of A. M. P. O. Medical Fraternity, Denver Colo.	50.00
Boston Society of Psychiatry and Neurology, Boston, Mass...	100.00
Routt County Medical Society, Steamboat Springs, Colo.....	10.00
Dr. Bertram M. Bernheim, Baltimore, Md.....	10.00

Receipts for week ending March 27.....\$ 530.75
Previously reported receipts..... 5,221.50

Total receipts\$ 5,752.25

Previously reported disbursements:

1,625 standard boxes of food @ \$2.20.....\$3,575.00
715 standard boxes of food @ 2.30..... 1,644.50

Disbursements for week ending March 27:

230 standard boxes of food @ \$2.30.....\$ 529.00

Total disbursements\$ 5,748.50

Balance\$ 3.75

F. F. SIMPSON, Treasurer.

5 Jenkins Arcade Bldg., Pittsburgh, Pa.

Typhus Fever in Serbia.—Of the twelve American Red Cross trained nurses and the six surgeons sent to Gevgalia in November, nine nurses are said to be ill with typhus, three physicians are ill with the disease and one physician has died.—It is said that there have been already 50,000 deaths as the result of this disease and that more than sixty physicians have died.—It is reported that spotted fever is assuming threatening proportions in the Balkan States. It is said that the chief of the Serbian Army staff, Surgeon-General Arangich, and the court physician, Dr. Nicoleavitch, have died and that in one day fourteen Serbian officers died

in Nish.—In Monastir the death rate is said to be about a dozen a day and in the small town of Powarevatz more than 1,000 deaths have occurred from the disease.—It is reported under date of March 15, that the epidemic of typhus fever in Serbia is diminishing.—The Bulgarian authorities are adopting sanitary measures to prevent the introduction of typhus fever into that country.—It is reported that Dr. Ryan, in charge of the American Red Cross units, has more than 2,900 patients under his care, principally of typhus fever.—At Gevgalia there were 1,400 cases in charge of Dr. James F. Donnelly, who later died from the disease.—The South Serbian American Red Cross work is under the direction of Drs. Ethan Flagg Butler and Ernest P. Magruder, Washington, D.C., who remained with their assistants, both surgeons and nurses, in the typhus-infected region until they were directed to remove to Saloniki.

LONDON LETTER

LONDON, March 19, 1915.

The War

THE BRITISH RED CROSS

The number of auxiliary home Red Cross hospitals accepted by the War Office is now 816 containing 22,724 beds. Ten motor ambulance kitchens have been completed for the front to minister to the wounded before they reach the hospital base. These vehicles have been designed to avoid as much as possible rattling, spilling and breakage. Urns, bowls and cooking utensils have all their allotted niches, while there is a gross of enameled mugs distributed in wire trays convenient for carrying to the wounded. At the further end of each kitchen is the boiler for hot water with deep cooking "dixies" for making stews, cocoa, porridge, etc., while there are also a gas ring, a sink and a serving hatch. The kitchens already in use at the front have been very much appreciated.

THE SCARCITY OF PHYSICIANS IN CIVIL PRACTICE

The scarcity of physicians in civil practice as the result of the war has been described in previous letters to THE JOURNAL. With the formation of the new army, which is so much greater than what existed at the outbreak, the demand for physicians has increased correspondingly and the scarcity in civil practice has become greater. The present position is well shown in an address on "The Medical Profession and the War" delivered in the Royal College of Surgeons of Edinburgh by Dr. Norman Walker. Mr. Hodgson, the president, in opening the proceedings, said that the medical profession in this country was totally unprepared for the emergency which arose six months ago. Many physicians attached to various units engaged in civil practice did not anticipate that they would be called away at a moment's notice and drafted to other parts of the country. In consequence of representations made to the War Office, some of this trouble had now been avoided by a system of exchange. Dr. Norman Walker said that the dislocation of civil practice in the country was still increasing, and if they were to avoid a serious breakdown in the medical service of Scotland, they must realize the situation. Something like one-sixth of the medical profession was already serving—nearly 7,000 out of a total of 37,000—and more were required. Where were the additional physicians to come from? He hoped no licensing body, from a sort of morbid patriotism, would admit to the profession insufficiently trained students. The student's business was to work hard, and the teacher's to give more care to his teaching than ever. The work in Flanders, and later in Germany, would be very hard, and the men who were preparing for it should train as if for an international football match. As for the older men, their places were in the home defense army. The country districts were crying out for physicians. Those who had not been too long retired from practice should take down their armor, polish it up and gird it on again.

FOOD WASTE IN ARMY CAMPS

It is universally admitted that no British army, or indeed any army, has been so well fed as is ours to-day. Unfortunately this implies a certain excess of food, and therefore, waste. In the camps at home the waste of food has caused an outcry in the press. In some cases a large quantity of perfectly good bread has been used for manure. The authorities are endeavoring to remedy the evil, and an order has been issued stating that waste of bread is becoming a serious matter and calls for constant supervision of the commanding offi-

cers. It does not appear to be fully understood that if the army ration provides more bread than necessary, flour for cooking purposes can be drawn in lieu of bread.

"WATER-BITE" IN THE TRENCHES

Soldiers standing for many hours in the trenches with their legs immersed in cold water have suffered in considerable numbers from what was at first termed frost-bite but later was distinguished from that condition, and termed "water-bite." The lesions differ considerably from those produced by exposure to severe cold, to which the term frost-bite is properly applied. In frost-bite the parts commonly affected are those to which the atmosphere has direct access, such as the tip of the nose, the lobe of the ear or the hand. In water-bite, on the other hand, lowness of the air temperature seems to be one of several factors and is never so intense as in frost-bite. Tightness of the boots and putties constricting the leg and interfering with the circulation appears to be an important factor. This tightness may be brought about by swelling of the stocking because of absorption of water. In milder cases there is little to see; the patient complains generally of anesthesia in the toes and ball of the foot, combined with hyperesthesia of the arch and sides of the foot. In more severe cases the feet are swollen, red and blistered, and the patient's temperature rises to 102 and 103 F. There may be edema of the legs and subcutaneous hemorrhages on the toes. In more advanced cases the skin becomes broken. In rare cases gangrene occurred, but the affected parts are swollen and dark instead of shrunken and dead white as in frost-bite. Taken as a whole, water-bite very much resembles bad chilblains. As a means of prevention, the soldiers are instructed before going into the trenches to rub their boots well inside and out with whale oil, to wash and dry their legs and then rub in whale oil or any animal grease they may prefer. They are also directed to avoid tight boots or constricting the legs in any way.

The Lowest Birth Rate on Record

In the quarterly return just published by the registrar general, it is stated that the birth rate in the last quarter of the past year was 22.2 annually per thousand of the population, which was 2.4 per thousand below the mean birth rate in the ten preceding fourth quarters, and 0.6 per thousand below the rate in the corresponding period of 1913. The deaths for the fourth quarter of 1914 numbered 130,882, being 0.6 per thousand below the mean rate in the ten preceding fourth quarters, but 0.7 above the rate recorded in the corresponding period of 1913. Infantile mortality was equal to 105 per thousand, or 17 per thousand below the average in the ten preceding fourth quarters. The revised estimates of the population of England and Wales show that 878,822 births and 516,778 deaths were registered in 1914. The natural increase of population by excess of births over deaths was therefore 362,044, the average annual increase in the preceding five years having been 385,153. The number of persons married during the year was 588,174. The marriage rate in 1914 was 15.9 persons per thousand of the population, an increase of 0.6 per thousand on the average in the ten years 1904-1913. The birth rate in 1914 was 23.8 per thousand of the population, being 0.3 per thousand below the rate in 1913, and lower than the rate in any other year on record. Compared with the average in the ten years 1904-1913, the birth rate in 1914 showed a decrease of 2.1 per thousand. The death rate in 1914 was 14.0 per thousand, which was 0.2 per thousand above the rate in 1913; compared with the average rate in the ten years 1904-1913, the death rate in 1914 showed a decrease of 0.7 per thousand.

Death of a Victim of Leprosy Research

Sir George Turner, M.B., M.R.C.S., died at Colyton, Devon, at the age of 79. He graduated at Cambridge and took up public health work. He was appointed health officer of Portsmouth and later of Hertfordshire, and Essex, as well as lecturer on hygiene at Guy's Hospital. In 1895 he became health officer of Cape Colony. At that time rinderpest was doing great damage among the cattle, and was being investigated by Koch in order to discover a cure. He was recalled before his work was complete, and Dr. Turner continued it and succeeded in producing a method of prevention by simultaneous inoculation of virus and serum. Within a year, rinderpest was stamped out. On the outbreak of the South African War, he was appointed sanitary adviser to the army, and at its close, health officer to the

Transvaal. Though busily occupied, he devoted his spare time to the study of leprosy. On reaching the age limit he retired and returned to England, where he continued the bacteriologic study of leprosy. One day while shaving, he noticed marks on his hand which he recognized as the stamp of the disease—a diagnosis of which was confirmed by specialists—but he continued his bacteriologic researches. The king on his own initiative conferred the honor of knighthood on Dr. Turner after this disaster, and he was described in the *Times* at the time as "another Father Damien."

PARIS LETTER

PARIS, March 11, 1915.

The War

ADVANTAGES OF CONSERVATIVE SURGERY IN THE AMBULANCES AT THE FRONT

At one of the late meetings of the Société de chirurgie, Dr. E. Marquis communicated the results of sixty-five severe injuries of the limbs in which he attempted conservative treatment employing active surgical measures (debridement, disinfection, drainage and removal of sequestra). The patients were the wounded who could not be removed after the battle of the Marne because they were too severely injured. In the case of thirty-six of these patients for whom amputation was considered, the application of conservative principles permitted the saving of a severely injured limb. Only sixteen extemporaneous amputations were made, and that in extremely severe cases (eight were fatal and eight patients recovered). Among the sixty-five wounded in question, eight died from complicating lesions and five died of their wounds without amputation. Two of these died with tetanus. The three others were so severely injured that they probably would not have supported amputation.

TREATMENT OF FROST BITES OF THE FEET

The regretted Dr. Lucien Jacquet, whose death I noted recently (*THE JOURNAL*, Jan. 23, 1915, p. 356), had devised under the name of the biochemical method a treatment for frost bites consisting of a sort of gymnastic of the affected member associated with an elevated position. Dr. L. Brocq, physician to the hospitals of Paris, has been able to try this procedure in his service of the hospital Saint-Louis. A board is placed on the bed lengthwise, resting by both ends on the transverse bars of the bedstead. An inclined plane is thus obtained on which are placed the pillows intended to receive the limbs of the patient. The patient thus has his legs and especially the feet much higher than the rest of the body. Every hour, at a signal given by the nurse, the patients with the trunk and the head lying flat on the bed put both hands under one thigh and lift the lower limb vertically so that it forms a right angle with the plane of the bed. Holding it in this position, they make all possible movements of flexion, extension and circumduction with their toes and ankles. At the end of five minutes, at a new signal, the same maneuver is executed with the other limb. After the first twenty-four hours, this treatment produces a genuine relief.

On the other hand, Dr. Leon Bernard, professor agrégé to the Faculté de médecine de Paris and physician to the hospitals, has found it desirable in a case of frost bite at first to surround the limb with compresses soaked in hot physiologic salt solution.

RESEARCHES ON GAS GANGRENE

It is well known that in the present war gaseous gangrene has been frequently observed as a complication of wounds, particularly those produced by the explosion of shells. Dr. Weinberg of the Pasteur Institute of Paris has observed that the *Bacillus perfringens* always occurs among the germs that are found in the wounds invaded by gaseous gangrene. He has concluded from this that this bacillus may be the pathogenic cause of this complication. In fact, the inoculation of animals with a culture of *Bacillus perfringens* was regularly followed by the production of a gaseous phlegmon. Weinberg has undertaken to prepare a vaccine by using a twenty-four-hour culture of *Bacillus perfringens* on glucose bouillon. The bacteria are washed in physiologic salt solution and heated to 60 C. The vaccine as prepared contains from fifteen to twenty million bacteria per cubic centimeter. This vaccine injected daily in a dose of from five to twenty million bacteria was perfectly well borne by the patients, who presented no reaction, local or general.

In order to meet the needs of severe cases on a rapid march, Weinberg has also prepared an antiperfringens serum which he obtains by intravenous injection of a horse, using at first dead cultures and then living bacteria of the kind which he used in preparing the vaccine. This serum used on guinea pigs produced both prophylactic and curative results. In a severe case the patient was injected with 22 c.c. of this serum; the injection was followed by a rapid improvement.

A Monument to Dr. Emile Reymond

The glorious and tragic death of Dr. Emile Reymond, senator from the department of the Loire, will be recalled. He left for the front as pilot of an aeroplane and was killed in the course of an aerial reconnaissance (*THE JOURNAL*, Nov. 21, 1914, p. 1868). A committee has just been formed under the patronage of the president of the republic to erect a monument for him.

BERLIN LETTER

BERLIN, March 2, 1915.

The War

THE WOUNDED

In Berlin, since the beginning of the war, about 30,000 beds have been at the disposal of the military authorities for the treatment of the sick and wounded. Of these at present a large number are unoccupied. In the western district, our losses, on the whole, have considerably diminished because, in spite of daily battles, the conflicts are of slight extent owing to the stationary nature of the warfare. The relatively small number of wounded remain in the western hospitals and only a few reach Berlin. We receive a larger number from the East, but only a fraction of those wounded in the great battles in that region come hither. A portion are kept in the hospitals of the great Polish cities and another in the hospitals of the eastern provinces. On the whole, it has been shown that the number of severely wounded has decreased when compared with former wars, and that of the slightly wounded has not materially increased. From this it is a necessary conclusion that at present, in a war of long duration, the wounded who have recovered return to the front in greater number than formerly. In the campaign in German Southwest Africa, of the 369 who were wounded by the 88 bullet, 46 per cent. were again ready for field service after a period of treatment of 1.7 months on the average. These wounds affected by no means only the soft parts, but there were among them such as in the beginning seemed very severe, namely, twenty-six of the bones and joints, twelve of the lungs and two of the abdomen. These experiences agree with the reports from the Russo-Japanese War, according to which among 7,631 men wounded with small caliber bullets, of those who were able to return to the front, about 71.19 per cent. had skin and flesh wounds, about 22.44 per cent. wounds of the bones and joints, and 6.44 per cent. of the intestines, blood vessels and nerves. Of the Russians and Japanese, in general, 60 per cent. of the wounded returned again to the front, but of the Germans during the war of 1870-1871, only 17.6 per cent. Probably among those quickly recovering there will be found more who have been wounded by shrapnel bullets, fragments of shells and weapons at close hand (hand grenades) than one would expect at first thought. In order to regulate the arrangements of hospitals, especially the care of the wounded, a number of emeritus surgeons-general have been appointed as inspectors of military hospitals by the medical division of the ministry for war. Their function is to visit the reserve and association hospitals in the home districts, to learn the need of the hospital chiefs, to stimulate improvements, and to superintend the transfer of the sick, especially their dismissal to special institutions when that is necessary.

USEFULNESS OF AMBULANCE DOGS

With reference to the importance of dogs in war, the opinion of experts is still at variance. It will be possible to reach definite conclusions on the basis of this war, in which dogs have been used in the medical service for a longer time and in greater numbers than ever before. In the West there are at least 500 animals employed, and as has been reported, they have been installed in the East for some weeks at the instance of Field Marshal von Hindenburg. Repeated reports of the leaders of these ambulance dogs show how useful these animals have shown themselves in finding the wounded, and indicate that many wounded who had been overlooked by the ambulance corps were sought

out by an ambulance dog. Courses for the training of these animals and for their leaders have been established.

DEATH OF PROWAZEK

Typhus fever, which has been introduced among us by the Russian prisoners, has exacted another victim of the medical profession. February 17, von Prowazek, the parasitologist head of a department in the institute for naval and tropical diseases, Hamburg, died at the age of 39. Prowazek was an Austrian by birth. After he had been, for a short time, assistant at the institute for experimental therapy at Frankfort-on-the-Main under Ehrlich and at the zoological institute at the University of Munich under Hertwig, he was called to Berlin at the suggestion of Fritz Schaudinn, who was at that time head of the department for investigation of protozoa in the imperial health office. When Schaudinn accepted the call to the institute for tropical hygiene at Hamburg, Prowazek became his successor in the imperial health office, and after the premature death of the talented Schaudinn, he succeeded him at Hamburg (1907). He was on intimate terms with Schaudinn and not only followed in the happiest way the far-seeing plans of this investigator after his death, but also enriched science with many brilliant independent ideas and observations. The studies on the physiology and biology of the cell and of protozoa in particular, his investigations on variola and vaccine, on trachoma, blennorrhoea and other diseases of the eye, and the conception founded thereon of the widely distributed chlamydozoan group as the cause of infections (smallpox, rabies, various eye diseases and tropical diseases) made him an important authority among investigators in the field of modern study of protista. He made many journeys for research, and as a result of his wide knowledge, for instance, with reference to botanic and ethnographic subjects, he left a number of reports of his travels which are of value, not only for his special science but also for ethnography, botany, etc. Also his larger works, "The Handbook of Pathogenic Protozoa," "Physiology of the Protista" and "Die deutschen Marianen" are highly regarded scientifically. Of late years, Prowazek busied himself among other things with the investigation of the causes and methods of transmission of typhus fever. He made numerous journeys in the foreign countries for the study of the disease, and was again entrusted with these investigations by the military authorities when the pest showed itself again in the camp of the imprisoned Russians at Kottbus. He fell a victim to this dangerous disease.

AN EQUIPMENT CAR FOR THE GERMAN CENTRAL COMMITTEE OF THE RED CROSS

Scarcely in any theater of war is the expeditious care of our wounded beset with so great difficulties as in the east. In the first place, there is a lack of suitable rooms with the most necessary sanitary equipments to which the wounded and sick can be brought. As there are only very few and often no railroad communications, the supply of necessary medicines, bandages and foodstuffs is very difficult and must be accomplished by wagon, in the most favorable case, by automobiles. Moreover, the Russian roads are, as is well known, in such a wretched condition that one can get on only very slowly with automobiles. As a result of these difficulties, the field hospitals and bandaging stations occasionally lack the most important articles. In order to relieve this unavoidable nuisance to some extent and to assist the military medical service, the central committee of the Red Cross in the east has arranged a "flying depot" for all medical supplies and foodstuffs. For this purpose, a mixed train car with five third class sections and three second class sections was taken. In the second class sections, all the baggage racks were removed and wooden racks built in. By using the seat benches, six stories were formed in each section with single compartments, thirty altogether, in which all the necessary material could be placed in order. The space under the benches was used for the storing of medicines and wines. Even a smoking room is provided in the servants' quarters. The second class sections were arranged for the reception of the wounded. On account of the danger of fire, a car with electric lighting was selected. While the articles stored in the car just described are of service for emergencies, those placed in a second freight car serve for the supplementing of the supplies. In this way, all of the hospitals can be supplied with the necessary material immediately. The cars are placed at the railroad station nearest to the field hospital, and the goods are taken from there by automobile to the bandage stations and field hospitals, which are situated immediately behind the fighting line.

Association News

THE SAN FRANCISCO SESSION

Revised List of Hotel Headquarters

A revision of the headquarters of the several sections is announced by the Committee on Arrangements for the San Francisco Session. In *THE JOURNAL*, Feb. 20, 1915, page 680, a preliminary announcement was made, designating the hotels which have been selected for headquarters of certain of the sections. The extended and revised list follows:

General Headquarters	Palace
Practice of Medicine.....	Palace
Surgery, General and Abdominal.....	St. Francis
Obstetrics, Gynecology and Abdominal Surgery..	St. Francis
Ophthalmology	Fairmont
Laryngology, Otology and Rhinology.....	Fairmont
Diseases of Children.....	Cartwright
Pathology and Physiology.....	Bellevue
Stomatology	Plaza
Nervous and Mental Diseases.....	Chancellor
Dermatology	Plaza
Preventive Medicine and Public Health.....	Clift
Genito-Urinary Diseases	Manx
Hospitals	Inside Inn
Orthopedic Surgery	Stewart

A list of hotels available for those who attend the San Francisco meeting was published February 20, advertising page 21. A more complete list will appear in a later issue.

Attention is again called to the suggestion of the subcommittee on hotels urging that reservations be made through this committee. In order that the committee may have the information necessary so that arrangements may be made which may meet the convenience of the visiting Fellows, it is suggested that the coupon at the bottom of the above-mentioned list of hotels be used in addressing the subcommittee on hotels.

On page 47 of the advertising section of this issue appears an announcement of the San Francisco Session. Those who contemplate attending the session and who follow the suggestion with which this advertisement closes will be put in touch with the railroads in order that they may be supplied with detailed information which will enable them to determine the route that best suits their convenience in making the journey to and from San Francisco. For general descriptions of the various routes see *Association News* in previous issues of this volume, pages 457, 527, 604, 924 and 1011.

PERSONALLY CONDUCTED TOURS

A number of requests have been received at this office asking for information concerning personally conducted tours. It will be recalled that an announcement was made in *THE JOURNAL*, February 6, page 528, of the New York and New England Special which is to be conducted under the management of the McCann tours, 1328 Broadway, New York.

CHICAGO MEDICAL SOCIETY SPECIAL TRAIN

A train is being arranged by the Chicago Medical Society. Dr. R. R. Ferguson, 3923 North Keeler Avenue, Chicago, is chairman of the committee, and the tour is under the management of the Gregory Tours, Lytton Building, Chicago. This party will travel by special train, leaving Chicago, June 17, at 10 p. m., over the Rock Island lines to Colorado Springs; from there, by way of the Denver and Rio Grande and the Western Pacific to San Francisco. The party will leave San Francisco at 8 a. m., June 28, for Los Angeles and San Diego, leaving Los Angeles at 4 p. m. on the evening of June 30, returning by way of Salt Lake City and Denver, and is scheduled to reach Chicago at 7:30 a. m., July 4. Further information concerning this tour can be obtained by addressing either the chairman of the committee, or the Gregory Tours.

Marriages

JACOB T. CRAMER, M.D., Muskegon, Mich., to Miss Clara B. Ruoff of Grand Rapids, Mich., February 23.

WESTERN CASS LOOMIS, M.D., to Miss Myrtle Lillian Windsor, both of Wichita, Kan., March 18.

JOHN PATRICK CHAPMAN, M.D., to Miss Mary Justina Huff, both of Philadelphia, March 19.

THEODORE SAUNTE CROSBY, M.D., to Mrs. Stella Olejnk, both of Wakefield, Mich., March 11.

JOSEPH A. VILLIEN, M.D., Maurice, La., to Miss Maude A. Gaidry of Montegut, La., March 9.

ERNEST WILLIAM FREY, M.D., to Miss Mary Jeannette Disney, both of Baltimore, March 22.

Deaths

Samuel Claggett Chew, M.D. University of Maryland, Baltimore, 1858; LL.D. University of Maryland, 1907; professor of materia medica in his alma mater from 1864 to 1866; professor of medical practice until 1907 and a year later made emeritus professor of medicine; dean of the University of Maryland from 1874 to 1879 and twice president of the Alumni Association; twice president and thrice vice-president of the Medical and Chirurgical Faculty of Maryland; consulting physician to Johns Hopkins Hospital; president of the board of trustees of the Peabody Institute and member of the board of regents of the University of Maryland; died at his home in Roland Park, Baltimore, March 22, from heart disease, after an illness of more than a year, aged 77.

William Hunt Hall, M.D. New York University, New York City, 1858; a member of the Medical Society of the State of New York and New York Academy of Medicine; assistant surgeon of the Thirty-Sixth New York Volunteer Infantry during the Civil War and later medical director of the Grand Army of the Republic; a member and assistant surgeon in the Thirteenth Infantry, N. G. S. N. Y.; for many years a practitioner of Saratoga Springs, N. Y.; died suddenly at his home in Camden, Maine, February 2, from heart disease, aged 76.

Henry Smith Noble, M.D. College of Physicians and Surgeons in the City of New York, 1871; a Fellow of the American Medical Association; a member of the American Medical Psychological Society and New York Neurological Society; for thirty-six years a member of the staff of the State Hospital for the Insane, Middletown, Conn., and for sixteen years its superintendent; one of the best-known alienists of the United States; died at the home of his nephew in Waterbury, Vt., March 16, from diabetes, aged 69.

Robert J. Massey, M.D. Medical College of Georgia, Augusta, 1850; a pioneer practitioner of Atlanta, Ga.; surgeon in the Confederate service throughout the Civil War; who, while on duty in Milledgeville, saved the state library and its valuable records from destruction; for several years surgeon to the Confederate Soldiers' Home, Atlanta; a well-known historical writer, making a specialty of the early history of Georgia; died in a sanatorium in Atlanta, March 18, aged 86.

Austin White Alvord, M.D. University of Michigan, Ann Arbor, 1868; a member of the Michigan State Medical Society and once its president; also president of the Calhoun County (Mich.) Medical Society; a member of the Michigan State Board of Registration in Medicine since 1899; a veteran of the Civil War and for many years a practitioner of Battle Creek, Mich.; surgeon to the Nichols Memorial Hospital, Battle Creek; died in St. Petersburg, Fla., March 23, aged 75.

John Cheves Haskell, M.D. Southern Medical College, Atlanta, Ga., 1897; Medical College of the State of South Carolina, 1912; a member of the South Carolina Medical Association; acting assistant surgeon, U. S. Army at Fort Bliss, Tex., during the Spanish-American War; a specialist on diseases of the eye, ear, nose and throat of Charleston; died in St. Joseph's Hospital, Atlanta, Ga., March 17, aged 42.

George Dickinson Thayer, M.D. New York University, New York City, 1881; formerly a Fellow of the American Medical Association and president of the Dickinson Hospital Medical Club, Northampton, Mass.; for nine years city physi-

cian of Northampton and for thirty-two years county physician of Hampden County; died at his home in Northampton, March 16, from heart disease, aged 57.

John Edward Heise, M.D. Hospital College of Medicine, Louisville, 1898; who soon after graduation became a veterinary surgeon and devoted his entire time and attention to this subject; local veterinary surgeon to the Southern Railroad; for four years a member of the board of county commissioners of Richmond County, S. C.; died at his home in Columbia, S. C., March 12, aged 43.

Michael Coyle Drennan, M.D. University of Pennsylvania, Philadelphia, 1863; medical director and rear admiral, U. S. N. (retired); surgeon in the Navy during the Civil War, and retired with the rank of next higher grade to that held on active list, and on account of incapacity resulting from an incident of service; died at his home in Easton, Pa., March 23, aged 76.

Thomas Emerson Duncan, M.D. Western Pennsylvania Medical College, Pittsburgh, 1897; local surgeon at Wellsville, Ohio, for the Cleveland and Pittsburgh Division of the Pennsylvania System; county physician of Columbiana County, Ohio, and a member of the Wellsville Board of Health; died in that place, March 13, from pneumonia, aged 42.

Clarence Milton Swale, M.D. Rush Medical College, 1895; a Fellow of the American Medical Association and local surgeon of the railways centering in Mason City, Iowa; a well-known surgeon of central Iowa; died at his home in Mason City, March 21, from septicemia, due to an operation wound, aged 43.

Thomas Burnett Norris, M.D. Starling Medical College, Columbus, Ohio, 1859; a member of the Ohio State Medical Association and Columbus Academy of Medicine; for more than thirty-six years a practitioner of Alton, Ohio; died at the home of his daughter in Columbus, Ohio, March 18, aged 87.

Gilbert V. Chamberlain, M.D. Detroit Medical College, 1874; a Fellow of the American Medical Association; in 1892 president of the Michigan State Medical Society; and once a member of the common council of Flint, Mich.; died at his home in Flint, March 18, from pneumonia, aged 65.

Michael Sullivan, M.D. Queen's University, Kingston, Ont., 1858; emeritus professor of surgery in his alma mater; formerly mayor and alderman of Kingston and since 1884 a member of the Upper House of the Dominion Parliament; died at his home in Kingston, January 25, aged 76.

Gustav Fernitz, M.D. Louisville (Ky.) Medical College, 1881; a member of the Illinois State Medical Society; for fifteen years editor of the Louisville *Ansceiger* and for the last thirty years a resident of Chicago; died at his home, March 21, from cerebral hemorrhage, aged 70.

William Breckenridge Smith, M.D. University of Maryland, Baltimore, 1899; a Fellow of the American Medical Association and a practitioner of Hampton, Va.; who sailed for Bristol, England, February 25, as surgeon of the steamer *Victoria*; died in Bristol, March 10, aged 41.

James H. Jaquith, M.D. University Medical College, Kansas City, Mo., 1894; a member of the Kansas Medical Society; local surgeon at Emporia, Kan., for the Missouri, Kansas and Texas Railroad; died in St. Mary's Hospital, Emporia, March 19, from pneumonia, aged 49.

Howard Lowrie Baird, M.D. Pulte Medical College, Cincinnati, 1889; of North Side, Pittsburgh; for several years deputy internal revenue collector at Pittsburgh and later managing director of the United Storage Company; died in Los Angeles, March 12, aged 70.

John Giallard Black, M.D. Medical College of the State of South Carolina, Charleston, 1868; a Confederate veteran; once a senator and twice a member of the house of representatives of South Carolina; died at his home in Blacksburg, S. C., March 14, aged 72.

Abraham W. Porter, M.D. Eclectic Medical Institute, Cincinnati, 1876; for two terms a member of the Indiana State Legislature from Martin County; died at his home in Loogootee, Ind., March 14, from septicemia following a frost-bite, aged 79.

Julius Paul Lauer, M.D. University of Pennsylvania, Philadelphia, 1908; a Fellow of the American Medical Association, and a specialist on diseases of children; died at his home in Philadelphia, March 16, from typhoid fever, aged 39.

Smith Armor, M.D. Homeopathic Medical College of Pennsylvania, Philadelphia, 1851; said to have been the oldest alumnus of that institution and the oldest practitioner of Pennsylvania; died at his home in Columbia, March 14, aged 91.

William Henry Shaw, M.D. University of Michigan, Ann Arbor, 1868; for many years president of the bank at Monroe, Iowa, where he had practiced since his graduation; died at his home in that place, March 14, from pneumonia, aged 74.

Andrew B. Harrison (license, Florida, 1899), formerly agent of the State Board of Health at Monticello, Fla., where he practiced for many years; died at the home of his daughter in Columbia, Ala., March 14, aged 80.

Rezier S. Farr, M.D. Medical College of Virginia, Richmond, 1867; a Confederate veteran, with service for two years under General John S. Mosby; died at his home in Belton, Tex., March 16, aged 75.

Nancy M. Miller, M.D. New York Medical College and Hospital for Women, New York City, 1867; one of the first women to practice in New York; died at her home in New York City, March 17, aged 84.

William Orlando Harland, M.D. Rush Medical College, 1877; for many years a practitioner of Mahomet and Mansfield, Ill.; died at his home in the latter city, March 16, from angina pectoris, aged 58.

Greensbury W. Freeny, M.D. University of Maryland, Baltimore, 1862; for many years a member of the Board of Education of Pittsville, Md.; died at his home in that city, March 15, aged 78.

A. Judson Berry, M.D. Missouri Medical College, St. Louis, 1882; formerly city physician of Warrensburg and Johnson County, Mo.; died at his home in Warrensburg, March 11, aged 62.

Smith W. Bellinger, M.D. University of Nebraska, Omaha, 1904; a member of the Iowa State Medical Society; died at his home in Council Bluffs, Ia., March 15, from nephritis, aged 37.

L. Morse Able, M.D. Medical College of Georgia, Augusta, 1890; a practitioner and druggist of St. Matthews, S. C.; died suddenly at that place, February 27, from myocarditis, aged 45.

William F. Betcher, M.D. Milwaukee Medical College, 1902; formerly of Marathon, Wis.; died at the home of his mother in Rochester, Minn., March 11, from pulmonary hemorrhage, aged 40.

Oliver G. Getty, M.D. University of Maryland, Baltimore, 1878; until 1893 a practitioner of Grantsville, Md.; died at his home in Meyersdale, Pa., March 14, from cerebral hemorrhage, aged 59.

Peter Augustus Johnson, M.D. Long Island College Hospital, Brooklyn, 1882; a member of the Medical Society of the State of New York; died at his home in that city, February 24.

Peter Nilsson, M.D. Eclectic Medical College of the City of New York, 1898; lecturer in gross pathology in his alma mater; died at his home in New York City, March 21, aged 46.

Fernando Charles Putnam Newman, M.D. Long Island College Hospital, Brooklyn, 1895; of Brooklyn; died in St. John's Hospital in that city, March 3, from rheumatism, aged 44.

Cyrus B. Merchant, M.D. Tulane University, New Orleans, 1886; formerly a member of the State Medical Association of Texas; died at his home in Quinlan, Tex., Dec. 29, 1914.

George H. Chappell (license, years of practice, Michigan, 1900), for many years a practitioner of Grand Rapids, Mich.; died at his home in that city, March 11, from pneumonia, aged 73.

Burnett V. Buffington, M.D. Eclectic Medical Institute, Cincinnati, 1873; for fifty-two years a practitioner of Ohio; died at his home in Marysville, March 11, from cystitis, aged 75.

Macpherson Smith, M.D. Albany (N. Y.) Medical College, 1855; who many years ago gave up practice for business in New York City; died at his home in Albany, January 25, aged 82.

John C. Mueller, M.D. St. Louis College of Physicians and Surgeons, 1889; Sioux City (Iowa) College of Medicine, 1900; died at his home in Lamotte, Iowa, March 11, aged 48.

Frank Arthur Searle, M.D. Albany (N. Y.) Medical College, 1914; an intern in the Albany Hospital; died in that institution, January 20, from malignant endocarditis, aged 24.

Thomas L. Keys, M.D. University of Louisville, 1885; formerly a Fellow of the American Medical Association; died at his home in Rockwall, Tex., January 11, aged 58.

William Michael Cavano, M.D. Northwestern University Medical School, Chicago, 1900; died at his home in San Francisco, about February 11, from myocarditis, aged 48.

James P. Thompson, M.D. Leonard Medical School, Raleigh, N. C.; a colored practitioner of Elberton, Ga.; was shot and killed in his office in Elberton, February 19.

Joseph Teel Farrar, M.D. California Eclectic Medical College, Los Angeles, 1891; of Berkeley, Cal.; died in the Roosevelt Hospital in that city, March 8, aged 64.

Harvey Scott Pitman, M.D. University of Louisville, 1873; of East Bernstadt, Ky.; a Fellow of the American Medical Association; died January 25, aged 69.

F. G. Bright, M.D. Kentucky School of Medicine, Louisville, 1868; of Commerce, Mo.; died in a hotel in Evansville, Ind., March 22, from heart disease, aged 74.

Thomas Jax Cole, M.D. Eclectic Medical Institute, Cincinnati, 1875; died at his home in Van Wert, Ohio, Nov. 30, 1914, from cerebral hemorrhage, aged 60.

William C. Crooks, M.D. University of Pennsylvania, Philadelphia, 1866; died at his home in Philadelphia, March 14, from cerebral hemorrhage, aged 75.

George H. Littlefield, M.D. University of Vermont, Burlington, 1881; died at his home in Glenfield, N. Y., March 18, from valvular heart disease, aged 62.

Jesse Jacob Foote, M.D. New York University, New York City, 1894; died at his home in Potsdam, N. Y., March 22, from cerebral hemorrhage, aged 48.

Horace M. Julian, M.D. University of Maryland, Baltimore, 1885; died at his home in St. Louis, January 30, from cerebral hemorrhage, aged 53.

Brice M. Hughes, M.D. Jefferson Medical College, 1868; a retired practitioner of Milan, Tenn.; died at his home in that city, January 2, aged 81.

James Anderson (license, years of practice, Illinois, 1878), died at his home near Louisville, Ill., about February 27, from heart disease, aged 89.

Charles Osborne Tupper, M.D. Jefferson Medical College, 1886; died at his home in Brooklyn, February 22, from influenza, aged 53.

A. Presley (license, Texas, 1907), for thirty-five years a practitioner of Texas; died at his home in Yoakum, February 28, aged 64.

John Littell Tarlton, M.D. Tulane University, New Orleans, 1908; of Lydia, La.; died in New Orleans, March 18, aged 28.

Frank W. Flower, M.D. Hahnemann Medical College, Chicago, 1876; died at his home in Carthage, Mo., March 7, aged 77.

Finzalam M. Perras (license, Ontario, 1880), died at his home in Gracefield, Que., Dec. 17, 1914, from senile debility, aged 77.

James W. Wells, M.D. Western Reserve University, Cleveland, 1872; died at his home in Cushing, Okla., January 28, aged 74.

E. L. Tillinghast, M.D. Tulane University, New Orleans, 1861; died at his home in Mooringsport, La., February 23, aged 75.

Joseph A. Weaver, M.D. Atlanta (Ga.) Medical College, 1891; died at his home in Buena Vista, Ga., March 5, aged 47.

H. T. Garnet, M.D. University of Louisville, Ky., 1862; died at his home in Keytesville, Mo., February 16, aged 75.

Abram De Graff, M.D. Albany (N. Y.) Medical College, 1858; died at his home in Guilderland, N. Y., January 1.

Henry W. Thomas, M.D. Atlanta (Ga.) Medical College, 1893; died at his home in Macon, Ga., March 6, aged 47.

Albert Erasmus Schulz, M.D. University of Toronto, Ont., 1904; died at his home in Elmira, Ont., Dec. 23, 1914.

DeWitt C. Collins (license, Mississippi, 1882), died at his home in Pleasant Hill, Miss., March 14, aged 84.

J. J. Lemon (license, Mississippi), died at his home in Biloxi, Miss., recently, aged 90.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

PEACOCK'S BROMIDES AND CHIONIA

Reports of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following reports on Peacock's Bromides and Chionia, sold by the Peacock Chemical Company, St. Louis.

W. A. PUCKNER, Secretary.

PEACOCK'S BROMIDES

This is another nostrum of the ordinary mixture type. Of the various statements concerning composition furnished by the company, the following gives as much information as any:

"In Peacock's Bromides it is designed to unite fifteen grains of the purest bromides of Potassium, Sodium, Ammonium, Calcium and Lithium, in such proportion as to insure the bromine equivalent of potassium bromide. Each fluid drachm about equals, in medicinal strength, fifteen grains of potassium bromide."

The label on the trade package indicates the presence of 10 per cent. of alcohol. It will be observed that the proportions of the different bromids are not stated. Hence, the assertion of the Peacock Chemical Company that "there is nothing secret in this compound" cannot be true. A physician prescribing it cannot know how much of each ingredient he is giving; it may be $14\frac{1}{2}$ grains of potassium bromid and $\frac{1}{8}$ grain each of sodium, ammonium, calcium and lithium bromids, or any other of an enormous number of possible permutations of the proportions.

While the theoretical basis of bromid medication is not yet fully settled, the weight of the best pharmacologic authority and clinical experience is decidedly against the dogmatic claim of the Peacock Chemical Company that "the best result is obtained by prescribing a combination of bromides." And if there were any advantage in prescribing such a combination, the physician ought to regulate the proportions.

The following quotations are from the advertising matter:

"Being uniform in purity and therapeutic power, it can be relied upon to produce clinical results which it is believed cannot be obtained from the use of commercial bromide substitutes."

"The purity, quality and constant uniformity of this high grade product have long made it a standard bromide preparation."

These claims are unfounded. The analyses published in the concern's own advertising "literature" show a variation of 8 per cent., in the bromid content, which certainly indicates a sufficient lack of uniformity.

Again quoting:

"In order to insure the best results the bromides must be pure, i. e., free from alkalis and almost free from chlorides. The U. S. P. allows three per cent. of chlorides. Peacock's Bromides contains the least possible amount of this impurity. Bromism is therefore less frequent in those cases in which this preparation is employed."

In view of the claim of low chlorid content, it is interesting to note that the analyses above referred to show that the chlorid content is actually higher than that of some other bromid preparations on the market.

The claim of merit on the ground of freedom from chlorids is, of course, absurd, and must be regarded as an attempt to play upon the credulity of the doctor. As a matter of fact, the average individual takes with his food many times the amount of chlorid he could possibly take in contaminated bromid. The 10 per cent. of alcohol would undoubtedly have a greater disturbing influence on the bromid action than the amount of chlorid that might be present in any bromid on the market.

Then we have the statement that, owing to this freedom from chlorids:

"Bromism is therefore less in those cases in which the preparation is employed."

Sodium chlorid, even as an impurity, would retard rather than favor the development of bromism; sodium chlorid is even used as an antidote in bromid poisoning.

The therapeutic claims lay stress on the value of the bromids in sleeplessness, epilepsy, sexual excitement, tetanus, infantile convulsions, chorea, delirium tremens, the climacteric, migraine, headache due to pelvic conditions, ovarian neuralgia, etc. These and other claims, while too vague to be branded as falsehoods, are misleading and not in accordance with modern teaching or practice; the latter recognize the limitations of bromid therapy as well as its scope and advantages. For instance, in epilepsy:

"Large doses must be given if we expect to control the convulsions. We are to be guided by the frequency and the severity of the seizures, the saturation of the system by bromides and by the age of the patient. The rule is 'large doses for long periods but with occasional periodic monthly or quarterly omissions.' When we have succeeded in controlling the convulsions in so far as greatly diminishing the frequency and severity of the attacks we may then attempt to decrease the dose, but the results must be carefully watched. Increase in frequency of convulsive seizures is a sign that the bromides must again be pushed as before."

The best modern clinical teaching concerning the treatment of epilepsy is that bromids should be avoided except as a last resort. Bromids do not cure, and the amount necessary to control the convulsions may produce a degree of mental hebetude that is a greater evil than the disease itself.

It is recommended that the preparation be held ineligible for admission to N. N. R., because of its conflict with Rules 1, 4, 6 and 10 of the Council, and that this report be published.

CHIONIA

Chionia, according to the statement of the Peacock Chemical Company, which exploits the product, contains 19 per cent. alcohol and is "A Preparation of Chionanthus Virginica."

This preparation is advertised particularly as "a potent hepatic stimulant" and special claims are made for it in various disturbances of the liver:

"Chionia is very well adapted in the treatment of hepatic congestion owing to its specific action in depleting the portal circulation."

In passive congestion of the liver, the manufacturers would have us believe

"... we have a drug in Chionia that will stimulate the circulation of the blood and lymphatics of the liver as well as stimulate its physiological activities and instead of the patient vomiting the blood an internal depletion of the liver occurs."

"... in cases of simple jaundice due to circulatory (congestive) changes in the liver, Chionia is the drug 'par excellence' that will rapidly cause a disappearance of this symptom."

As a prophylactic against eclampsia, if a history of torpidity of the liver is obtained:

"CHIONIA should be used during the major portion of child-bearing period because it acts directly on the liver stimulating its functional activity."

Chionanthus virginica has never been shown to have the slightest pharmacologic activity and no evidence is presented that its offspring, Chionia, has any therapeutic value whatever in any disturbance of the liver. The promoters themselves indicate a lack of faith in their own preparation, for they advise the use of old and efficient forms of treatment along with Chionia—heart tonics and laxatives in passive congestion of the liver, mercurial purge or podophyllin and sodium phosphate in "biliousness," and quinin in malaria. Finally, with delightful English and elaborate insouciance, they advise in the treatment of eclampsia:

"In all cases the uterus should be emptied as quick as possible. (Version of Cæsarian Section.)"

The physician who prescribes Chionia promotes a fraud. The Council held Chionia ineligible for admission to N. N. R.

1. Of *Chionanthus Virginica* or fringe-tree, the Council on Pharmacy and Chemistry in its 1912 report on "Some Unimportant Drugs" said: "The drug is much used by eclectics and homeopaths, especially as a depurant in hepatic and syphilitic disorders. . . . The claims for this remedy are not supported by experimental evidence and clinical reports of its use fail to show indications of discriminating critical observation. It is not noticed by most pharmacologic authorities."

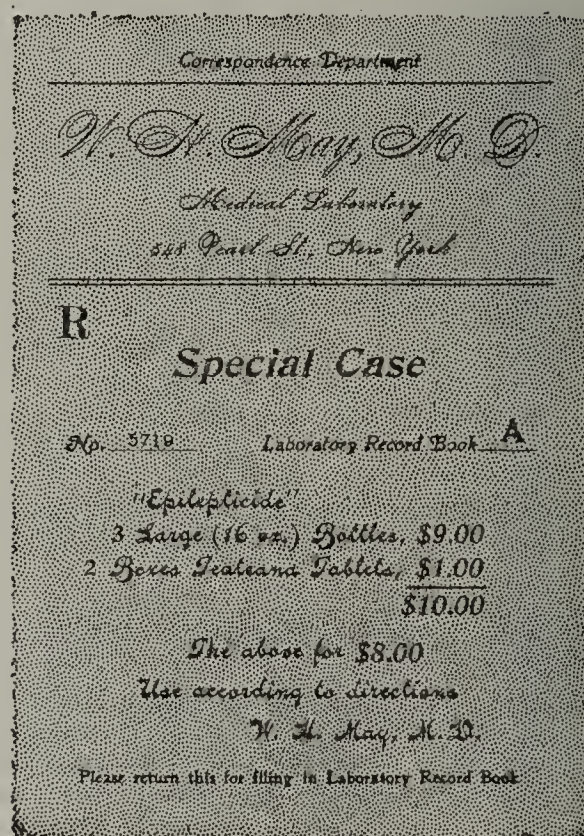
[EDITORIAL COMMENT: In Peacock's Bromides and Chionia the Peacock Chemical Company has, for a third of a century, been foisting on the medical profession nostrums composed of drugs that are easily combined in any proportion that the physician may want to prescribe. The company has been inflicting on the unthinking physician pseudo-scientific rubbish in the form of advertising literature that should long ago have been regarded as an insult to the intelligence of the medical profession. The following medical journals are carrying advertisements of Peacock's Bromides and Chionia:

<i>Alienist and Neurologist</i>	<i>Medical Herald</i>
<i>American Journal of Surgery</i>	<i>Medical Record</i>
<i>American Medicine</i>	<i>Medical Review of Reviews</i>
<i>Archives of Pediatrics</i>	<i>Medical Sentinel</i>
<i>Atlanta Journal-Record of Medicine</i>	<i>Medical Standard</i>
<i>Buffalo Medical Journal</i>	<i>Medical Summary</i>
<i>Charlotte Medical Journal</i>	<i>Medical Times</i>
<i>Chicago Medical Recorder</i>	<i>Medical World</i>
<i>Denver Medical Times and Utah Medical Journal</i>	<i>Nashville Journal of Medicine and Surgery</i>
<i>Eclectic Medical Journal</i>	<i>New Orleans Medical and Surgical Journal</i>
<i>Ellingwood's Therapist</i>	<i>New York Medical Journal</i>
<i>Indianapolis Medical Journal</i>	<i>Pacific Medical Journal</i>
<i>International Journal of Surgery</i>	<i>Southern Practitioner</i>
<i>Lancet-Clinic</i>	<i>Texas Medical Journal</i>
<i>Louisville Monthly Journal of Medicine and Surgery</i>	<i>Texas Medical News</i>
<i>Maryland Medical Journal</i>	<i>Therapeutic Gazette</i>
<i>Medical Brief</i>	<i>Wisconsin Medical Recorder</i>
<i>Medical Fortnightly</i>	<i>Woman's Medical Journal</i>

DR. MAY'S FORMULA

Another Fraudulent Epilepsy Cure

W. H. May, M.D., and his so-called "medical laboratory," both of New York City, conduct a mail-order "cure" for epilepsy. The nostrum, now called "Dr. May's Formula" was, a year or so ago, "Dr. May's Epilepticide, The Wonderful Nerve Restorer." Nor is the change in the wording of



Photographic reproduction (reduced) of a slip sent out by W. H. May to prospective victims of his mail-order epilepsy cure giving the impression that each case gets individual attention.

the label the only indication that the May concern has recognized the futility—not to say dangers—of a mendacity that expresses itself in cold type. A study of the booklets issued a year or two ago with those published later shows various changes, deletions and modifications that are of interest to

the student of the history of quackery. Moreover, it makes for optimism; it encourages the belief that the public is developing a healthy skepticism of the claims of the quack. For instance:

In 1912: "It has been proven that Dr. W. H. May's Scientific Discovery Epilepticide, The Great Nerve Restorer is the Most Successful Remedy for Epilepsy." [Italics ours.—Ed.]

In 1914: "It has often been said that Dr. May's Formula is the Most Successful Remedy for Epilepsy." [Italics ours.—Ed.]

In 1915: "It is said that The Dr. May Formula is The Proper and Most Successful Treatment for Epilepsy or Fits." [Italics ours.—Ed.]



Reproductions of the older and later forms of the May nostrum.

In the older booklet May takes to himself the credit for discovering the cause of epilepsy. Thus:

"It has been proved by the researches of Dr. May that Epilepsy or 'Fits' is directly caused by the presence of a growth, a rupture of a small bloodvessel or an adhesion in the brain proper or between its membranes.

"Previous to this discovery the causes of this malady were unknown."

And in another pamphlet:

"Time and space will not permit of a lengthy description of the elaborate experiments and investigations which have been carried on in the Dr. May Medical Laboratories by which these facts were obtained. Suffice it to say that all modern authorities have accepted Dr. May's theory, and that the results following his discovery have been of far more reaching importance than those obtained by Koch or Pasteur."

These astonishing falsehoods are not to be found in the latest May "literature." One may be pardoned for assuming that their absence is due less to an awakened conscience than to a healthy dread of that efficient but overworked arm of the Federal service—the Postoffice fraud-order department.

SCARING THE VICTIMS

"It is not our purpose to worry the unfortunate victims of this dreadful disease," soliloquizes May in his opening paragraphs, "nor shall we seek to terrorize them with harrowing details which beset their path unless they have the right treatment." Far be it from the considerate "Dr." May to frighten those who seek relief from epilepsy via the mail-order route. Yet it is conceivable that the following paragraphs, quoted from the same source, might have at least a slightly disquieting effect on the sufferer:

"The mother falls on the red-hot stove while preparing the daily meal, the child falls into the fire while playing about the hearthstone.

"The father, while returning from work, falls in the crowded street and his life is crushed out by the cruel car or the rushing automobile. These are but a few instances of violent deaths met by epileptics in New York City during one week."

And then this is hardly reassuring:

"If you Hesitate, you are Lost! Often Delay means, if not death, a Condition Worse than death—the Maniac's Doom."

The price of the May nostrum is not a fixed quantity. The amount first asked, and that given on the label, is \$3 a bottle. Should an order not be forthcoming May comes down to \$5 for three bottles and offers to throw in for good measure two boxes of his tablets. This five-dollar combination is asserted to be "sufficient to relieve and permanently cure almost any case of Epilepsy." If this inducement fails to coax the money from the victim the offer comes to send "Two large full-size Sixteen-Ounce Bottles" for a mere \$3; still later comes the opportunity to purchase "1 large 16-ounce bottle" for \$2.

Having "discovered" the real cause of epilepsy, May naturally decided that "the old method of treating Epilepsy" should be discarded. To take its place "a new scientific treatment of the disease has been perfected by which have been obtained the most wonderful and marvelous cures." What is this marvel? Let the chemists of the American Medical Association's Laboratory answer:

CHEMISTS' REPORT¹

One original bottle of "Dr. May's Formula," manufactured by Dr. W. H. May Medical Laboratory, New York, N. Y., was submitted to the Chemical Laboratory for examination. The bottle contained a brown liquid, having extractive matter present. The specific gravity of the liquid at 15.6 C. was 1.2347. Qualitative tests demonstrated the presence of alcohol, ammonia, potassium, sodium, bromid, chlorid and sucrose. Quantitative determinations yielded the following:

Alcohol (by volume).....	4.50 per cent.
Ammonia (NH ₃) (by weight).....	0.62 per cent.
Potassium (K ⁺) (by weight).....	0.05 per cent.
Sodium (Na ⁺) (by weight).....	2.89 per cent.
Bromid (Br ⁻) (by weight).....	13.29 per cent.
Chlorid (Cl ⁻) (by weight).....	0.03 per cent.
Sugar (by weight).....	1.15 per cent.

Essentially each 100 c.c. of the solution contains 4.5 grams of ammonium bromid and 16.0 grams of sodium bromid. Calculating from the bromid determination, each daily dose, one teaspoonful (1 fluidram), contains the equivalent of 15 grains of potassium bromid, and each daily dose (4 teaspoonfuls) corresponds to 60 grains of potassium bromid.

Says May of his nostrum:

"It is not poisonous; contains no narcotics—no morphin, opium, cocaine or belladonna such as are ordinarily used in other remedies for Epilepsy, and are so destructive to health."

What are the facts: It *is* poisonous; it *does* contain a narcotic; it *is* essentially just such a mixture as is ordinarily sold as an "epilepsy cure" and it *is* destructive of health.



Some typical advertisements of the May "epilepsy cure." The concern confines its advertising largely to rural districts.

In short, the May epilepsy "cure" is foisted on sufferers under claims that are either directly or inferentially misleading and fraudulent and when purchased the victim has obtained what is essentially a bromid mixture having all the dangers—and limitations—of such a mixture. No wonder "patent medicine" fakers are opposed to the declaration of their formulas! It would sound the death knell of their business.

1. This is a condensed report of the chemists' findings. The details of analysis will appear in the Reports of the Chemical Laboratory of the American Medical Association for 1915.

Correspondence

Conditions at the University of Utah

To the Editor:—The affairs of the University of Utah are at present in a sad state, and for the information and protection of professional men who might receive offers of positions here, especially in the sciences and in the medical school, we desire to present a brief statement of the facts in the case.

A few weeks ago four members of the faculty who had served the institution for from two to ten years each were notified by the president that their services would be dispensed with at the close of the year. This announcement came from a clear sky with no previous trouble; in fact, some of these men had but recently been led to believe that their services were satisfactory. The only reason each could obtain was "the good of the university." Two demotions of professors, one of them a man who has served as head of the English department for twenty-three years, followed immediately.

Naturally the men concerned pressed the president for reasons, and various excuses, not reasons, were offered. These "reasons," moreover, shifted from day to day, as the demands became more urgent from the men and from their colleagues who saw injustice being done them arbitrarily. Finally the agitation became public and reached such a stage that alumni, students, faculty and other organizations petitioned the board of regents to investigate the matter carefully. The excuses offered were in part at least based on mere rumors, which the president has not taken the trouble to investigate. The board promised the public an investigation, but when they met on the evening of March 17 it was only to issue a long statement defending and "whitewashing" the president. They did not investigate or go into the matter in any way other than to accept the president's statement in toto. Fourteen men, including two deans and six other heads of departments, including Professors Ebaugh, Vorhies, Byrnes, Mattill and Sharp of the medical school, promptly resigned. Later it was learned and made public that the statement issued by the board was prepared in a star-chamber session the Sunday before.

This is but the culmination of a policy of distrust and repression exercised by the president and regents for some time, but especially noticeable in the past year or so. We believe that the existence of the university as a free public institution is at stake. No desire for cooperation with the faculty exists in the governing board; their whole attitude toward the faculty is that of a contractor toward his laborers. We cannot bow to that system without losing our self-respect. We desire that those who propose to come here as successors to any one of us shall have knowledge of conditions in advance and come with their eyes open.

CHARLES T. VORHIES, PH.D.,
H. A. MATTILL, PH.D.,
ROBERT G. SHARP,
R. L. BYRNES, M.D.,

University of Utah, Salt Lake City.

[The University of Utah gives the work of the first two years of the medical course, for which two years of regular university work, including courses in physics, chemistry and biology are required for admission. The medical work given, therefore, is intimately related to the university proper and the medical teachers are a part of the regular university faculty. It appears that nearly all of the medical faculty have resigned: W. C. Ebaugh, professor of chemistry; C. T. Vorhies, professor of zoology and botany; Ralph L. Byrnes, professor of bacteriology and pathology; Henry Albright Mattill, professor of physiology and physiological chemistry, and R. G. Sharp, assistant professor of anatomy. These resignations indicate that most of the work in the medical department has ceased, which is a serious matter for the medical students enrolled. The standing of these teachers in the educational world is too high to allow the situation to pass without due explanation.—Ed.]

Rehabilitation and Segregation in Tuberculosis

To the Editor:—In your editorial references to the tuberculosis survey of five Minnesota counties made by me for the State Board of Health (*THE JOURNAL*, March 6, 1915, p. 833), I feel that I must criticize the wording of your conclusions as unintentionally misleading.

You say, "In view of the increasing evidence that both the predisposing causes and the successful treatment of tuberculosis are inseparably bound up with the problems of the home, it is to be hoped that at least a part of the sustained interest in the subject be directed toward a rehabilitation of tuberculous families rather than ill-advised segregation of individual members."

While all students of the tuberculosis problem must agree that rehabilitation of tuberculous families is the necessary and ultimate goal of endeavor in tuberculosis control, it seems that every practical worker along this line must see that segregation (*not* "ill-advised") is the one absolutely essential preliminary step toward this goal.

Rehabilitation is so much more of a problem than segregation and is so hopeless of accomplishment without preliminary segregation that it would seem well to defer active discussion of it until segregation is fairly well under way.

The adverse inference that may be drawn from your expression "ill-advised segregation" is liable to prove embarrassing to those working for helpful legislation along this line.

Further in regard to rehabilitation: In the rural districts the enforcement of comprehensive sanitary measures or housing control comparable to what may be carried out in cities is not feasible under existing conditions. The rural population is less open to suggestion along such lines and is more adverse to reception of material help than the civic population, among whom the tendency to pauperization must be avoided.

Education of the rising generation in the rural districts in matters of disease prevention, preferably through the public educational system, will lead more easily and rapidly to self-rehabilitation than will any direct efforts otherwise applied by the state.

Segregation, aside from being the only practical means of relieving the most urgent and immediate danger of infection, is a valuable educational measure, especially in the rural districts. Segregation opens the way for popular study of disease prevention and helps vastly in getting sanatorium treatment applied to the early cases of tuberculosis.

H. G. LAMPSON, M.D., Minneapolis.

Epidemiologist, Division of Preventable Diseases, Minnesota State Board of Health.

Experiences with Varicella and Variola

To the Editor:—I was much interested in the article on varicella and variola ("Prevention is Greater than Cure," Therapeutics, *THE JOURNAL*, March 13, 1915, p. 907). I wish to add my experience with these two diseases, as they are constantly present on the Mexican border, and my opportunities for study have been with 1,200 cases of the superficial and 160 cases of the deep eruption. The Vienna school is quoted as claiming that they are identical. There is too much stress laid on the location of the eruptions and the appearance of the patient in eruption.

I find that varicella frequently shows in the scalp, palms, soles, tongue and buccal cavity. I have never seen it in the pharynx.

Erysipelas sometimes is a serious complication, and there is even mild delirium in adults during a part of the days of eruption. The temperature is seldom above 103 F.

Varicella is as frequent in adults as children if never previously exposed. Variola is a pestilential disease, no milder to-day than before Jenner, absolutely controlled by recent vaccination. Error in diagnosis is the only basis on which anti-vaccinationists can offer argument. In Arizona only thirteen deaths have been reported in three years from smallpox, yet

50 per cent. of our appropriations in health departments has been spent for smallpox quarantine (much of which was varicella).

The smallpox pustule is reticulated, begins beneath the third layer of the skin and destroys the overlying layers, causing an admixture of blood in the crust and a black color in the scab, which on detachment leaves a permanent cicatrix.

The varicella crust molds the underlying skin, and when it drops off, leaves slight elevations which soon disappear; also occasional chickenpox pits quite distinguishable from the post-smallpox facies.

I make histologic distinction the chief diagnostic point and have never found cause to regret my position. There is no such disease as mild smallpox, in my experience, and the superficial pustular eruption never runs into smallpox.

I have seen epidemics of the two diseases occur simultaneously, but always traced the source of Jenner smallpox to a case of Jenner variola with a regular death rate and sequelae. I take the positive position as health officer that the paralysis of business in a community following the report of an epidemic of smallpox is so great that a burden of responsibility is placed on an officer to make a differential diagnosis, and not allow himself to be stampeded by the hysteria which follows a reckless announcement of a pestilential disease from an inexperienced or ultracareful practitioner.

GEORGE D. TROUTMAN, M.D., Tucson, Ariz.

Superintendent of Health, Pima County.

Diagnosis of Chickenpox and Smallpox

To the Editor:—I was much pleased with the kind words concerning my paper on diagnosis of chickenpox and smallpox quoted in "Prevention is Greater than Cure" (Therapeutics, THE JOURNAL, March 13, 1915, p. 907). I note, however, an error in the fourth paragraph of the first column on page 908, fourteenth line, in that it states that the margins of the lesions are not crenated in either disease, thus furnishing no diagnostic point in this particular direction.

The fact is that the lesions of chickenpox *are* crenated, while those of smallpox are not, hence affording one differential point.

H. W. HILL, M.D., St. Paul.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

INQUIRIES ON THE HARRISON ANTINARCOTIC ACT

SOME CRITICISMS ON THE COMMISSIONER'S RULINGS

To the Editor:—What right has the Commissioner of Internal Revenue to differentiate between a specialist and a country doctor? If a country doctor uses one-half grain cocaine in taking a foreign substance out of an eye, he must take the name and address of the patient and the date and the amount used, and a specialist doing the same work has nothing to do but keep his stock bottle.

A "dope fiend" comes to me who can use several grains a day, and it takes several grains to give any relief. What is to limit my discretionary power in the amount to be given as the law is now construed? How often is it legitimate to prescribe said drugs? If a doctor has complied with the law and writes his prescription in accordance with said law, where is the druggist to step in and refuse to fill said prescription on the ground that the patient is getting more than the law allows?

If I give a baby "Papine" and that baby has not yet been named, how am I to comply with the law?

Is the construction of "personal attendance" in accord with common sense? "If I go to the sea and wade out in the water and drown I am to blame, but if I sit down on the beach and the sea comes up to me and I am drowned I am to blame *not*."

What percentage of drug fiends use the "dope" in the eye, ear, urethra, vagina, per rectum? "Much ado about nothing."

Why were the licenses limited to \$1 per year and the blanks \$10 per thousand?

Why delegate to one man—Commissioner of Internal Revenue—power to read into a law so many ideas that are not contained within the law as passed by the legislative body after a study of two years? The law as passed and the law as construed are to me not the same.

He has no right to construe that my business address is my name in full—it is common sense, but does his construction make it legitimate in the eyes of the law?

I prescribe:

R Tr. opii 4 drams
Olii sinapis 5 drops
Lin. camphorae q. s. ad. 8 ounces

M. Sig.: External use twice a day.

Will this prescription pass muster? Or must it be written in accordance with the Harrison law? I could take some of it internally.

The law was badly needed and we all want to comply with it and will comply with it, of course; but there are some features of it that need a different construction.

Why let the "patent medicine" houses go on using the small amount of dope that creates the desire and then create so much storm after the fire has been kindled?

J. W. MATLOCK, M.D., Frost, Texas.

WANTS A PLAIN, COMMON-SENSE LAW

To the Editor:—Your explanation in THE JOURNAL, March 20, 1915, p. 1002, seems to make the Harrison law the work of an imbecile. From it I gather that we can give paregoric in unlimited quantities because it has less than 2 grains of opium to the ounce, and yet we cannot prescribe paregoric tablets, that represent 10 drops of paregoric to the tablet, or brown mixture tablets, that represent 1/25 grain of opium to each tablet, because an ounce of them would contain more than 2 grains of opium. For sheer imbecility, can that be beaten anywhere in the world? Yet this law contains a section that is even more foolish and troublesome. A physician must actually be *absent* from his office before he can come under exception, Section 2, and specialists are allowed to do many things the general practitioner cannot do.

These are only a few things in the law; but if you can find any two physicians or any two lawyers that will interpret this law alike, I think you will have to search the entire country to find them. All real physicians wish to stamp out the drug evil, and in common fairness they are entitled to a plain, common-sense law (instead of this jumble) for a guide.

E. C. HELM, M.D., Beloit, Wis.

REGARDS THE LAW AS USURPATION

To the Editor:—I have been surprised to observe that among so many inquiries about the new Harrison law there have been but few adverse criticisms, although it is justifiable to make adverse criticism.

1. The law is a usurpation by Congress of the police power of the states. The right of Congress to impose a revenue tax on any article is admitted, but in the case of narcotics the Congress assumes authority to regulate use, distribution and sale. If it is competent for the Congress to regulate the sale and distribution of one drug or one group of drugs, why not of another, and why not of all? If these premises be admitted, it is not apparent why the Congress may not assume the enactment of general medical practice laws, and complete the federal usurpation of state authority.

2. The necessary blanks for ordering supplies of the listed drugs are furnished by a government monopoly at an exorbitant price. Any job printer is glad to furnish similar printed stationery for \$3.50 per thousand or less, while the government price is at the rate of \$10 per thousand.

3. A statutory offense is arbitrarily and unjustly elevated into a felony, and technical violations of the law, consisting of acts not in their nature criminal, are treated as major crimes.

In case of criminal use of narcotic poisons, or intent to use—if such use or intent to use be proved—the laws of the several states furnish the needful machinery of justice, and it is their prerogative to deal with such offenders.

4. The most serious of the defects of the Harrison law is in the excessive penalties provided for in violation of its rules.

To denounce savage and extreme penalties against mere statutory offenses is a species of cruel tyranny worthy of the dark ages, but a disgrace to our boasted twentieth century enlightenment.

"O, it is excellent

To have a giant's strength, but it is tyrannous
To use it like a giant."

W. K. MCCOY, M.D., Gum Spring, Va.

COMMENT.—The preceding letters are criticisms either of the law or its administration rather than requests for specific information. They can therefore be answered only in general. They illustrate the difficulties attending the administration of a law, no matter how carefully considered the law itself may be. Laws can contain only general principles. They cannot provide detailed specifications suitable for every situation. The application of the general principles of the law to the specific instance must be entrusted to an executive officer. In the case of the Harrison law, this is the Commissioner of Internal Revenue who, through his subordinates, administers this law just as he does the other revenue laws. In the making of the rulings and regulations, the general intent of the law must always be kept in mind. The object of the Harrison law is to provide a system of records by which all drug preparations containing opium or cocaine can be traced from the importer to the consumer. In order to make such a system complete, the physician is required to

make a record of such drugs supplied to patients. To compel a record of each individual case in which a few drops of cocain solution are used, especially when this is repeated many times each day in the office practice of a specialist, is, of course, out of the question. On the other hand, to permit the unrecorded use of cocain solutions is equally impossible. The line must be drawn somewhere. For the present, the commissioner has ruled that specialists using such solutions as a routine procedure must keep a record only of the amount of stock solutions made up, while physicians using such solutions occasionally and at long intervals must keep a record. Whether this is the fairest solution possible or whether it will be the ultimate ruling remains to be seen.

There are no restrictions at present on the right of the physician to prescribe or dispense as he may see fit. The druggist is forbidden to fill a prescription if he has reason to believe that it is given for the purpose of evading the law or if it is fraudulently obtained. The ruling regarding personal attendance is another effort on the part of the executive officers to interpret the law. The presence of the exemption clause is an evidence of the power of patent medicine business rather than of the consistency of the law makers.

LANDAU COLOR TEST FOR SYPHILIS

To the Editor:—I should like to make further inquiries on the Landau tests on points which are not clear to me from your discussion of this test (*Queries and Minor Notes*, *THE JOURNAL*, Feb. 20, 1915, p. 686).

1. The specific gravity of carbon tetrachlorid is 1.63. I had the solution made up, namely, 29.3 grains iodine crystals to 4 fluidounces carbon tetrachlorid. Is that correct? If not, please state what is the correct formula.

2. *THE JOURNAL* says, "To 0.2 c.c. of the clear serum add 0.01 c.c. of the reagent consisting of a 1 per cent. solution of iodine in a solution of carbon tetrachlorid." Would it not be all right to use a multiple of these amounts, say ten times as much of the serum or 2 c.c., and ten times as much of the reagent or 0.1 c.c.? If not, how measure out 0.01 c.c. or 1/100 drop? I know we could dilute sixteen times and then take 1 minim, but would that be correct and would we dilute with the carbon tetrachlorid?

3. Is the test made with the paraffin oil and tincture of iodine as reliable?

JOHN G. SCIFRES, M.D., Indianapolis.

ANSWER.—1. In making up the reagent for use in the Landau test one must, of course, take into consideration the specific gravity of the carbon tetrachlorid. The specific gravity of this menstruum is 1.63 at 0 C., and 1.593 at 20 C. The latter is more nearly the ordinary laboratory temperature so that we should regard the specific gravity of 1.593 as the better one to use in the computation. On this basis we would prepare a 1 per cent. solution of iodine in carbon tetrachlorid by dissolving 1 gram of the former in 62.77 c.c. of the latter. This would approximate the figure of 29.3 grains of iodine in 4 fluidounces of carbon tetrachlorid.

2. In measuring the reagent and the serum for use in the test, it is, of course, permissible to employ multiples of the figures mentioned. That is, instead of using 0.2 c.c. of serum and 0.01 c.c. of reagent, one may measure out ten, twenty or other times the amounts of these fluids. If one wishes to follow the original technic, 0.01 c.c. is measured by means of a 1 c.c. pipet which is graduated in 1/100 c.c. These may be obtained from any of the chemical supply houses.

3. Regarding the reliability of the original method, using paraffin oil and tincture of iodine as the reagent, as compared with the later modification it is to be said that the results are apparently just as reliable. However, more time must elapse before the result may be read, if one uses the older technic.

ARTIFICIAL RESPIRATION AND THE PULMOTOR—RESTORATION OF POLYMERIZED FORMALDEHYD

To the Editor:—1. Apart from the question of oxygen supply, has the Drägerwerk pulmotor any real advantages over efficient manual artificial respiration? In mine gas poisoning cases wherein a physician is not immediately available, do you consider the use of the pulmotor or the Schäfer method of artificial respiration in the subject's best interest?

2. Can formaldehyd which has been polymerized be restored to its former state by any simple means?

McK.

ANSWER.—1. In mine gas poisoning cases the Schäfer method of artificial respiration is to be preferred to the use of the pulmotor. The pulmotor has been investigated by a committee appointed by the Council on Health and Public Instruction of the American Medical Association at the request of the Bureau of Mines of the Department of the Interior, and was not approved. This question has been discussed in *THE JOURNAL* editorially (*Resuscitation from Mine*

Gases, Sept. 26, 1914, p. 1117). The article by S. J. Meltzer (*THE JOURNAL*, May 10, 1913, p. 1407), may also be referred to.

2. When the polymerized form of formaldehyd known as paraformaldehyd is vaporized in the presence of water, it is largely converted again into gaseous formaldehyd.

USE OF DOREMUS-HINDS UREOMETER

To the Editor:—In making up the reagents for use in the Doremus-Hinds ureometer, I have been struck by the wide divergence in the strength of the sodium-hydroxid solution recommended by different authorities. Faught, in the 1912 edition of "Essentials of Laboratory Diagnosis," advises adding one part of the bromine solution to fifteen or twenty parts of 1:25 (4 per cent.) solution of sodium hydroxid. Emerson, in his 1906 edition of "Clinical Diagnosis," advises adding one part of the same bromine solution to one part of a solution of sodium hydroxid made by dissolving 100 gm. of sodium hydroxid in 250 c.c. of water (40 per cent.). Such wide variation in formulas intended for the same quantitative chemical reaction seems to call for some explanation. I have used the Emerson formula for some years with apparently accurate results, but should prefer the weaker sodium hydroxid solution for several reasons if the same results are attained. May I ask the opinion of your laboratory experts in the matter?

LOWELL C. FROST, M.D., Los Angeles.

ANSWER.—The foregoing method for the determination of urea is not entitled to serious consideration from the scientific point of view, although it has some clinical value in the sense that daily variations may be reasonably well studied by its use. Much divergence of opinion has arisen, in times past, regarding the strength of the solution to be used as the reagent, owing to the various attempts to prevent the loss of nitrogen as well as the coestimation of other nitrogenous constituents than urea. It has been established that the higher the concentration of the hypobromite and, especially, the higher the concentration of the sodium hydroxid solution, the less the loss of nitrogen. For this reason it is advisable to use the stronger concentrations of sodium hydroxid in making up the reagent.

Further, it is unnecessary in this determination to have sodium or potassium bromid added to the bromine solution before the latter is mixed with the sodium hydroxid, because the sodium bromid is formed in the reaction between bromine and sodium hydroxid and, especially, because the sodium bromid has nothing to do with the decomposition of the hypobromite by the urea. In other words, all that is necessary in this reagent is the addition of pure bromine to the cold concentrated sodium hydroxid solution. In using this method proceed as follows: Keep on hand a 20 per cent. stock solution of sodium hydroxid. When ready to prepare the reagent, which should be done for every few determinations, add 1 c.c. of pure bromine to 40 c.c. of the 20 per cent. sodium hydroxid solution. Fill the ureometer with this mixture and proceed with the estimation in the usual way. The reason for giving these quantities is that the instrument holds approximately this amount of fluid, and thus one will have only fresh hypobromite solution for his determinations. A strong alkaline solution is necessary to absorb the carbon dioxide evolved in the reaction, the volume of which would otherwise be added to the nitrogen. One ureometer full of this solution will answer perfectly for the estimation of the urea in from six to eight specimens of urine, depending of course on the amount of urea in the specimens.

BRICKLAYER RHEUMATISM

To the Editor:—I am frequently called on to examine and treat bricklayers, and I am impressed with the number of times that I find a peculiar myalgia to which I have given the name "bricklayer rheumatism." The condition occurs usually in left hand and arm below the elbow, and causes intense rheumatic pains with very little swelling. The condition is very persistent and does not respond to salicylates. It differs from rheumatism in that it never involves other than the original site of the trouble. The reason the left arm is involved is that this is the arm which handles the brick, and consequently has the heavier work to perform. A peculiar thing about it is that when a workman handles heavy brick for a time and is then put to handling lighter brick, the trouble invariably follows. I believe that the workman who gets used to the heavier brick and then handles lighter brick unconsciously picks up the lighter brick with the same effort that he uses to pick up the heavier brick, and the consequent jerk strains the muscle.

So far I have had fairly good success with rest and hot saline applications. I should like to hear from someone else on this condition.

W. J. THORNTON, M.D., Cleveland.

ANSWER.—We have been unable to find any literature on this subject. Perhaps some of our readers have made similar observations.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARIZONA: Phoenix, April 6-7. Sec., Dr. John Wix Thomas, Phoenix.
ARKANSAS: Regular, Little Rock, May 11-12. Sec., Dr. W. S. Stewart, Citizens Bank Bldg., Pine Bluff. Homeopathic: Little Rock, May 11. Sec., Dr. Scott C. Runnels, 900 Scott St., Little Rock. Eclectic: Little Rock, May 13. Sec., Dr. C. E. Laws, 712 Garrison Ave., Fort Smith.
CALIFORNIA: San Francisco, April 13-16. Sec., Dr. Charles B. Pinkham, State Capitol, Sacramento.
COLORADO: Denver, April 6. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.
DISTRICT OF COLUMBIA: Washington, April 13-15. Sec., Dr. George C. Ober, 125 B St., S. E.
IDAHO: Lewiston, April 6. Sec., Dr. John F. Schmershall, Jerome.
ILLINOIS: Chicago, May 13-15. Sec., Dr. C. St. Clair Drake, Springfield, Ill.
LOUISIANA: Homeopathic, New Orleans, May 3. Pres., Dr. C. R. Mayer, 919 St. Charles St., New Orleans.
MINNESOTA: Minneapolis, April 6-8. Sec., Dr. Thomas S. McDavitt, Lowry Bldg., St. Paul.
MONTANA: Helena, April 5. Sec., Dr. William C. Riddell, Helena.
NEVADA: Carson City, May 3. Sec., Dr. S. L. Lee, Carson City.
TENNESSEE: Knoxville, Memphis and Nashville, May 3. Sec., Dr. A. B. DeLoach, 426 Scimitar Bldg., Memphis.
UTAH: Salt Lake City, April 5-6. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.
WEST VIRGINIA: Charleston, April 13. Sec., Dr. S. L. Jepson, 81 12th St., Wheeling.

District of Columbia October Report

Dr. George C. Ober, secretary of the Board of Medical Supervisors of the District of Columbia, reports the oral and written examination held at Washington, Oct. 13-15, 1914. The total number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 13, of whom 8 passed and 5 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Georgetown University	(1914)	89.1	
George Washington University	(1912) 84.5; (1914)	88.7	
Howard University	(1914)	83.2	
Hahnemann Medical Coll. and Hosp., Chicago	(1914)	79.1	
Jefferson Medical College	(1914)	82.3	
University of Vermont	(1914)	77	
University of Virginia	(1909)	85.3	

FAILED

Howard University	(1914)	72, 72.5, 73.4
Leonard Medical College	(1913)	66.1
Meharry Medical College	(1914)	74

Kansas October Report

Dr. H. A. Dykes, secretary of the Kansas State Board of Medical Registration and Examination, reports the written examination held at Topeka, Oct. 13, 1914. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 6, of whom 3 passed and 3 failed. One candidate was granted a reregistration license. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Howard University	(1914)	82	
Northwestern University	(1914)	83	
University of Iowa, College of Medicine	(1884)	75	

FAILED

Eclectic Medical University, Kansas City	(1914)	***
Meharry Medical College	(1914)	*

* No grade given.

South Carolina November Report

Dr. A. Earle Boozer, secretary of the State Board of Medical Examiners of South Carolina, reports the oral and written examination held at Columbia, Nov. 10-12, 1914. The total number of subjects examined in was 13; total number of questions asked, 105; percentage required to pass, 75. The total number of candidates examined was 36, of whom 20 passed, including 1 osteopath, and 16 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
George Washington University	(1913)	85.1	
Atlanta Medical College	(1914)	75.7, 79.1	
University of Georgia	(1912)	75	
University of Louisville	(1914)	76.1	
College of Phys. and Surgs., Boston	(1914)	78.2	
Leonard Medical College	(1914)	78.2	
University of Pennsylvania	(1911) 89.9; (1914)	84.1	
Medical College of State of S. C.	(1913) 75, 75.4; (1914)	75.6, 77.5	
Meharry Medical College	(1913) 75.5, 78.6		
University of West Tennessee	(1914) 75, 75, 76.5, 77.7		

FAILED

Atlanta College of Phys. and Surgs.	(1912)	66.5
Atlanta Medical College	(1914)	61.5
Georgia College of Eclectic Med. and Surg.	(1912)	63.4
Southern College of Med. and Surg.	(1913) 66.7; (1914)	49.1, 69.2
Maryland Medical College	(1905)	*
University of the City of N. Y.	(1882)	64.5
North Carolina Medical College	(1903)	67.9
Medical College of the State of S. C.	(1900) 65; (1911)	66
Meharry Medical College	(1911)*; (1914)	74.1
University of West Tennessee	(1910)*; (1913)	58.9
Gate City Medical College	(1909)	70.1

* No grade given.

Florida December Report

Dr. E. W. Warren, secretary of the Regular Board of Medical Examiners of Florida, reports the written examination held at Palatka, Dec. 2-3, 1914. The total number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 55, of whom 36 passed and 16 failed. Three candidates were granted licenses on years of practice allowances. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Colorado	(1913)	86.6	
Yale Medical School	(1885) 88.8; (1900)	81	
Atlanta College of P. and S.	(1905) 85; (1911)	75, 87.8	
Atlanta Medical College	(1914)	79.4	
Atlanta School of Medicine	(1907) 77.8; (1909)	84.6	
University of Georgia	(1914)	79.1	
Bennett Medical College	(1914)	81	
Chicago College of Medicine and Surgery	(1914)	77.7, 90.1	
Rush Medical College	(1899) 92; (1914)	89.3	
Indiana Medical College	(1907)	75.6	
Tulane University of Louisiana	(1912) 89.7, 94.6		
Medical School of Maine	(1889)	78.8	
College of P. and S., Baltimore	(1911)	81.7	
Johns Hopkins University	(1912)	91	
University of Maryland	(1914)	87.8, 92	
Harvard University	(1914)	89	
Missouri Medical College	(1877)	83.1	
Leonard Medical School	(1911)	75	
Medical College of Ohio	(1904)	75	
Woman's Medical College of Pa.	(1899)	91	
Medical College of the State of S. C.	(1912)	91	
Meharry Medical College	(1912) 81.8; (1913)	76	
Memphis Hospital Medical College	(1903)	84	
University of the South	(1906)	75	
Medical College of Virginia	(1914)	91	
University College of Med., Richmond	(1912)	84	
Marquette University	(1913)	85.1	

FAILED

Atlanta Medical College	(1890)	65
Atlanta School of Medicine	(1909)	58.8
Southern College of Med. and Surg.	(1913)	50.1
Central College of Phys. and Surgs.	(1898)	63.6
Kentucky School of Medicine	(1881) 48.7; (1896)	57.1
College of Phys. and Surgs., Boston	(1912) 61.6; (1913)	64.3
College of Physicians and Surgs. in the City of N. Y.	(1881)	49.3*
Meharry Medical College	(1914)	58
Memphis Hospital Medical College	(1913)	67
Lincoln Memorial University	(1913)	67
University of Tennessee	(1912) 55.3; (1914)	57
Vanderbilt University	(1894)	45.6
University of Paris	(1900)	†

* Official information from this college states that this candidate is not a graduate.

† No grade given.

Indiana January Report

Dr. W. T. Gott, secretary of the Indiana Board of Medical Registration and Examination, reports the written examination held at Indianapolis, Jan. 12-14, 1915. The total number of subjects examined in was 16; total number of questions asked, 100; percentage required to pass, 75. The total num-

ber of candidates examined was 14, including 3 osteopaths, all of whom passed. Two candidates were given reregistration licenses. Fifteen candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Chicago College of Med. and Surg.	(1913)	78.1
Rush Medical College	(1914)	92.8
Indiana University	(1914)	81.5
Medical College of Indiana	(1896)	90.2.
Kentucky School of Medicine	(1891)	75
University of Louisville	(1913) 82.2, 86.4; (1914)	78.2
Johns Hopkins University	(1912)	90.3
Missouri Medical College	(1881)	75
University of Maryland	(1910)	83.9

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Chicago College of Med. and Surg.	(1910) Kentucky;	(1913)	Illinois
Coll. of Phys. and Surgs., Chicago	(1893) Maryland;	(1906)	Illinois
Illinois Medical College	(1906)	Illinois
Northwestern University	(1905)	Illinois
Rush Medical College	(1912)	Illinois
Louisville Medical College	(1896)	Kentucky
University of Maryland	(1889)	Maryland
University of Michigan, Dept. of Med. and Surg.	(1912)	Illinois
Washington University	(1907)	Illinois
Ohio-Miami Medical College	(1912)	Ohio
Jefferson Medical College	(1908)	Illinois
Meharry Medical College	(1910)	Tennessee
University of Nashville	(1904)	Tennessee

Minnesota January Report

Dr. Thomas S. McDavitt, secretary of the Minnesota State Board of Medical Examiners, reports the oral, practical and written examination held at Minneapolis, Jan. 5-7, 1915. The total number of subjects examined in was 18; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 5, of whom 2 passed and 3 failed. Fifteen candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Rush Medical College	(1911)	88
Hahnemann Med. Coll. and Hosp., Phila.	(1911)	88

College	FAILED	Year Grad.	Per Cent.
Indiana Medical College	(1906)	*
Hamline University	(1904) 67.9; (1907)	*

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
George Washington University	(1908)	Iowa
College of P. and S., Chicago	(1902) Iowa; (1909)	Illinois
Hahnemann Med. Coll. and Hosp., Chicago	(1913)	Illinois
Northwestern Univ.	(1903) South Dakota; (1908) (1910)	Illinois
Rush Medical College	(1906) (1913)	Illinois
Drake University	(1909)	Iowa
University of Louisville	(1910)	Wyoming
Woman's Medical College of Baltimore	(1892)	S. Dakota
St. Louis University	(1912)	Missouri
University of Virginia	(1909)	Virginia
Marquette University	(1913)	Wisconsin

* No grade given.

Utah January Report

Dr. G. F. Harding, secretary of the Utah State Board of Medical Examiners, reports the written examination held at Salt Lake City, Jan. 4-5, 1915. The total number of subjects examined in was 19; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 8, all of whom passed. Two candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Denver College of Medicine	(1884)	75
Gross Medical College	(1895)	75
Rush Medical College	(1914)	83.6
John A. Creighton Medical College	(1914)	84.8
Ohio Medical University	(1898)	75
Medico-Chirurgical College of Philadelphia	(1913)	88.6
Meharry Medical College	(1914)	75
Royal University of Naples	(1897)	75

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
College of Phys. and Surgs., Chicago	(1904)	Illinois
Ensworth Medical College	(1905)	Nevada

Book Notices

PHYSIOLOGICAL PRINCIPLES IN TREATMENT. By W. Langdon Brown, M.A., M.D., F.R.C.P., Assistant Physician to St. Bartholomew's Hospital. Third Edition. Cloth. Price, \$2.25 net. Pp. 408. New York: William Wood & Co., 1914.

The recent advances in physiology have affected medical treatment in two ways: In the first place, they have been the occasion of introducing a number of new remedies, chiefly enzymes and the organ extracts which are supposed to owe their efficiency to the action of hormones. Second, physiology has given us a clearer idea of many functions so that we have a more rational conception of diseases and consequently are able to introduce a treatment founded on correct principles. Brown's work is an attempt to illustrate the value of these principles in the treatment of a number of diseases. In the first chapter the hormones, including iodothyryn, adrenine and pituitary extract are considered together with the action of ovary, testes and thymus, kidney and muscle. The value of these remedies in various directions is stated, with due conservatism, and a very commendable feature of the book is a careful summary following each principal subject. The objectionable features of epinephrin therapy are clearly stated. His estimate of the action of pituitary extract (the author uses the proprietary term, pituitrin) appears to underrate rather than overestimate the value of the drug. Speaking of its action on postpartum deficiency of uterine tone, he says, "It is doubtful whether it is superior to ergot in this capacity, however, while before delivery its use is subject to the same limitations as that drug."

Chapter 2 deals with the rational treatment of gastric disorders, and it is an excellent example of the application of modern physiologic facts to the treatment of diseases of the stomach. However, while the author can find no rational explanation for the use of alkalies in the treatment of dyspepsia, he still continues the principle of giving alkalies with bitters such as nux vomica before meals and hydrochloric acid after meals. He states that the use of these remedies is described as giving more satisfactory results than either separately. Probably this is an example of the influence of current usage over the most scientific mind. He is quite pessimistic with reference to the value of rectal feeding. Chapter 3 deals with the mechanical factors in digestion and indigestion. Here we have naturally a somewhat full discussion of intestinal stasis and also visceroptosis. In Chapter 4, the work of the pancreas is described and the theory of the influence of secretin is explained with a statement that no action can be expected from it when given by the mouth. One of the most interesting chapters of the book is that on uric acid and the purin bodies in which the various fallacies with reference to the action of uric acid are clearly set forth. The chapter, though comparatively short, will well repay a careful reading.

In treating of phosphaturia, the author makes it quite evident that this condition is a symptom and not a disease, being largely dependent on the alkaline reaction of the urine. The author has the courage to attack the popular practice of estimating urea as a guide to the renal capacity. He notes the fact that physicians finding a low urea output (due to deficient ingestion of protein) conclude that the renal capacity is deficient and that nitrogenous food must be still further restricted and consequently lessen the nitrogen intake with the appalling result of a greater deficiency of urea. The following paragraph is worth quoting:

"What the physician expects to learn from the urea estimation without reference to the amount of nitrogen in the food is hard to say. If he knew the total nitrogen excreted, as estimated by Kjeldahl's method, he could see whether the body was converting a due proportion of the nitrogen into urea; this would give him some information as to the capacity of the individual, but urea estimations by themselves tell him practically nothing. This fallacy vitiates many of the conclusions arrived at by so careful an observer as the late Professor Foxwell (*Lancet*, London, 1908, ii, 1425). He hardly mentions the diet factor at all. In one case he certainly says that he found a patient with chronic nephritis passing

Miscellany

The Correct Attitude Toward Epidemic Diseases

The Marquette (Mich.) *Journal*, in commending the Houghton (Mich.) *Gazette* for its vigorous campaign to prevent the spread of small-pox in the northern peninsula by the thorough vaccination of the people, says that fighting the enemy before he reaches the city gates is an excellent principle on which to act. Michigan, which the *Journal* calls a "small-pox state," has had some experience with small-pox epidemics in unvaccinated communities in which attempts were made to suppress the news on the (usual) ground that it would "hurt business." The *Journal* points out the foolishness of this plan of procedure and gives facts emphasizing again the effectiveness of vaccination. The *Journal* says:

"Undoubtedly the *Gazette* has had to go through the usual experience of newspapers when they start in to use the powerful weapon of publicity. Small-pox in a community is dreaded by the merchant and business man. To give it publicity means that trade is kept away. The first impulse of a community usually is to cry 'keep it out of the papers.' But to suppress the facts; to let people dwell in ignorance, has always resulted in disaster and this has been strikingly demonstrated in Michigan many times, and epidemics have gained full sway because of the carelessness, born of ignorance, while full sized doses of publicity would have put every person on guard.

"Saginaw was one of the latest towns to have this experience. The fact that a virulent form of small-pox had broken out was suppressed and the disease spread rapidly. When about twenty-five cases appeared, and deaths resulted, the newspapers broke loose from the influence that had kept them quiet and they raised a row that galvanized city and state authorities into a campaign that resulted in wiping out the disease. But not before two-score deaths had occurred. And most of the exposures had been made *during the period when the news was suppressed*. The mortality in that epidemic was about 50 per cent., but *not one vaccinated person died*. Bay City had a similar epidemic the year before, with a mortality of about 45 per cent., but not a death of a vaccinated person. In neither epidemic, which were the severest in many years, *was a vaccinated person even seriously ill*.

"Copper country people may not appreciate it, but those who have had experience with small-pox in Michigan—which is a 'small-pox state'—know that the *Gazette's* course, seconded by other newspapers of the community, is the surest and quickest way of stamping out the disease."

Brisket Disease Among Cattle

Glover and Newsom in Bulletin 204 of the Colorado Agricultural College describe brisket disease, an unusual affection of cattle found so far only in Colorado. After an investigation of the trouble they summarize their findings as follows: A disease occurring in cattle in the high altitudes of Colorado, the principal symptoms of which are swelling of the brisket and of the loose tissues under the jaw, usually diarrhea and a moist cough with gradual emaciation and death. It is chronic in character but is fatal in practically all cases. On necropsy the most marked features are generally dropsy, enlarged and hard liver and dilated heart. In six cases shipped to a lower altitude (about 5,000 feet) all recovered without other treatment, although it seems reasonable to believe that they would have died had they not been shipped. It appears to be caused by an exhaustion of the heart muscle, associated with a varying degree of dilatation and a hypertrophy, and this being brought about by exertion before acclimatization at high altitudes, or in the case of calves, inherited cardiac weakness. Medical treatment has so far proved of little avail, but where possible, shipping the affected animals to a lower altitude is recommended. Preventive measures include the use of bulls that have been raised at altitudes of 8,000 feet or more, with a view to building up a hardier strain of cattle, also the curtailment of indiscriminate shipping of low altitude cattle to high altitudes.

as much as 585 grains (39 grams) of urea a day. On inquiry, he learned that the patient, feeling run down, was taking six meals a day, three of them being good meat meals. This shows that a chronic nephritic can excrete even more than a healthy man does on his ordinary diet, though it presumably taxes his kidneys more. We can agree with Professor Foxwell that a daily output of 250 grains of urea is the lowest on which a man can permanently exist without losing ground; for this would represent a daily intake of about 50 grams of protein, which is little enough to satisfy even the most extreme 'nitrogen economist.' In short, the amount of urea excreted by the kidney depends on the amount of protein eaten, and, within wide limits, on little else."

Chapter 9 gives a very good explanation of the exposition of the relations of acidosis. In other chapters the subjects of intestinal intoxications, irregular action of the heart, vasomotor disease, cyanosis and lastly vitamins are treated in the same excellent way. We are glad to say that the book is not marred to any extent by the introduction of proprietary remedies. Cyllin, izal and soluro are the chief ones mentioned.

KURZES LEHRBUCH DER KINDERKRANKHEITEN. Als Zweite Auflage von Nil Filatow's Gleichnamigem Werke Gänzlich Neu Bearbeitet von Dr. Heinrich Lehnendorff, gew. Assistent des Karolinen-Kinderspitals. Paper. Price, 5.60 marks. Pp. 228. Vienna: Josef Safar, 1914.

The author announces that he does not pretend to give more than the essentials of each subject and the major details of symptomatology and therapeutics of childhood. The chapter on infant feeding follows closely the work of Czerny and Finkelstein. The chapters on infective diseases are excellent, showing the work of Filatow, the author of the first edition. For the purpose for which this book is written it can be highly recommended.

DIE NEUEREN ARZNEIMITTEL UND DIE PHARMAKOLOGISCHEN GRUNDLAGEN IHRER ANWENDUNG IN DER AERZTLICHEN PRAXIS. Von Dr. A. Skutetzky, Privatdozent für Innere Medizin, und Dr. E. Starkenstein, Privatdozent für Pharmakologie und Pharmakognosie. Second edition. Cloth. Price 7 marks. Pp. 475. Berlin: Julius Springer, 1914.

While the title of this book indicates that it deals with new remedies, it discusses many older preparations also. When old as well as new remedies are discussed, the reasons for the introduction of a new or improved preparation are given. The remedies are grouped according to their therapeutic uses, under the following heads: heart and circulation; blood and blood-producing organs; hemostasis; digestive disorders; genito-urinary diseases; respiratory diseases; skin diseases; eye diseases; metabolism disorders; artificial foods; organotherapy; anesthesia; analgesia; antisepsis; infectious diseases, and poisonings. Under each heading are found discussions regarding the pharmacologic action (supported by clinical evidence) and uses of several preparations. Modern therapeutics are based largely on pharmacology, and the evidence for a large part of the statements is pharmacologic. Besides the actions and uses, the composition, the dosage and the form in which the drug appears on the market, the price and the manufacturer are given as far as possible.

SQUIRE'S POCKET COMPANION TO THE BRITISH PHARMACOPEIA. Comparing the Strength of Its Various Preparations with Those of the United States, French and German Pharmacopeias, to Which Are Added Not Official Preparations and Practical Hints on Prescribing and Dispensing. By Peter Wyatt Squire. Second Edition. Leather. Price, 10 shillings 6 pence net. Pp. 1040. London: J. & A. Churchill, 1915.

This book is the British physician's pocket manual of the British Pharmacopeia. The larger part of the book is devoted to a consideration of drugs, including all the pharmacopeial preparations, with the medicinal properties and doses, each of which is compared with those of the Continental pharmacopeias and of the United States Pharmacopeia, along with many non-official preparations. The book contains a large amount of general information such as tables for the conversion of different degrees of temperature, for the conversion of weights and measures, suggestions for prescribing, etc. While the book is specially adapted to the needs of those who use the British Pharmacopeia, American physicians will find in it much that is valuable.

Foot and Mouth Disease

The outbreak of foot and mouth disease among cattle in the United States is of interest to the profession on account of the possibility of its transmission to man. One or two cases have been reported of human infection, though they have not been well authenticated. The chief interest of the disease to the medical profession, however, is the manner in which it affects the milk industry and perhaps results in the infection of the milk itself. The interesting theory has been advanced by veterinarians and others having to do with the cattle and dairy industries that skimmed milk from creameries sent back to the farm for feeding to stock has been the means of transmitting and perpetuating the disease. Sterilization of all by-products of creameries is therefore urged. The *Cornell Veterinarian* for February contains a history of the different outbreaks of the disease in this country, of which the present one, covering eighteen or more states, is the fifth. It also contains other papers on the nature of the disease, its etiology and morbid anatomy, symptomatology, diagnosis and differential diagnosis, its economic significance and methods for control, and what animal owners should do to prevent it, together with a number of illustrations of microscopic and gross specimens of the disease, methods of disposing of the animals, etc. Each of these articles is written by an expert veterinarian or person having special knowledge of the disease, and the pamphlet should be a convenient means of disseminating accurate information concerning this insidious and rapidly spreading infection.

Drugs and Chemicals in Cigarettes

The statement has been frequently made that certain brands of cigarettes and tobaccos contain dangerous or habit-forming drugs. Manufacturers have been accused of buying extensively of tincture of opium for cigarettes and arsenic has been said to be found in the papers. In order to prove or disprove this the Bureau of Drugs of the Ohio Agricultural Commission had an analysis made of the various brands of cigarettes, the tobacco content and the papers being analyzed separately. The work was done by the chemist of the department, Azor Thurston, who in *Bulletin 2* reports his findings. Nicotin was determined by two methods, the silicotungstate, and by Lloyd's reagent. The ash was examined for the alkalinity of water soluble and insoluble ash and likewise for hydrochlorid acid insoluble ash. Opium and other drugs were determined by usual reagents according to Fuller's scheme of analysis. The nicotin content was found to vary between 2.79 and .43 for most of the different brands, some of the cheaper ones having the highest nicotin content, one cheap one showing 3.34 per cent. No opium or other habit-forming drug was found. The papers were all found to be chemically filled, usually with calcium and magnesium oxids or oxids of alumina and silica. A few brands contained small quantities of nitrates, although it is said manufacturers frown on papers containing nitrates. Alfalfa, which it has been reported is sometimes used in fillers for cigarettes, was not found in any of the twenty-eight brands examined.

"Furnace Workers' Cataract"

At the Ophthalmological Section of the Royal Society of Medicine, London, Mr. A. B. Cridland showed a case of "glass workers' cataract" in an iron smelter ("puddler"), an occupation in which the condition has not received much attention. Considering the number of hours of exposure to the glare of molten metal, especially as the men rarely wore protective goggles, he was greatly surprised that there were not more cases. Though cataract is recognized by the government among the occupational diseases for which special compensation must be paid by employers in the case of glass workers, it is not so recognized in the case of iron workers. He suggested as a more inclusive term for such cases "ray cataract." In the discussion which followed, the president, Mr. Priestly Smith, suggested the name "furnace workers' cataract," as furnace work was common to all the occupations mentioned.

Medicolegal**Action for Malpractice Not Maintainable Against Physician for Miscarriage by Woman Taking Abortifacient Independently**

(*Coombs et ux. vs. James (Wash.)*, 144 Pac. R. 536)

The Supreme Court of Washington reverses a judgment rendered for the plaintiffs, husband and wife, for a miscarriage suffered by the wife, which she attributed to electrical treatment administered to her by the defendant. The reversal is with instructions to dismiss the case. The court says that at the time of her first visit to the defendant Mrs. Coombs was advanced in pregnancy about two months. It was admitted that on this visit the defendant advised that she was not pregnant, but suffering from delayed menstruation, and that a mild application of electricity would restore normal conditions. And Mrs. Coombs admitted that, while this treatment was being administered, she went to a drug store, on April 17, and, first ascertaining that it could be obtained without a physician's prescription, purchased an ounce bottle of extract of cotton root, which she took in certain doses until she had taken it all. The last electrical treatment was administered by the defendant April 23, and on May 7 the miscarriage occurred. While there may have been some dispute as to whether or not the treatment administered by the defendant was sufficient to produce a miscarriage, there was none that the cotton root taken as Mrs. Coombs admitted she took it would produce such a result. As between these two causes, for one of which only the defendant would be responsible, which was the proximate cause of the injury suffered by Mrs. Coombs? To answer would be to guess, since it was impossible for the evidence to give any indication. The evidence as to the first cause was conjectural, and the most that could be said was that it was equally consistent with proper and improper treatment. The evidence as to the second cause was certain and consistent only with one theory, and that was that it would produce an abortion and was taken with that intent. In the face of these facts, the court does not feel that a jury should be permitted to speculate between these two causes. No verdict should be permitted to stand in cases of this character when the jury disregards that which is certain and undisputed in favor of that which is conjectural. Nor is it permitted to speculate as between two acts the effect of which cannot be determined by any human agency, as to which is the proximate cause of the given happening. The law will not permit a woman to take an abortive medicine, and then, when the natural result follows, to maintain an action on the speculation that her injury was not produced by herself, but was the result of some treatment administered by her physician. The case is not like those in which, as between disputed facts, a jury may determine the cause of an injury. Judgment should have been entered in the defendant's favor.

Action in Regard to Filing Certificate Must Be Included

(*State vs. Stanley (Wash.)*, 144 Pac. R. 689)

The Supreme Court of Washington affirms a judgment dismissing the action against the defendant on the ground that the facts stated in the information did not constitute a crime. The Washington statute provides that "Every person filing for record, or attempting to file for record, the certificate issued to another, falsely claiming himself to be the person named in such certificate, or falsely claiming himself to be the person entitled to the same, shall be guilty of a felony, and, on conviction thereof, shall be subject to such penalties as are provided by the laws of this state for the crime of forgery." The information in this case did not charge the defendant with filing for record, or attempting to file for record, a certificate issued to another, falsely claiming himself to be the person named therein, or falsely claiming to be the person entitled to the same, but charged him merely with falsely claiming himself to be the person named in

such a certificate, and falsely claiming to be the person entitled to the same, omitting the element of filing for record, or attempting to file for record. It was on this ground that the trial judge held the information insufficient. He held that the act of filing for record, or attempting to file for record, the certificate, was a necessary ingredient of the offense defined by this section of the statute, and that the information in order to state a crime thereunder must so charge. The supreme court is constrained to adopt the construction of the trial judge. It thinks the act of filing for record, or attempting to file for record, a necessary ingredient of the offense. In other words, it is an offense, within the meaning of the statute, for any person to file for record, or attempt to file for record, the certificate issued to another, falsely claiming himself to be the person named in the certificate, or to file for record, or attempt to file for record, the certificate issued to another, falsely claiming himself to be the person entitled to the same; but to make the false claims, without filing or attempting to file the certificate for record, does not constitute the felony described in this section of the statute. This construction is borne out by that other section which provides that "It shall be the duty of every holder of a license from the state board of medical examiners to exhibit his or her license to any resident of this state who may request to see the same, and any person refusing or failing so to do, or who shall exhibit any such license as his or her own, in response to such request, when such license has not been issued to him or her, shall be guilty of a misdemeanor." Clearly to exhibit a certificate to another as one's own is falsely claiming to be the person named therein, and falsely claiming to be the person entitled to the same, and it is not to be supposed that the legislature would in one section of an act declare a specific false claim to be a misdemeanor, and in another section of the same act declare a similar false claim to be a felony.

Conviction Affirmed Where Defense was Epileptic Insanity

(*People vs. Harris (Cal.)*, 145 Pac. R. 520)

The Supreme Court of California affirms a conviction of murder in the first degree in this case, in which the defense was insanity, or rather a form of epileptic insanity. It was not claimed that the defendant was insane at the time of the trial, but only that he was insane when he committed the homicide. He testified that for some three years previous to the homicide he had at occasional times suffered from fits resulting in a loss of consciousness; that at those times, covering a period of from days to several weeks, he would have spells of sickness accompanied by lapses of memory; that sometimes also during these spells he would hear voices of unknown and unseen persons telling him that he was threatened with great injury or death by some person, and urging him to seek and kill such person to protect himself, and the voices kept constantly urging him to do the things they said; that he was made angry and fearful at these times by these suggestions and promptings; that a feeling or impulse to do as the voices urged would come over him, which he would try to resist, but which he could not succeed in doing; that for a week previous to the homicide he was suffering under one of these spells, etc. The claim on his behalf was that he was subject to intermittent attacks of a particular phase of epileptic insanity defined by the medical experts called in his behalf as psychic epileptic equivalent, a condition where instead of the usual convulsive phenomena ordinarily known as epileptic fits there are substituted from time to time certain disturbances of mentality during which the consciousness of the individual afflicted is so altered that he is deprived of the full possession of his usual faculties, etc. These medical experts gave it as their opinion from the evidence in the case and personal examination of the defendant that he was suffering from a spell of this phase of insanity when he committed the homicide, and was insane when he did so, so that by reason thereof he was incapable of having a malicious intent to kill and incapable of deliberating on the act of killing which he committed. The court permitted these experts to testify that from the nature of his

insanity when the defendant committed the homicide he was incapable of resisting an impulse to do it, but the court at the same time stated that nevertheless it would instruct the jury that in California the doctrine of irresistible impulse as an excuse for crime did not exist. Other medical experts expressed the opinion, based also on the evidence in the case and personal examination of the defendant, that he was not suffering from epileptic insanity when he committed the homicide; that he was entirely sane at the time, having mental capacity to know and understand the nature and character of the act he was committing. The result was a conviction, which, as above stated, is affirmed.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, SAN FRANCISCO, JUNE 21-25.

Alabama State Medical Association, Birmingham, Apr. 20-23.
Am. Assn. Gen.-Urin. Surgs., White Sulphur Springs, W. Va., May 18-20.
American Association of Immunologists, Washington, May 10.
American Dermatological Association, New York, May 13-15.
American Gastro-Enterological Association, Baltimore, May 10-11.
Amer. Gynecological Society, White Sulphur Springs, W. Va., May 18-20.
American Medico-Psychological Assn., Fortress Monroe, Va., May 11-14.
American Neurological Association, New York City, May 6-8.
American Orthopedic Association, Detroit, May 6-8.
American Pediatric Society, Likewood, N. J., May, 25-27.
American Psychopathological Association, New York, May 5.
American Urological Association, Baltimore, April 13-14.
Arkansas Medical Society, Little Rock, May 3-6.
Association of American Physicians, Washington, May 11-12.
Conf. of State and Prov. Boards of North America, Washington, May 14.
Connecticut State Medical Society, Hartford, May 19-20.
Florida Medical Association, De Land, May 12-14.
Georgia Medical Association, Macon, April 21-23.
Illinois State Medical Society, Springfield, May 19-20.
Iowa State Medical Society, Waterloo, May 12-14.
Kansas Medical Society, Kansas City, May 5-6.
Louisiana State Medical Society, Lake Charles, April 20-22.
Maryland Medical and Chir. Faculty, Baltimore, April 27-29.
Mississippi State Med. Association, Hattiesburg, May 11.
Missouri State Medical Association, St. Joseph, May 10-12.
Nat'l Assn. for the Study of Epilepsy, Old Point Comfort, Va., May 10.
Nebraska State Medical Association, Hastings, May 18-20.
New Hampshire Medical Society, Concord, May 19.
New York State Medical Society, Buffalo, April 27-29.
North Dakota State Medical Association, Bismarck, May 12-13.
Ohio State Medical Association, Cincinnati, May 4-6.
Oklahoma State Medical Association, Bartlesville, May 11-13.
South Carolina Medical Association, Greenwood, April 20-22.
Tennessee State Medical Association, Nashville, April 13-15.
Texas State Medical Association, Ft. Worth, May 4-6.
West Virginia State Medical Association, Huntington, May 12-14.

CHICAGO MEDICAL SOCIETY

Meeting held March 24, 1915

The President, DR. JAMES A. CLARK, in the Chair

Eutocia by Means of Nitrous Oxid Gas Analgesia; A Safe Substitute for the Freiburg Method

DR. FRANK W. LYNCH: Sir Humphrey Davy in 1800 suggested the use of nitrous oxid gas as an anesthetic. Faraday in 1818 advocated the use of ether, yet to Simpson belongs the honor of introducing ether, chloroform and chloral in obstetric practice. The general practitioner is anxious to adopt a safe and efficient method. So-called "twilight sleep" is now under proper investigation. The whole truth is not known. There are objections to the method. It is not suitable for general practice, nor is it suitable for all cases that come to labor. It is not successful in all cases in which it is judged applicable. It carries potential danger to the child.

Since July, 1913, I have used nitrous oxid gas for long continued analgesia in my obstetric work. Analgesia has been maintained from the latter part of the first stage, or from the time when the pains became severe, and all the women said that pain was negligible and practically nil. Analgesia was continued in 34 cases more than one hour; in 32 cases more than two hours; in 12 cases more than three hours; in 4 cases more than four hours, and in 1 case more than six hours. Three cases were terminated with forceps with the

gas carried to the surgical degree. There was no case of inertia, postpartum hemorrhage or shock. The method is suitable for patients at their homes or in the hospital.

The best results are obtained with a nosepiece such as is used by dentists, but the ordinary mouthpiece will answer. I have hitherto started the treatment when the pains became severe enough to cause complaint. Pure nitrous oxid gas is turned full on at the beginning of the pain, and the patient is told to breathe deeply but rapidly through the nose. Five or six respirations suffice to produce analgesia, even in the presence of uterine contraction. The nosepiece is now placed over the mouth; the patient is told to breathe through the mouth, and analgesia is maintained by admixing oxygen with the gas until the end of the pain. This process is repeated with each pain. The percentage of oxygen varies from nothing to 10 per cent. It is more difficult to maintain analgesia with the mouthpiece without wasting much gas, since the depth of anesthesia is now more difficult to control. Oxygen must be used more freely. When the head distends the perineum, the anesthesia is carried to the surgical degree, and the color of the patient is controlled with oxygen. With good apparatus the cost is not over one cent per minute. With a poor apparatus it may cost as much as three dollars per hour.

Gas is the ideal drug for conducting labors. It is the most volatile of anesthetics, in that it acts more quickly, and its effects pass away very rapidly. It is practically free from danger even when continued for analgesia extending over many hours.

DISCUSSION

DR. J. CLARENCE WEBSTER: Ten or eleven years ago I felt that the routine use of ether in surgery and obstetrics was wrong, and began a long series of cases working from pure nitrous oxid up to mixtures of nitrous oxid and oxygen. While Paul Baer of France referred to the additional value of nitrous oxid when it is mixed with oxygen, the late Dr. Edmund Andrews of Chicago directed attention to the value of nitrous oxid and oxygen in the eighties independently of Baer. I first employed this anesthetic in eclamptic and nephritic cases in which operative measures were indicated; then later extended its use to cesarean sections in cases in which, on account of the condition of the kidneys of these patients, I was afraid to give a general anesthetic. Dr. Lynch has endeavored to standardize the administration, giving the smallest possible amount at which obstetricians aim in the administration of any anesthetic. The only point that requires now to be developed is economy of administration.

Another great advantage is that its administration can be carried on by the practitioner in the home of the patient. While a large number of patients are attended in hospitals, by far the greater majority are delivered in their own homes. Physicians should not go crazy, lose their heads and get the idea that labor is an entirely pathologic process, like a surgical operation, requiring the administration of some anesthetic or sedative drug from beginning to end. The advantages of nitrous oxid gas analgesia in obstetrics are that the apparatus is simple, can be easily transported, and may be used by any practitioner. Deep anesthesia is not necessary. There are no ill effects to mother or child. The strength of the uterine contractions is not diminished, no matter how long the administration of the nitrous oxid gas is continued. The administration is under control all the time and can be stopped at any moment. This is a very decided advantage which is not possessed by any method which necessitates placing a patient under the influence of drugs administered internally.

DR. N. SPROAT HEANEY: Nothing can be added to what Dr. Lynch has said regarding the safety of the method for both mother and child. There is not the least difficulty with the child. It is not necessary to apply artificial respiration or to explain to the parents afterward that any trouble manifested on the part of the child in nursing is due to some difficulty at birth. The method is so simple that the practitioner can trust the use of the apparatus to an attendant while he gives his attention to the case. I have found that

patients are always willing to provide for any expense if they are given the assurance of freedom from pain by this method. It is not very expensive. I myself have no special apparatus for the mixture of gas and oxygen; consequently I simply use nitrous oxid gas, and the results I have obtained are just as good as those I have secured when I gave both gas and oxygen to patients.

DR. ISABELLA C. HERB: Scopolamin is not a respiratory stimulant in any dose, and when given in large doses it is actively depressing. Morphin, when it is given in any sized dose to produce systemic effects, is a respiratory depressant. Scopolamin raises blood pressure, but does not affect the pulse rate, while morphin raises blood pressure and also increases the pulse rate. Morphin depresses the brain and produces sleep. Scopolamin also depresses the brain and usually produces sleep, but may produce likewise delirium and hallucinations and a great amount of restlessness. Both morphin and scopolamin depress kidney function; consequently their use would be especially hazardous in a woman whose kidneys are undergoing a pathologic process which will interfere or decrease their functioning capacity. Under such circumstance uremic coma may be precipitated if the kidney function is depressed for several hours.

As labor pains are not continuous, any agent which will give relief during uterine contraction, and whose action will stop after the cessation of pain, is a most desirable agent. Such an agent we have in nitrous oxid gas, which is quick and evanescent in its action, and so far as the tissues are concerned, is an inert substance. There are no poisons to be eliminated. Too much emphasis is placed on the cost of nitrous oxid gas. Safety for the mother and child should be the all-important question and predominate over all others. It requires some intelligence to give a hypodermic injection, but it requires no special training, no special knowledge, no special expertness to administer gas up to the point of analgesia.

DR. CARL H. DAVIS: My experience with nitrous oxid gas in labor dates back to 1909, when it was my good fortune to give the first nitrous oxid gas analgesia for a cesarean section done at the Presbyterian Hospital. During that period I gave nitrous oxid gas for versions, vaginal sections and for normal deliveries. The longest time which any one patient received nitrous oxid was not over two hours, and that was prior to a forceps delivery in a primipara. The method at that time was to give a few whiffs of gas during the height of the pain merely to lessen suffering, and then as delivery was approached, with the head bulging the perineum, the woman was more completely anesthetized. Since the introduction of the nasal inhaler and of the newest types of gas machines, the cost of administering nitrous oxid has been materially decreased. Instead of costing five dollars an hour as it did a few years ago, it can now be administered for a small part of that amount. One of the chief difficulties of the use of nitrous oxid by the general practitioner is that of having his hands scrubbed and having to regulate the gas machine. It occurs to me that a machine can be devised which will permit the practitioner to regulate the gas and at the same time to care for the patient. Such a machine has been constructed and will be exhibited by Dr. Lynch. From my experience with nitrous oxid gas, I feel that it can be used by the general practitioner as well as by the specialist, and I believe it will have a wide range of usefulness in the future.

DR. HENRY F. LEWIS: If a patient can be made comfortable and free from pain without too great a sacrifice of safety, it should be done. Inasmuch as Dr. Lynch has referred to the method of nitrous oxid gas being used principally in the second stage and toward the end of labor, I should like to ask him a question: whether he would advise the use of nitrous oxid gas in the beginning of a labor, with a long first stage?

DR. BERTHA VAN HOESSEN: I wish to report briefly the last fifty cases we have had at the Mary Thompson Hospital. Of these there were twenty-four primiparas, and twenty-six multiparas. There was one high forceps case and the baby was asphyxiated. It was the only baby that had to be

resuscitated that did not breathe as soon as it was born. In the primiparas the average labor was two and one-half hours; in the multiparas the average labor was six hours. No children were born dead with the exception of a five months' fetus which probably died before labor began. No heart beat was heard, and the child was macerated beyond recognition. All of the women were able to nurse their children. All of these cases were given a fixed dose, namely, 1/100 grain of scopolamin, and 1/8 grain of morphin as soon as it was known they were in labor. These doses were repeated at the end of one-half or one hour, according to the severity of the pain, and at the end of the next half hour or hour. They were kept under the anesthetic by repeating the 1/100 grain of scopolamin every two hours until labor was completed. Thirty of these patients took from 2 to 5 doses; four of them had as high as 9, 12 and 15 doses; two of them had 15 doses. We have not had any blue babies. We use a fixed dose, and not the Freiburg dosage. We feel the Freiburg dosage is not satisfactory and we would not get perfect results by it. There was perfect analgesia in every one of the fifty cases.

DR. JOSEPH L. BAER: At a previous meeting of this society it was my privilege to report a series of thirty-nine obstetric cases which were conducted at the Michael Reese Hospital since the first of January. This series has since grown to seventy under scopolamin-morphin anesthesia and has been terminated. The method was conducted under the strictest precautions for observation and control that could be devised by Drs. Frankenthal and Cary. Two nurses were employed for the purpose who alternated, spending their whole time in the delivery room. Two interns were assigned to the obstetric service, devoting their whole time to the study of these cases, and I spent most of my time there with them. I think the method may be summed up in a phrase coined by Dr. Cary as an "obstetric jag." Every patient on whom we started this method was a matter for concern until she had been delivered. We have had blue babies. We have had almost every complication and disaster spoken of from this particular method of anesthesia. Speaking for myself—and without consultation I think I can speak for Dr. Frankenthal and Dr. Cary also—anything that will take the place of scopolamin and morphin, if they have taken a foothold, would be an improvement.

I held the position of anesthetist at the Michael Reese Hospital for a number of years before I became associated with the obstetric staff, and I gave nitrous oxid and oxygen anesthetics in most of the private surgical cases in which operation was performed by members of the staff, and from my experience nitrous oxid and oxygen are safe even in the hands of those who have little training. This of itself is worth considering.

DR. CHARLES B. REED: I hope that we shall have a definite and satisfactory anesthesia for all obstetric cases. My own experience has been confined recently to the study of the scopolamin-morphin method at Wesley Memorial Hospital. We have had approximately seventy-odd cases there. We have had the usual run of delirium, etc., which Dr. Baer spoke of, but this occurred in Jewish women, and I believe that the highly sensitive nervous system of that race is not adapted to the use of scopolamin-morphin. We have had no blue babies. We have lost no mothers and no babies. We have found the method fairly satisfactory. We use it in the second stage. We have had no labors practically over eight hours, and we are apparently satisfied to continue the method.

DR. JUNIUS C. HOAG: I think the expression used by Dr. Cary of "obstetric jag" is very apt. It may be called that or an "obstetric debauch." I started last summer for Freiburg and was kept out of Germany by the war. Since I have become familiar with the scopolamin-morphin method, I do not regret being unable to reach Freiburg. After some of the hysteric manifestations we have had with regard to the scopolamin-morphin method, it is refreshing and encouraging and hopeful to listen to such reports as Dr. Lynch has brought forward. I have used the method in fairly normal but protracted cases of labor, and also in cases of cesarean

section. I have practiced medicine long enough, so that I have gone through a good many furores or manifestations of hysteria over different methods, and I prognosticate that the scopolamin-morphin method will not be of long duration.

DR. WILLIAM RITTENHOUSE: For the last eight years I have been using morphin and scopolamin more or less whenever they seem to be indicated by an undue amount of suffering on part of my patient. I give it in the first stage more frequently because my experience has been that patients suffer most acutely in the first stage. The suffering of the second stage is more commonly controlled better by whatever anesthetic is selected for delivery.

DR. LYNCH: I am delighted to see that the scopolamin-morphin method of anesthesia is being properly investigated. I welcome such reports as those that have been given, as presently the truth will be known. Such a report as Dr. Baer has given is worth more than thousands of cases to the contrary, because it emanates from a well-organized clinic where the scopolamin-morphin anesthesia has been carried on under proper auspices. Scopolamin-morphin anesthesia has failed with me, or I would not be advocating nitrous oxid gas and oxygen analgesia.

In such a case as Dr. Lewis has mentioned, I would begin administering the gas as soon as the patient complains of pain, and when I got tired, I would have the nurse continue giving the gas for some time, and then relieve her. Six or seven hours is a long time for any one person to continue giving the gas.

[Dr. Lynch exhibited several types of portable and non-portable apparatus for nitrous oxid-oxygen anesthesia. The following is a list of recent articles in THE JOURNAL describing such instruments:

Flagg, P. J.: A Previously Unemphasized Feature in the Construction of Nitrous Oxid-Oxygen-Ether Apparatus, THE JOURNAL A. M. A., Jan. 3, 1914, p. 35.

Moorhead, S. W.: A Portable Nitrous Oxid-Oxygen Apparatus, THE JOURNAL A. M. A., April 25, 1914, p. 1326.

Miller, A. H.: Apparatus for Nitrous Oxid-Oxygen Anesthesia, THE JOURNAL A. M. A., Oct. 24, 1914, p. 1474.

Sloan, H. G.: Nitrous Oxid and Oxygen Anesthesia, THE JOURNAL A. M. A., Sept. 13, 1913, p. 838.]

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Physiology, Baltimore

March, XXXVI, No. 4, pp. 353-505

- 1 Feeding Experiments on Rats. J. F. Gudernatsch, New York.
- 2 *Changes in Content of Hemoglobin and Red Corpuscles in Blood of Man at High Altitudes. E. C. Schneider and L. C. Havens, Colorado Springs, Colo.
- 3 Influence of Light on Reproduction in Vorticella. I. H. Hyde and C. Spreier, Kansas City, Kan.
- 4 *Experiments on Roentgen Radiation as Cause of Permeability Changes. A. Richards, Woods Hole, Mass.
- 5 *Vasotonic and Vasoreflex Center. W. T. Porter, Boston.
- 6 *Effect of Partial Suprarenal Deficiency on Sympathetic Irritability. R. G. Hoskins, Chicago.
- 7 *Inversion of Respiratory Waves in Sphygmomanometer Records of Arterial Pressure in Man. C. D. Snyder, Baltimore.
- 8 Toxicity of Oil of Chenopodium. W. Salant and E. K. Nelson, Washington, D. C.
- 9 *Action of Glandular Extracts on Secretion of Cerebrospinal Fluid. C. H. Frazier and M. M. Peet, Philadelphia.
- 10 Some Metabolic Influences of Bathing in Great Salt Lake. H. I. Mattill and H. A. Mattill, Salt Lake City.

2. Effect of High Altitude on Blood.—It is stated by Schneider and Havens that at low altitudes abdominal massage increases the number of red corpuscles and percentage of hemoglobin in the peripheral capillaries. In men partially or wholly acclimatized to a high altitude abdominal massage lowers the content of hemoglobin and red corpuscles. Before the subject reacts to the influence of lowered barometric pressure, abdominal massage may raise the content of hemoglobin and red corpuscles. Physical exertion at low altitudes concentrates the blood but during a sojourn of

four days to two weeks at a high altitude this reaction occurs only in the period before the number of red corpuscles and percentages of hemoglobin have increased. In a subject who had lived five and a half months at 14,109 feet a given exercise caused a slight concentration of the blood but not as much as it did at the altitude of Colorado Springs.

While there is a reserve supply of corpuscles at low altitudes this is lacking for some time during residence at the high altitude. The number of red corpuscles and percentage of hemoglobin do not increase immediately on arrival at the high altitude. Usually there occurs within twenty-four hours a marked increase in both. The rise in hemoglobin and red corpuscles for a particular subject during the first three or four days spent at a high altitude is not the same for different visits. The increase is most rapid in subjects who have taken regular exercise before ascending to the high altitude. Fatigue due to walking up a mountain delays the altitude increase in hemoglobin and red corpuscles. The rapid increase in the number of red corpuscles and percentage of hemoglobin the first two or three days spent at a high altitude is due in part to the throwing into the general circulation of a large mass of reserve corpuscles, and in part to a loss of fluid from the blood. The blood-forming centers also become more active and increase the total number of corpuscles and total amount of hemoglobin.

4. Effect of Roentgen Rays on Cell Permeability.—Richards believes that the results of his experiments warrant the conclusion that the effects which are described as the result of exposure to Roentgen rays are not to be attributed to permeability changes caused by the radiation, and the evidence available at the present time points to a theory of enzyme modification as the best explanation of the effects of radioactivity on the structure and functions of protoplasm.

5. Vasotonic and Vasoreflex Center.—Porter's experiments show that curare may more than double the sciatic and the depressor reflex change in blood pressure while the arterial tonus is left substantially unchanged. To him it seems impossible to reconcile these results with the present conception of the vasomotor center. Unless this can be done, he says, it will be necessary to accept a vasotonic and a vasoreflex center related but separable.

6. Suprarenal Deficiency and Sympathetic Irritability.—From one-half to seven-tenths of the suprarenal tissue was removed by Hoskins from dogs in various cases, at a single operation. At intervals of one to eight days after the operation the blood pressure and the vasomotor reaction to nicotine were decreased. The reaction to epinephrin was not similarly affected. Partial suprarenal deficiency therefore results in a depression of the irritability of the sympathetic nervous system proper. Hoskins suggests that this depression is probably only one phase of a generalized interference with fundamental metabolism.

7. Inversion of Respiratory Waves.—An argument is submitted by Snyder demonstrating deductively the following proposition: In case the actual respiratory movements in man are synchronously and graphically recorded together with the sphygmomanometer trace, and with the extra-arterial pressure set at various points above and below the diastolic pressure, then on inspection one ought to find an inversion of the respiratory wave in the blood pressure trace with reference to the waves of the respiration trace itself. This inversion of the respiratory wave in the sphygmomanometer trace ought to take place in the vicinity of diastolic pressure. Graphic records were taken on twenty-eight individuals, twenty of whom clearly showed inversion of the respiratory wave in the blood pressure trace. Reproductions of records illustrating the inverted wave are submitted in the report. The inversion of the respiratory wave is not always obtained; eight of the twenty-eight individuals failed to show it. The same individual, however, who did not show the inversion at one time occasionally was observed to show it at another time. No satisfactory explanation of this failure can at this time be given. It is suggested, and evidence is adduced showing, that the inversion of the respiratory wave in the blood pressure wave may itself at times serve as

an additional test in the determination of the correct diastolic pressure in man.

9. Glandular Extracts and Secretion of Cerebrospinal Fluid.—From the experiments reported by Frazier and Peet it appears that saline extracts of pancreas, spleen, kidney, liver, ovary and testes do not influence the rate of secretion of the choroid plexus and that the apparent increased rate after the injection of extracts of these glands is a mechanical rather than a secretory effect. This mechanical effect is directly due to the fall in arterial blood pressure which increases the pressure in the cranial venous sinuses, thus forcing out the performed fluid in the ventricles and cisterna magna. Brain extract causes an increase in secretion independent of blood pressure changes. Thyroid extract, either from fresh glands or the commercial desiccated beef preparation is the only glandular substance which has a specific inhibitory effect on the secretory activity of the choroid plexus, quite independently of blood pressure changes.

Archives of Internal Medicine, Chicago

March, XV, No. 3, pp. 341-500

- 11 Malignant Sympathicus Tumor of Right Suprarenal. D. J. Glomset, Des Moines, Iowa.
- 12 *Uremia. N. B. Foster, New York.
- 13 *Effect of Anesthesia and Operation on Kidney Function, as Shown by Phenolsulphonephthalein Test. R. H. Miller and H. Cabot, Boston.
- 14 *Intestinal Obstruction. F. T. Murphy and B. Brooks, St. Louis.
- 15 Working Hypothesis of Hemoglobin Pigment Metabolism. T. Addis, San Francisco.
- 16 *Bacteriologic Examination of Enlarged Lymph Nodes Removed from Patient with Hodgkin's Disease. L. J. Rhca and E. H. Falconer, Montreal, Canada.
- 17 *Occurrence of Malignant Neoplasms in Young. A. S. Warthin, Ann Arbor, Mich.
- 18 Experimental Diabetes Insipidus in Dogs. S. A. Matthews, Lawrence, Kan.
- 19 *Use of Strychnin and Caffein as Cardiovascular Stimulants in Acute Infectious Diseases. L. H. Newburgh, Boston.
- 20 Immunity Tests in Coccidioidal Granuloma. J. V. Cooke, San Francisco.
- 21 Value of Electrocardiogram in Diagnosis of Cardiac Hypertrophy. E. W. Bridgman, Baltimore.

12. Uremia.—Foster is of the opinion that the trend of evidence points to tubular rather than glomerular involvement as the important factor in nitrogen retention, since the phenomenon is clearly manifested with experimental renal lesions that are almost, if not entirely, epithelial. It is then of considerable interest that the nearest approach to a purely tubular nephritis clinically is not marked by the highest degree of nitrogen retention. There arises then the question of degrees of structural damage in relation to function. With the contracted kidney there is so much destruction of all renal elements that it becomes quite impossible to assert that one structure is more damaged than another.

13. Kidney Function as Shown by Phenolsulphonephthalein Test.—Miller and Cabot summarize the results of their extensive investigations as follows: 1. The output of phenolsulphonephthalein by the kidneys grows progressively less with advancing years. 2. There is a normal daily variation in phenolsulphonephthalein excretion, influenced by many factors, the normal limits of which cannot be defined. 3. After operations under ether there is a decreased output of phenolsulphonephthalein, this decrease being greater in laparotomies than in the general average, and considerably greater in cancer cases. 4. As a general proposition, the sooner after operation the test is done the greater will be the decrease, and the output will have returned to about normal in from twenty-four to forty-eight hours. 5. The more ether that is used, and the longer the operation, the greater will be the decrease in phenolsulphonephthalein excretion. 6. Certain cases will not show decrease, but either no change or increase. Just which cases do, or will do this, cannot be stated. 7. Certain cases will show great decrease or almost total inhibition of the excretion without discoverable cause. Personal idiosyncrasy may enter into this. 8. Shock will cause great decrease in phenolsulphonephthalein excretion. So also will any condition of much impaired vitality. 9. There is no definite relation between decreased drug excretion and the occurrence of albuminuria after operation.

14. **Intestinal Obstruction.**—Summarizing the results of eighty-seven animal experiments Murphy and Brooks state that in intestinal obstruction, the content of the obstructed bowel contains a toxin which, when absorbed in sufficient amounts, produces definite symptoms and pathologic lesions and death. The toxins are the result of bacterial growth. They are not specific for any part of the intestinal tract, and may be formed in the gall-bladder. The chemical and physical characteristics of the toxic substance may vary with the length of time which the obstruction has existed as well as with the different conditions under which the obstruction occurs. This toxin may enter the circulation by way of the thoracic duct. Death after intestinal obstruction is the result of a toxemia which may be independent of infection of the peritoneal cavity or general circulation. This toxic substance does not pass through a normal mucous membrane. In the production of symptoms the factors which make this absorption possible are more important than the factors which produce the toxin. Interference with the circulation of the obstructed intestine is an essential factor in allowing this abnormal absorption. Simple obstruction of a segment of duodenum or jejunum results in earlier and severer symptoms than similar obstruction of a segment of ileum because the secretion into the lumen of the former leads to rapid distention and circulatory disturbance in the bowel wall. The symptoms and pathologic lesions following the intravenous administration of the contents of a segment of bowel after obstruction are the same as those described resulting from intravenous injection of certain of the ptomain poisons. In the surgical treatment of cases of intestinal obstruction, that part of the intestine with a mucous membrane which has been so damaged as to permit of abnormal absorption should be resected rather than drained.

16. **Lymph Nodes Removed from Patient with Hodgkin's Disease.**—Rhea and Falconer isolated from the enlarged lymph nodes of a patient who showed the clinical picture of Hodgkin's disease, and from whom excised glands histologically corresponded to this disease, a pure culture of a pleomorphic, Gram-positive, non-motile, non-acid fast, facultative anaerobic organism, similar to those described by Bunting and Yates. Cultures of the organism isolated have been repeatedly injected into the tissues about the axillae of an adult monkey (*Macacus rhesus*), but up to the present no conclusive results have been obtained.

17. **Occurrence of Malignant Neoplasms in Young.**—An analysis of 2,000 cases of malignant neoplasms was made by Warthin. The types of neoplasms were divided as follows: carcinoma 77, or 39.5 per cent.; sarcoma 92, or 47.3 per cent.; malignant teratoma 19, or 9.7 per cent.; malignant syncytioma 2, or 1 per cent.; endothelioma 5, or 2.5 per cent. Of the carcinomas the distribution as to locality was as follows: Antrum 1, breast 12, eye and conjunctiva 7, small intestine 1, colon 1, cecum 2, rectum 2, lip 9, lymph nodes 1, mouth 2, ovary 6, parotid 1, penis 2, tube 1, hand 1, leg 2, ear 1, cheek 2, nose 2, chin 1, elbow 1, stomach 2, pylorus 1, umbilicus 1, cervix of uterus 12, endometrium 2, thyroid 1.

The distribution of the sarcomas with respect to site was: bladder 2, jaw 7, femur 10, tibia 6, fibula 1, heel 1, foot 1, pelvis 3, humerus 2, ulna 2, radius 1, rib 1, scapula 1, clavicle 1, brain 1, breast 2, eye 5, eyelid 1, orbit 5, face 1, intestine 2, lymph nodes 10, muscle of abdomen 2, neck 4, nose 2, ovary 2, parotid 3, popliteal space 2, skin 5, body of uterus 4, cervix 2.

The distribution of the malignant teratomas was: cervix of uterus 1, kidney 4, ovary 2, testis 12. The endotheliomas were distributed as follows: chin 1, orbit 2, mouth 1, neck 1 as to age distribution. The curve is high during the first year, falls then to rise at puberty, after which there is a steady rise up to the limit of the period, aged 30. The large number in the first year emphasizes the importance of the *congenital factor*, and this influence is felt in the case of the majority of the tumors found up to the period of sexual ripeness, even when no actual evidences of a teratoid nature could be demonstrated in the tumor. Sarcoma predominates in the period of

infancy and childhood; but the *parallel increase of both sarcoma and carcinoma with age is noteworthy and in contradiction to the usual belief that sarcoma is essentially a disease of childhood*. The cases of malignant teratoma fall in the periods of early childhood and developing sexual life. Particularly is this the case with the malignant teratomas of testis and ovary, the majority of these cases developing after puberty and in the early period of sexual maturity. No special relationship to the period of dentition is shown. No cases occurred in the fifth year, and none in the twelfth and thirteenth years. The number of cases in the years 6 to 11 was too small to show any conclusion. The main facts shown are the relatively high number of congenital tumors, the gradual increase in incidence of tumors from the age of adolescence into mature life, the relation of malignant teratomas to puberty and the parallel incidence of carcinoma and sarcoma.

19. **Use of Strychnin in Acute Infectious Diseases.**—Strychnin sulphate, in medicinal doses, Newburgh says, does not increase the output from the heart, slow the pulse or materially raise the blood pressure. There is no logical basis for its use as a cardiovascular stimulant. Caffein-sodium-salicylate, in the doses employed, does not raise the blood pressure or slow the pulse.

Archives of Pediatrics, New York

February, XXXII, No. 2, pp. 81-160

- 22 Renal Infantilism. Report of Case. L. Porter, San Francisco.
- 23 Cutaneous Regional Variation in Pirquet Reaction. J. A. Colliver, Los Angeles.
- 24 Use of Liquid Paraffin in Infants. H. K. Hill, Philadelphia.
- 25 Edema Complicating Gastro-Enteritis. J. F. Sinclair and J. A. Speed, Philadelphia.
- 26 Relation of Pediatricist to Community. W. N. Bradley, Philadelphia.

Boston Medical and Surgical Journal

March 18, CLXXII, No. 11, pp. 393-428

- 27 Progressive Neuromuscular Atrophy; Report of Three Cases in Family Without Heredity. F. F. Hatch, Boston.
- 28 *Value of Gold Sol Test (Lange) in Cerebrospinal Fluid Obtained Post Mortem. H. C. Solomon and E. S. Welles, Boston.
- 29 Enchondroma. Review of Literature and Report of Three Cases. L. A. O. Godda, Boston.
- 30 Study of Disturbances of Stomach. H. F. Hewes, Boston.
- 31 Study of Efficiency of Mixed Toxins (Coley) in Inoperable Sarcoma. Analysis of One Hundred and Thirty-Four Microscopically Proved Cases. T. W. Harmer, Boston.

28. **Value of Gold Sol Tests in Cerebrospinal Fluid Obtained Post Mortem.**—The spinal fluids obtained post mortem from the lumbar region in a series of twenty-six cases were tested by Solomon and Welles. Cases that are clinically fairly stationary gave the same results ante and post mortem with the gold sol test. Post-mortem spinal fluid from cases of general paresis usually gave the typical "paretic reaction," such as given by similar cases ante mortem. Post-mortem spinal fluid from cases of a non-inflammatory nature may give the expected negative reaction; but "unexpected" positive reactions are obtained with certain post-mortem spinal fluids, as are found with certain ante-mortem fluids from similar types of cases. The results with post-mortem fluids tested by the gold sol test of Lange are comparable to those obtained with the ante-mortem spinal fluid and when the body is well preserved or the fluid obtained early, the results are the same as would have been obtained just prior to death. Therefore, it is concluded that the gold sol test has the same value in the examination of cerebrospinal fluid obtained post mortem from the lumbar region as ante mortem, and the results may be similarly interpreted for diagnostic purposes.

Bulletin of Johns Hopkins Hospital, Baltimore

March, XXVI, No. 289, pp. 69-92

- 32 *Osteogenic Power of Periosteum: Bone Transplantation. J. S. Davis, Baltimore, and J. A. Hunnicutt, Athens, Ga.
- 33 Jonathan Hutchinson Iconography. W. Osler.
- 34 Account of Surgery and Surgeons of American Revolution. W. B. Platt, Baltimore.

32. **Osteogenic Power of Periosteum: Bone Transplantation.**—One hundred and sixty-seven experiments were done by

Davis and Hunnicutt on fifty dogs and seventeen rabbits. The results were controlled by careful dissection and by Roentgen-ray and microscopic examinations. Free periosteal transplants did not produce bone in the large majority of experiments, even though osteoblasts were adherent to the transplants. Pedunculated flaps of periosteum did not produce new bone. Free periosteal transplants and pedunculated periosteal flaps, with bone shavings attached, produced bone in each experiment. From this the authors surmise that bone particles had been accidentally transplanted in those experiments in which bone was found after the transplantation of free periosteum.

The removal of periosteum had little, if any, effect on the nutrition of a bone. The surface from which the periosteum was removed showed very little overgrowth of bone, unless there had been considerable irritation of that surface, either by trauma or by infection. The area from which the periosteum had been taken was covered with a thin, very adherent fibrous membrane; or the muscle tissue was adherent to the denuded area. Absorption occurred when a silver ring was snugly applied around a bone over the periosteum, and also at times when it was applied around denuded bone. There was no new bone formed from either the periosteum or bone, when a silver ring was placed around a bone beneath the periosteum. Both auto and isobone, without periosteum, were effective in repairing skull defects.

Auto and isobone without periosteum, when transplanted into the periostealtube after subperiosteal resection of a rib, caused stimulation of bone growth from the periosteum and also from the rib ends. Transplants covered with periosteum, and also foreign bodies, stimulated bone growth only from the rib ends. Transplants of the same size in a periosteal tube, after subperiosteal resection, under exactly the same conditions, acted quite differently. After subperiosteal resection of a portion of a bone, the growth of bone in repairing the defect was from the bone stumps, the periosteum acting as a limiting membrane. Autobone, both with and without periosteum, lived and was successfully transplanted to fill defects in bone. Clinically, it is advisable to transplant bone covered in part at least, with periosteum. Isobone in a bone defect acted as a scaffold for the growth of new bone from the living bone stumps, but there was ultimate absorption of the transplant. Autobone, both with and without periosteum, was absorbed when transplanted into soft parts. The periosteum seemed to have some protective influence against early absorption. The fat of those transplants which had grown together and produced new bone is doubtful, but as absorption was going on, and as the tendency of free bone in the soft parts was to be absorbed, it seems probable that absorption would eventually have occurred. The same may be said of isobone in soft parts, except that in no instance was any new bone formed from the transplant.

California State Journal of Medicine, San Francisco

March, XIII, No. 3, pp. 87-128

- 35 Dystocia Due to Funnel Pelvis. J. M. Slemons, San Francisco.
- 36 Increased Blood Pressure. J. M. King, Los Angeles.
- 37 Case of Anthrax. J. C. Fallon, Reno, Nev.
- 38 Perversion of Forces in and About Oral Cavity. B. F. Gray, Colorado Springs, Colo.
- 39 Endocarditis with Streptococcemia. Infection from Tonsils. W. H. Strickmann, Oakland.
- 40 After Medicine What? R. Russ, San Francisco.
- 41 Spinal Anesthesia. L. L. Stanley, San Quentin.
- 42 Combined Treatment of Syphilis with Mercury and Salvarsan. G. W. Hartman, San Francisco.
- 43 Clinical Value of Percussion of Skull. W. F. Beerman, San Francisco.
- 44 Gun-Shot Wound of Ear. Report of Two Cases. C. F. Welty, San Francisco.
- 45 Report of Unusual Case of Labyrinthine Deafness. G. P. Wintermute, San Francisco.

Canadian Medical Association Journal, Toronto

March, V, No. 3, pp. 181-276

- 46 Involvement of Central Nervous System in Syphilis. A. W. M. Ellis, New York.
- 47 Pyelitis as Complication of Pregnancy and Puerperium. B. P. Watson, Toronto.

- 48 Early Diagnosis of Gastric Carcinoma. A. W. George and I. Gerber, Boston.
- 49 Boas-Oppler Bacillus (Lactic Acid Bacillus), and Diagnostic Importance of Its Presence in Gastric Contents. G. Chambers, Toronto.
- 50 Artificial Pneumothorax in Treatment of Tuberculosis. W. B. Kendall, Gravenhurst.
- 51 Case of Extramedullary Angioma of Spinal Cord. W. McKeown and J. Loudon, Toronto.

Iowa State Medical Society Journal, Des Moines

March, V, No. 3, pp. 89-128

- 52 Rabies in Iowa. H. Albert, Iowa City.
- 53 What Public Should Know About Cancer. L. W. Littig, Davenport.
- 54 Sex Teachings. G. C. Moorhead, Ida Grove.
- 55 Twilight Sleep. C. E. Dakin, Mason City.
- 56 Case of Pellagra. F. A. Ely, Des Moines.
- 57 Submucous Resection of Nasal Septum. F. E. V. Shore, Des Moines.
- 58 *Vaccine Treatment of Infections. M. G. Sloan, Des Moines.
- 59 Case of Hemophilia Treated with Horse Serum. G. F. Dolmage, Buffalo Center.

58. **Vaccine Treatment of Infections.**—There can be no question says Sloan but that in properly administered auto-genous vaccines we have a fairly successful method of treating a large class of infections in which heretofore we have been practically helpless.

Journal of Cutaneous Diseases, New York

March, XXXIII, No. 3, pp. 161-248

- 60 Xeroderma Pigmentosum Following Severe Sun Exposure. Report of Two Cases. W. T. Corlett, Cleveland.
- 61 *Urticaria Pigmentosa, Particularly in Regard to Its Histology. F. C. Knowles, Philadelphia.
- 62 *Vaccine Treatment of Ringworm of Scalp. A. Strickler, Philadelphia.
- 63 *Purpura Annularis Telangiectodes. G. M. MacKee, New York.

61. Abstracted in THE JOURNAL, June 20, 1914, p. 1989.

62. **Vaccine Treatment of Ringworm of Scalp.**—From an experience with this method of treatment extending over seven months, Strickler concludes that tinea tonsurans can be cured by vaccine. How great is the proportion of cures which can be obtained by this method of treatment alone, he is not prepared to say, because the cases so treated by him are too few to permit of such conclusions. He feels that it should prove valuable in conjunction with local treatment. It should shorten the time of treatment and possibly place this therapeutic measure on a par, so far as time goes, with the Roentgen-ray method of treatment, without sharing in the dangers of the latter method. In the first effort to make a vaccine from tinea tonsurans, suspicious hairs were obtained from the scalp of three patients. These hairs were soaked in absolute alcohol for fifteen minutes, then immersed in sterile salt solution and transplanted by a sterilized forceps to "French proof agar" in an Erlenmeyer flask and allowed to grow for twenty-four days. Crystals of sodium chlorid, chemically pure were rubbed up with the growth and after triturating it for some ten minutes, rubbed up so finely as to leave but a very few small particles, thus eliminating the necessity of filtration of the solution. To this enough sterile distilled water was added to make a normal saline solution.

From the growth on an ordinary Erlenmeyer flask, about 500 c.c. of vaccine were made up. To this 8 to 10 c.c. of chloroform were added to kill the growth, and then the vaccine was heated to 60 C. for one hour. Controls for living fungi were made on French proof agar, and for pyogenic organisms, on agar. The vaccine was preserved by the addition of sufficient phenol to bring it up to 0.25 per cent. It was then tubed in sterile vials and was ready for use.

The vaccine may be employed in doses varying from 0.5 c.c. up to 4 c.c. It has been found of no value to employ so large a dosage as the latter; the usual dose varied between 1 c.c. and 2 c.c. The injections were given at intervals of three days. The region between the scapulae, in which there is considerable loose tissue, and the buttock, were the areas chosen for injection, preference being given to the former. About thirty-six hours after the injection, but only after the patient has had six or seven injections, an infiltrated area

develops at times, at the point of injection. This infiltration can be made to disappear by painting with tincture of iodine and applying a dressing of ichthyol ointment once daily. In no instance was there any constitutional reaction following the injections. The number of injections varied from seven in some instances up to seventeen in others.

63. Abstracted in THE JOURNAL, June 13, 1914, p. 1920.

Journal of Outdoor Life, New York

March, XII, No. 3, pp. 85-115

- 64 Open Air School Exhibit at Panama-Pacific Exposition. S. C. Kingsley, Chicago.
- 65 Why Are Coughs? E. F. Bowers.
- 66 Home or Climatic Treatment, Which? T. Frazer, Asheville, N. C.
- 67 Social Service Nurse. J. A. Miller, New York.
- 68 Roentgen Ray in Tuberculosis Sanatorium. W. A. Gekler, Rockville, Ind.
- 69 What We Should Know About Tuberculosis. J. J. Lloyd, Catawba Sanatorium, Va.
- 70 Nostrum Evil. G. M. Kober, Washington, D. C.
- 71 Moving Pictures for Inward Eye. M. S. Labaree, Hartford, Conn.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

March, VI, No. 4, pp. 413-532

- 72 Helenin. P. D. Lamson, Boston.
- 73 Action of Certain Quarternary Ammonium Bases. J. H. Burn and H. H. Dale, London.
- 74 Quantitative Observations on Antagonism. A. R. Cushny, London.
- 75 *Pharmacology of Respiratory Center. II. A. R. Cushny and C. C. Lieb, London.
- 76 Effect of Homatropin on Vagus. H. S. Zulick, Philadelphia.
- 77 Physiologic Actions of Homocholins and Some of Their Derivatives. R. Hunt, Boston.
- 78 *Influence of Drugs on Human Sensory Threshold. E. G. Martin, C. M. Grace and J. H. McGuire, Boston.

75. **Pharmacology of Respiratory Center.**—Cushny and Lieb found that the action of morphin and of ethyl carbamate (urethan) on the respiratory center offer typical differences. Morphin slows the breathing in air without materially decreasing the depth, while ethyl carbamate may induce no change except that arising from the general narcosis. The reaction to CO₂ inhalation under morphin is of the same type as the normal—the respiration increases in depth and rate; the increase in depth may be as great or greater than the normal, while the rate increases in the same ratio as holds in the normal animal when dilute CO₂ is substituted for air; the actual increase is of course much smaller than in normal animals. The reaction to CO₂ inhalation under ethyl carbamate remains of the normal type as far as the depth is concerned, but changes its character as regards the rate—as the dose of ethyl carbamate increases, the acceleration under CO₂ diminishes until no acceleration is obtained, and ultimately CO₂ in most instances actually slows the respiration. Oxygen lack has the same effect as CO₂ inhalation under ethyl carbamate or morphin. The CO₂ concentration in the blood increases under ethyl carbamate poisoning and also under morphin, though more slowly. But this increase can not be considered the cause of the reversed action of CO₂ inhalation under ethyl carbamate. Similarly the fall in blood pressure does not account for the reversal. The reaction by apnea to rapid artificial inflation of the lungs is not materially altered in deep ethyl carbamate poisoning; it may be somewhat longer. Under morphin the phase of apnea is distinctly prolonged.

The slowing of the respiration under morphin is ascribed to an action on the intrinsic rhythm of the respiratory center which is rendered slower. The reaction of this depressed center to the hormones of the blood and to nervous reflexes appears not to be different in character from that of the normal center. In ethyl carbamate poisoning, and presumably in poisoning from other members of the alcohol-chloroform group, the intrinsic rhythm of the center is not depressed to the same extent and the respiration may remain normal in rate, though it is often slow. The reaction to reflexes also remains of the normal type. But the reaction to the blood gases is altered, so that increased CO₂ or lessened O₂ has less accelerating action than normally, and finally may actually slow and stop the breathing. The

hormone thus loses its stimulating effect and exercises only its depressant effect even in low concentrations, while in the normal animal this depressant action is only elicited by high concentrations. In death from morphin poisoning, the respiration fails because the intrinsic rhythm of the center is abolished, while in ethyl carbamate poisoning the breathing ceases mainly because the center responds by slowing, and finally by arrest, to the accumulated CO₂ instead of accelerating and thus eliminating it. While the morphin and ethyl carbamate thus differ in their action on the respiratory rhythm, they both have less effect on the strength of the impulses emitted, as measured by the depth of the breathing, which appears to depend exclusively on the CO₂ concentration in the blood and center under each of these poisons.

78. **Influence of Drugs on Sensory Threshold.**—Two subjects studied by the authors showed marked lowering of general sensitiveness within one hour after the administration of acetphenetidin (5 to 15 grains) by mouth. The criterion was the threshold for electrocutaneous sensibility (Martin method). One of the subjects, the one with greater normal sensitiveness, gave evidence of a certain degree of tolerance after ten doses, distributed over a period of two months. The other subject reacted markedly throughout the investigation and was generally more affected by the larger doses than by the smaller ones.

Journal-Lancet, Minneapolis

March 15, XXXV, No. 6, pp. 135-164

- 79 University-Mayo Affiliation. C. L. Greene, St. Paul.
- 80 Mayo Foundation from Standpoint of Graduate School. G. S. Ford, Minneapolis.
- 81 Principles of Affiliation of Mayo Foundation and University. G. D. Head, Minneapolis.
- 82 Teeth as Foci of Infection. F. B. Kremer, Minneapolis.
- 83 Complicated Labor. Report of Case. J. Farrage, Park Rapids.

Kentucky Medical Journal, Bowling Green

March 1, XIII, No. 4, pp. 137-166

- 84 Relation of Pathologic Conditions in Otorhinology to General Medicine and Surgery. J. A. Stucky, Lexington.
- 85 Therapeutic Rationale. B. J. O'Connor, Louisville.
- 86 Ectopic Gestation. H. J. Phillips, Louisville.

Maine Medical Association Journal, Portland

March, V, No. 8, pp. 281-320

- 87 Pellagra. H. L. Bartlett, Norway.

Medical Record, New York

March 20, LXXXVII, No. 12, pp. 463-504

- 88 History of Pathologic Physiology of Icterus. C. G. Cumston, Geneva, Switzerland.
- 89 Clinical Features of Exophthalmic Goiter. C. V. R. Bumsted, Newark, N. J.
- 90 Intraspinal Treatment of Syphilis of Central Nervous System. M. J. Synnott, Montclair, N. J.
- 91 Clinical Significance of Blood Pressure. P. Nicholson, Ardmore, Pa.
- 92 Abortion of Typhoid. W. L. Frazier, Mountain Home, Ida.
- 93 *Prophylaxis of Puerperal Convulsions. S. H. Blodgett, Boston.
- 94 Two Months' Service in Small Hospital. A. Whitman, New York.
- 95 Cannula and Needle for Blood Transfusion and Intravenous Infusions. D. J. Kaliski, New York.

93. **Prophylaxis of Puerperal Convulsions.**—The changes made by Blodgett in the diet and treatment of the prospective mother consisted broadly in watching carefully the amount of urea excreted by the kidney, and when this fell below what appeared to be normal for the patient, in at once withdrawing all meat and fish from the diet. The rule was made that cases applying for admittance to the hospital for their confinement should eat meat but once daily, and bring a sample of the twenty-four-hour urine to the hospital every three weeks up to the sixth month of pregnancy. After that time the urine was to be sent in every two weeks. Any patient showing a slight subnormal urea output was ordered to send in the urine each week, and if the decrease still persisted she was notified to come into the hospital, in which the urine could be examined each day and the diet regulated as judged advisable. For 1912 there were 768 confinements with two cases of convulsions and one induced labor. For

1913 there was 890 confinements with two cases of convulsions and no induced labor.

Blodgett has advised against the termination of pregnancy in which the urea output has been normal, or in which by giving a meat-free diet he could secure a normal urea output and has given very little consideration in deciding the question of the relation of possible convulsions to the amount of albumin present in the urine or to the clinical symptoms. So far as medicine is concerned there has been no general rule in regard to the cases. Very few of them have received any medication whatever, and medicine has been given only in cases in which it is necessary to keep the bowels in normal condition. From experience in these cases Blodgett has come to the point in which he has felt it safe to advise the continuation of pregnancy (the case being under constant supervision), even in cases in which the patients have headache, dimness, or blurring of vision, and a large amount of albumin provided the excretion of urea does not go below normal.

Missouri State Medical Association Journal, St. Louis

March, XII, No. 3, pp. 91-144

- 96 Hodgkin's Disease. Report of Case which Yielded Positive Cultures. G. Ives, St. Louis.
- 97 Appendicitis in Children. M. B. Clopton, St. Louis.
- 98 Blood Changes in Tuberculosis. W. W. Duke, Kansas City.
- 99 Joint Syphilis. A. O'Reilly, St. Louis.
- 100 Missouri's Mental Defectives. G. W. Robinson, Kansas City.
- 101 Icteric Diseases of New-Born Infant. J. Zahorsky, St. Louis.
- 102 Tonsillitis. W. K. Statler, Oak Ridge.

Modern Hospital, St. Louis

March, IV, No. 3, pp. 147-226

- 103 Winifred Masterson Burke Foundation—Convalescent Group. T. J. Van der Bent, New York.
- 104 Feeding the Hospital—Classes of People to be Fed. L. Graves, Cleveland.
- 105 Forty Years of Thalassotherapy. W. H. Bennett, Atlantic City, N. J.
- 106 Cereal Breakfast Foods—Composition, Digestibility and Relative Value. J. P. Street, New Haven, Conn.
- 107 New Bethesda Maternity Hospital in Cincinnati. C. Golder and W. Gillespie, Cincinnati.
- 108 Norwood Civic Association Health Center. E. Ross, Norwood, Mass.
- 109 Manufacture of Nitrous Oxid for Anesthesia in Hospitals. A. R. Warner, Cleveland.
- 110 Conduct of Unendowed Small Hospital. N. B. Jordan, Aurora, Ill.

New York Medical Journal

March 20, CI, No. 12, pp. 549-600

- 111 *Intestinal Stasis, Bands, Kinks and Membranes. R. A. Keilty and A. J. Smith, Philadelphia.
- 112 Hematogenous Infections of Kidney. G. E. Brewer, New York.
- 113 Arsenic Poisoning; Case Report from China. A. C. Reed, Changsha, China.
- 114 Solid Fibroid Tumor of Ovary. J. T. Johnson, Washington, D. C.
- 115 Gallstone. Tray. A. Schachner, Louisville, Ky.
- 116 Abdominal Symptoms in Pleurisy and Pneumonia. J. Dorning, New York.
- 117 Iodin Fumigator. W. L. Capell, Omaha.
- 118 Nature and Pathogenesis of Epilepsy. L. P. Clark, New York.
- 119 Treatment of Epilepsy. I. Bram, Philadelphia.

111. **Intestinal Stasis, Bands, Kinks and Membranes.**—This paper correlates the various phases of this subject and includes the study of 100 autopsies. Keilty and Smith emphasize that every case is a study in itself, and before treatment, especially surgical, is undertaken, a thorough knowledge of the principles of the case must be obtained. It is obvious that simple parietopericolic membranes are harmless and should be left alone. On the other hand, simply to sever inflammatory adhesions, as in the case of the gall-bladder to the duodenum (as was done at autopsy), a mid-line coloptosis would result, and possibly the patient would be worse off than before. Then, too, in dealing with these anomalies, Nature's habit of adaptability must be considered. The intestine may perfectly compensate for a bad kink, and if this was suddenly relieved, loss of support might result in torsion, ileus, or volvulus. The authors urge the adoption of a uniform nomenclature; that Lane's work should be reviewed carefully; that the status of various membranes should be fixed; that the physiology of the gastro-intestinal

tract, as it refers to peristalsis, should be clearly understood.

These "bands" are of three types; congenital, developed hypertrophies, and inflammatory. Intestinal toxemia is common, the result of stasis, brought about primarily by the traction of these various bands, producing intestinal hypertrophy, with secondary fatigue or degeneration and dilatation. The condition occurs in the well nourished as well as in the neurasthenic. Intestinal ptosis occurring with general visceroptosis is merely an exaggerated type of the simpler forms. The various possibilities must be clearly understood, and each individual case carefully studied before any treatment is inaugurated. When surgical means are applied, the mechanism must be clear, else the result will be worse than the original condition. Finally, at operation the entire abdomen must be carefully explored, because these conditions rarely affect one region without another.

Northwest Medicine, Seattle

March, VII, No. 3, pp. 69-102

- 120 Hydronephrosis. Report of Case. G. S. Peterkin, Seattle.
- 121 Pyelography. W. J. Pennock, Spokane.
- 122 Value of Decompression Operations in Disorders of Brain. K. A. J. MacKenzie, Portland, Ore.
- 123 Difficulties in Diagnosing Ectopic Pregnancy. F. R. Fursey, Spokane.
- 124 Transverse Presentations. N. M. Benyas, Portland, Ore.
- 125 Repeated Pregnancy in Same Tube. L. Riden, Portland.
- 126 Differential Diagnosis of Typhoid, Gastro-Enteritis and Appendicitis. R. W. Fisher, Rigby, Ida.
- 127 Treatment of Appendicitis. E. C. Rich, Ogden, Utah.
- 128 Crushing Injuries. W. A. Wright, Pocatello, Ida.
- 129 Desirability of Early Treatment in Precancerous Lesions. C. Snow, Salt Lake City.

New Jersey Medical Society Journal, Orange

March, XII, No. 3, pp. 105-156

- 130 Diagnostic Methods in Diseases of Rectum and Sigmoid Colon. F. C. Yeomans, New York.
- 131 Abnormal Pregnancy. G. A. Rogers, Newark.
- 132 Bone Tuberculosis. G. H. Sexsmith, Bayonne.
- 133 Pain in Upper Abdomen Due to Chronic Disorders. H. D. Jump, Philadelphia.
- 134 Appendicitis as Factor in Other Abdominal Affections. L. J. Hammond, Philadelphia.

Ohio State Medical Journal, Columbus

March, XI, No. 3, pp. 151-210

- 135 Therapeutics of Sympathetic Ophthalmia. H. Gifford, Omaha.
- 136 Infantile Uterus. M. A. Tate, Cincinnati.
- 137 Essential Factors in Establishing and Maintaining High Standard of Public Health. H. C. Brown, Columbus.
- 138 Home Treatment of Tuberculosis. H. A. Berkes, Cleveland.
- 139 Premature Infant. H. J. Morgan, Toledo.
- 140 Chronic Pyelitis: Its Cause, Clinical Course and Treatment. F. C. Herrick, Cleveland.

Southern Medical Journal, Mobile

March, VIII, No. 3, pp. 173-252

- 141 *Effect of Impounded Water on Incidence of Malaria. H. R. Carter, Baltimore.
- 142 *Malaria Carriers and Important Role They Play in Persistence and Spread of Malaria. C. C. Bass, New Orleans.
- 143 Losses to Rural Industries Through Mosquitoes that Convey Malaria. D. L. Van Dine, Washington, D. C.
- 144 Losses to Rural Industries from Malarial Mosquitoes. J. K. Thibault, Jr., Washington, D. C.
- 145 *Thirty Cases of Malaria, Estivo-Autumnal, Treated with Quinin Intravenously. T. E. Wright, Monroe, La.
- 146 Report of Malaria Commission of Southern Medical Association. C. C. Bass, New Orleans.
- 147 *Organism Probably Causing Pellagra. T. E. Sanders, Hot Springs, Ark.

141, 142 and 145. Abstracted in THE JOURNAL, Dec. 12, 1914, p. 2158.

147. **Organism Probably Causing Pellagra.**—July 14, 1914, Sanders withdrew the spinal fluid from a pellagrin, who had died one hour previously from a violent case of pellagra, exhibiting marked cerebral symptoms. Part of the fluid was examined and the other part was incubated. The part that was examined showed a very few organisms that appeared to be oval in shape, and the periphery stained more intensely than the center with Giemsa stain. The other part of the spinal fluid was incubated for about a week before it showed

any apparent growth. A smear showed the same organism. Transfer was made from the growth in the spinal fluid to agar-bouillon and Loeffler's blood serum. There was no growth on the agar-bouillon, but it grew on the blood serum. Sanders kept the growth alive on blood serum by transplanting for quite a while; then it finally died out.

July 31, 1914, a similar case presented itself and Sanders went through the same routine and obtained the same organism. In both cases the organism finally died out on Loeffler's blood serum after many transplants. Oct. 18, 1914, Sanders held an autopsy on a pellagrin who had died of a violent typhoidal type of pellagra with marked skin lesions of the wet ulcerative type. The abdominal fat was very little, if any, reduced. The spleen was comparatively small to the pellagrin's weight. He split the spleen with a sterile knife and inoculated a special medium, consisting of a saturated corn meal and agar bouillon faintly acid with hydrochloric acid. On culturing he obtained the same organism and it has been growing on that special medium ever since. The organism is highly motile and seems to pass through a definite cycle of some kind. It is characterized by a multiplicity of forms changing from a small oval cell-like form to small bacilli, thread-like bodies and comparatively large bacilli. Every day it appears different, but appears to come back to the same forms. Sanders has been growing it for over four months and the growth appears the same as when it started. A large number of fecal smears Sanders had gathered from pellagrins in the diarrheal stage of the disease contained large quantities of the same organism.

West Virginia Medical Journal, Wheeling

March, IX, No. 9, pp. 291-326

- 148 Study of Joint-Bodies from within, Present in Articulations Otherwise Apparently Normal. A. P. Heineck, Chicago.
- 149 Acquired Non-Traumatic Cataract of Young. C. B. Wylie, Morgantown.
- 150 Syphilis—Salvarsan—Scepticism. W. C. Slusher, Bluefield.
- 151 Warning Concerning Use of Salvarsan. W. C. Slusher, Bluefield, and E. B. Burchell, New York.
- 152 Case of Sporotrichosis. R. H. Haynes and S. L. Cherry, Clarksburg.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

March, XII, No. 135, pp. 65-96

- 1 *Atonic Form of Cerebral Diplegia. Report of Cases. F. E. Batten and W. H. von Wyss.
- 2 Cardiac Failure in Child, Aged Six Years, Associated with Atheroma of Pulmonary Artery and Extreme Dilatation of Right Ventricle. P. J. Veale and C. Coombs.
- 3 Hematoma of Lower Lid in Infant, Aged Five Months: Symptom of Infantile Scurvy. S. Stephenson.
- 4 Pneumococcus Infection and Immunity. R. I. Cole.

1. **Atonic Form of Cerebral Diplegia.**—The four cases cited by Batten and von Wyss have in common a hypotonic condition of the voluntary muscles of the body, especially of the lower limbs, and a deficiency of the synergetic action of the muscles, as shown by the inability to stand or walk, but there was no loss of power in performance of active movements. One case showed a marked degree of ataxia, characterized by a lack of proportion of the movements (dysmetria of Thomas). In two of the cases there was also a certain amount of hypertonia, as evidenced by the adductor spasm and overflow of the abdominal reflexes; in one case there was an occasional extensor response of the plantar reflexes. There also was in two cases rigidity of the lower limbs in a certain position, namely, when the children were suspended by the axillae. Not one of the cases showed the extreme hypotonia described by Foerster with the exaggerated flexibility of the trunk, head and neck. Two of the children were markedly mentally deficient and mute, and their condition resembled closely that described by Pierce Clark. Three of the children were born as breech presentations. One showed another malformation, namely, congenital dislocation of the hips.

British Medical Journal, London

February 27, I, No. 2826, pp. 365-404

- 5 Treatment of Malignant Disease of Skin. J. H. Sequeira.
 - 6 Report of Work Carried Out at Radium Institute, London, in 1914. A. E. H. Pinch.
 - 7 *Radium Treatment at Royal Infirmary, Edinburgh, During 1914. D. Turner.
 - 8 Tuberculous Soldier at Front. T. Oliver.
 - 9 Treatment of Epidemic Cerebrospinal Meningitis. G. C. Low.
- March 6, No. 2827, pp. 405-452
- 10 *Application of Strong Antiseptics to Infected and Non-Infected Wounds. C. J. Bond.
 - 11 Treatment of Pernicious Anemia by Salvarsan and Neosalvarsan. B. Bramwell.
 - 12 Benzol Therapy in Leukemia and Lymphosarcoma. T. G. Moorhead.
 - 13 Trench "Frost-Bite." C. G. Watson and C. S. Myers.
 - 14 Extraction of Shrapnel Bullet from Knee-Joint Through Vertical Incision. W. Robinson.
 - 15 Removal of Eyes in Presence of Orbital Cellulitis. W. T. Lister.

7. **Radium Treatment at Edinburgh Royal Infirmary.**—Sixty-three patients attended for radium treatment at this institute during the past year; of these, 36 were in-patients, 27 were out-patients; 34 of the patients suffered from, in all but 1 case, inoperable malignant disease, 23 of these from carcinoma and 11 from sarcoma. There were 12 cases of rodent ulcer, 6 of exophthalmic goiter, 2 of otosclerosis, 1 of middle-ear deafness, 1 of Paget's disease, 1 recurrent wen, 1 simple tumor, 1 nevus, 1 leukoplakia, 1 warty tumor, 1 of hypertrophied tonsils. Though a cure was not effected in any of the malignant cases, nor, says Turner, considering their advanced nature, was it to be expected, yet in practically all of those who were treated more or less benefit was produced by the relief of pain, the cessation of discharges, the healing of ulcerated surfaces, the removal of local growths and the prolongation of life. In some of the cases radium was used as a prophylactic after the surgical removal of a growth, and sufficient time has not yet elapsed to ascertain its effect.

Remarkable results were produced in some of the malignant cases; thus an epitheliomatous growth was entirely removed, first from the posterior wall and then from the anterior wall of the vagina, so that not a trace of it remained; there has, however, been a recurrence which is being treated. In a rapidly growing periosteal sarcoma of the lower end of the femur in a boy of 13 the application of radium caused the growth to shrink and to become dense, hard and fibrous so that whereas, it bled like an aneurysm on the first introduction of radium, two months later, on a second introduction it scarcely bled at all, and it was so hard and dense that it was only with difficulty that the radium could be inserted.

Malignant disease of the buccal cavity, the pharynx, larynx and posterior nares appears to be less amenable to radium, but this Turner suggests may be partly due to the difficulty of administering a sufficient dose in such positions. Of 12 cases of rodent ulcer, 9 were easily cured; the remaining 3 have not yet been long enough under treatment for the effect to be produced. In the 6 cases of exophthalmic goiter radium was of undoubted benefit, in 1 case apparently bringing about a definite cure.

10. **Applications of Strong Antiseptics to Wounds.**—Bond ascertained by actual clinical observation that the free application of strong antiseptics like pure phenol at the time of operation to extensive wounds, free from disease germs, does not materially affect the healing of such wounds. The usual preparatory treatment as used in the aseptic method is first carried out. In one leg the wound left by the long incision on the inner side of the calf, which may measure 6 or 8 inches in length and (after the necessary dissection) 3 or 4 inches in width, was well rubbed over with pure phenol until the tissues assumed the dirty white appearance characteristic of the reagent. In the other leg of the same patient the corresponding incision was treated with tincture of iodine (B. P. strength). In other patients, out of a number of incisions on the same limb, one was treated with pure phenol, one with tincture of iodine, one with mercuric chlorid solution (1 to 1,000), one with phenol lotion (1 to 20), and the other incisions with no antiseptics at all. The edges

of the wounds were coapted in all cases by Michel's metal clips, and all were dressed alike with plain white sterilized gauze, wool and bandage.

The only difference that could be ascertained in the patients' own sensations after recovery from the anesthetic was that incisions treated with phenol smarted rather less than incisions treated with iodine. There was little or no difference, as far as painful sensations were concerned, between wounds treated with and those treated without antiseptics; such slight irregular differences as were present might well be accounted for by entanglement of delicate nerve endings in the ligatures. It was usually impossible to tell from the appearance of the line of the incisions or the condition of the parts round, after the removal of the dressing on the second day, or at a later period which of the wounds had been treated by one method and which by the other. All healed by primary union without undue local reaction or any elevation of temperature in the ordinary way.

Glasgow Medical Journal

March, LXXXIII, No. 3, pp. 161-240

- 16 Head Injuries. A. J. Wilson.
- 17 Case of Polyglandular Syndrome with Suprarenal Hypernephroma and Adenoma of Pituitary Gland—Both of Small Size. J. Anderson.
- 18 Treatment of Impacted Breech Cases. R. Jardine.

Journal of Laryngology, Rhinology and Otology, London

March, XXX, No. 3, pp. 89-144

- 19 Noise-Deafness: Recent Experimental Work, and Clinical Investigation into Effect of Loud Noise on Labyrinth in Boiler-Makers. T. R. Rodger.
- 20 Some Considerations Which Determine Extent of an Operation in Septic Invasion of Lateral Sinus. H. E. Jones.
- 21 Abnormal Styloid Process Causing Tonsil Irritation. M. Yearsley.

Lancet, London

February 27, I, No. 4774, pp. 419-473

- 22 Treatment of Wounds in War. W. W. Cheyne.
- 23 *Colloidal Iodin Associated with Serum Treatment in Tetanus. Report of Cases. Auregan.
- 24 Headache Associated with Intranasal Disorders. L. H. Pegler. March 6, No. 4775, pp. 479-532
- 25 Operative Treatment of Cleft Palate. H. Blakeway.
- 26 Case of Multiple Pulsating Tumors Secondary to Hypernephroma. F. Taylor.
- 27 Consideration of Some Elementary Principles Involved in Treatment of Soil-Contaminated Wounds. A. G. R. Foulerton.
- 28 Case of Phenacetin Poisoning; Recovery. P. Hamill and T. G. M. Hine.
- 29 *Two Cases of Traumatic Hemoperitoneum. C. H. Whiteford.

23. **Colloidal Iodin and Serum Treatment in Tetanus.**—Auregan has combined colloidal iodine treatment, both in the form of dressings and daily intramuscular injections, with serum treatment in tetanus. Tetanus patients who have been thus treated proved to have survived in a proportion of 68.8 per cent., a percentage distinctly higher than the average proportion of recoveries ordinarily obtained. Ten tetanus patients were treated by serotherapy without colloidal iodine treatment; of these, 4 recovered and 6 succumbed, giving a percentage of 40 recoveries. Fourteen patients were treated by serum therapy combined with colloidal iodine treatment; 10 recovered and 4 succumbed, a percentage of 68.8 recoveries.

29. **Traumatic Hemoperitoneum.**—Two cases are cited by Whiteford. In one case the bleeding came from an infected wound of the liver. A man, aged 22, stabbed himself in the left hypochondrium with a bayonet. The wound opened the peritoneal cavity and celiotomy was performed through the left rectus muscle. A handful of blood clot was removed from between the stomach and left lobe of the liver. Swabs passed into the pelvis returned dry. The source of the bleeding, which had ceased, was the left lobe of the liver, which was completely perforated $1\frac{1}{2}$ inches above its lower border. No other viscus was injured. The abdominal incision was closed and the bayonet track in the parietes packed with gauze soaked in tincture of iodine. Forty-eight hours later the lower abdomen became tense and tender and was drained suprapubically by a tube passed into the pelvis, many pints of blood and peritoneal fluid being evacuated. The gauze in the bayonet track was replaced by a tube. Both incisions

suppurated freely. Food was taken well and the bowels acted regularly. The abdominal condition steadily improved, but the mania became more acute. Most of the known hypnotics were given in heroic doses but failed to secure sleep, and the patient died exhausted seventeen days after the injury.

The second patient was a married woman, aged 39, who had had one child seven years ago but no other pregnancies, and in whom one and a half years ago menstruation began to last from four to seven weeks, without pain or intermenstrual discharge. The loss was not sufficient to cause marked anemia. An operation was performed per vaginam. The uterus was found to be mobile and 3 inches in length, the cervix being unusually long. The only abnormality was a hard, submucous mass, embedded in the right side of the cervix and extending upward in the uterine wall. This mass, which was not encapsuled, was dissected out, the right side of the cervix being divided and closed by sutures at the end of the operation. The mass removed resembled in size and shape the two phalanges of an adult thumb, and was shown by the microscope to consist of a vascular fibrous tissue with no signs of a capsule. Two hours after operation the patient rapidly became collapsed and almost pulseless. The collapse slowly passed off under stimulation and administration of saline solution per rectum. Fifty-six hours after operation there was definite peritonitis with distended immobile abdomen, dullness in the flanks, repeated vomiting and complete intestinal paralysis, pulse 120 and acute pain. A blood count showed leukocytes 13,000 and red cells 50 per cent. below normal. A drainage tube was inserted into the pelvis from above the pubes, evacuating over a quart of blood and peritoneal fluid. The Fallopian tubes palpated through the suprapubic incision were found free and not enlarged. The suprapubic drainage gave immediate and permanent relief to the pain. During the first two weeks broken-down blood clot drained freely per vaginam. Recovery ensued.

Practitioner, London

March, XCIV, No. 3, pp. 343-486

- 30 Injection Treatment of Hemorrhoids. F. S. Edwards and Others.
- 31 Cerebral Paralysis of Uremic Origin. H. B. Shaw.
- 32 Four Cases of Incipient Pulmonary Tuberculosis in Children. D. B. Lees.
- 33 Common Errors in Diagnosis. A. Abrahams.
- 34 Radiology and Electrotherapeutics in War Time. F. Herniman-Johnson.
- 35 Recent Work in Radium, Roentgen Ray and Electrotherapeutics. N. S. Finzi.
- 36 Eclampsia. J. Oliver.
- 37 Recent Work on Nervous and Mental Diseases. H. C. Thomson.
- 38 *Primary Splenomegaly or Splenic Anemia. T. J. Hollins.
- 39 Toxins and Master-Toxins. Study in Tuberculosis. A. W. Robertson.
- 40 Suicide—From General Practitioner's Point of View. J. B. Adams.

38. **Primary Splenomegaly.**—Experimental inoculation of rabbits with the colon bacillus has led Hollins to conclude that primary splenomegaly is due to an active hemic intoxication, and that the colon bacillus can cause all the features of this disease. Whether the colon bacillus is the sole cause, which is probable, or merely one among many causal microorganisms future research, he says, will have to decide. The hypertrophy and fibrosis of the spleen and the anemia are, he believes, due to an active intoxication by this microorganism. It seems suggestive that, in from 50 to 80 per cent. of all cases of cirrhosis of the liver, splenomegaly is found and proves in his opinion that the liver and spleen are attacked simultaneously by a toxic agent. The anemia is hemolytic and due to a specific hemolysin which, in the case of the bacillus coli, may be termed colilysin. That the bacillus coli has a hemolytic action on blood cells Hollins proved by experimenting with a culture in vitro. The microscopic evidence seems to disprove the idea that the anemia is hemolytic, for no deposits of pigment or broken-down cells have ever been discovered in the enlarged spleen, like those seen in the other hemolytic anemias such as pernicious anemia.

Hollins has seen three cases of the disease during the past five years, and has made a special study of it. In these cases, certain clinical facts arrested attention and led him to the

conclusion that this affection is probably due to poisons absorbed from the gastro-intestinal tract, and that these are most likely due to the colon bacillus. This presumption from clinical data has been substantiated fully by experiment. The clinical facts are: 1. Two of the patients were females, and had a history of constipation. 2. Oral sepsis was present in one case. 3. The enormous numbers of colon bacilli present in the diarrheic motions of one case of Banti's disease, met with in the stage preceding death. 4. In one case, nervous lesions resembling those artificially produced by injection of animals with *B. coli* were present. 5. The evidence of other diseases associated with invasion of *B. coli*, especially coliuria. 6. The presence of *B. coli* in the normal spleen. 7. Cirrhosis of the liver is produced by toxins from the gastro-intestinal tract, and probably by the colon bacillus.

Sei-I-Kwai Medical Journal, Tokyo

February, XXXIV, No. 2, pp. 5-13

41 Cremasteric Reflex. S. Oinuma.

Annales de Gynécologie et d'Obstétrique, Paris

July, XLI, No. 7, pp. 385-432. Last indexed Aug. 8, 1914, p. 514

42 *Reciprocal Relations Between Pregnancy and Mammary Cancer.

(Gestation et cancer de la mamelle.) J. L. Faure and A. Pinard.

43 *Operation to Restore Permeability to Fallopian Tube. (Salpingolysis pour stérilité; grossesse consécutive.) Goullioud.

44 Missed Labor with Extra-Uterine Pregnancy. (Rétention abdominale d'un fœtus ectopique à terme en ayant imposé pour une rétention utérine.) A. Fruhinsholz and G. Michel.

42. **Reciprocal Relations between Pregnancy and Mammary Cancer.**—Pinard has encountered in forty years of practice only two cases of pregnancy occurring in women with cancer of the breast, while pregnancy with cancer of the uterus is not uncommon. He reports in detail one of the two cases; the woman's breast had been the seat of a bunch of small torpid tumors for nearly two years. She became pregnant and the tumors began to grow, the aspect near term resembling a bunch of nipples. The breast was excised and delivery followed within two weeks; mother and child are still living over two years later. In the other case a woman of 28 noticed a small tumor in the left breast at the sixth month of a pregnancy. Immediately after delivery the tumor increased rapidly in size and the woman died in four months from generalized malignant disease. No attempt at an operation had been made in this case. Another young woman speedily succumbed to acute cancer of the breast six months after a childbirth, but Pinard does not know whether the tumor had developed first during or after the pregnancy. These experiences emphasize the necessity for prompt removal of every lump discovered in the breast during or soon after a pregnancy. The operation should be done without the least delay and should be as radical as possible.

43. **Operative Treatment of Sterility.**—Goullioud does not believe it is possible for the permeability of the tubes to be restored spontaneously or under medical measures when the obstruction is bilateral, the work of peritoneal adhesions. This obstruction of the tubes in consequence of some unrecognized abortion or of ascending gonorrhea is the main cause of sterility in women. In order to remedy this, he liberates the tube from the adhesions binding it down, and has found that this salpingolysis alone is enough to remove the obstacles to conception. A typical instance is related; the woman had been married for seven years but there had been no pregnancy after an early miscarriage at the third month. She seemed to be quite healthy except for a dragging sensation in the abdomen after fatigue from any cause. The operation revealed slight chronic inflammation in the right adnexa which were removed, and the tube on the other side was freed from adhesions and its permeability thus reestablished. She was delivered of a healthy child two and a half years after this salpingolysis.

Archives Mens. d'Obst. et de Gynécologie, Paris

November, III, No. 11, pp. 193-240

45 *Suppuration in Fallopian Tube Perforating into the Bladder; Three Cases. (Salpingites suppurées ouvertes dans la vessie.) M. Auvray.

45. **Salpingitis Perforating into the Bladder.**—Auvray has been able to find only very few recorded cases of this kind. Probably in many instances the perforation in the bladder escaped notice in the operation on the suppurating tube. His own three patients were women in the thirties, and the history of the case and cystoscopic findings suggested the diagnosis at once. In one case the bladder wall was intensely congested and covered with blisters; in another the two openings had healed when the bladder was examined post mortem. This last patient succumbed to complications of a suppurative kidney trouble. Nothing in cystoscopy had suggested the existence of the pyelonephritis. Experience shows that the fistulas into the bladder scarcely ever heal spontaneously while the kidneys are constantly exposed to ascending infection. Hysterectomy, and preferably by the abdominal route, is the treatment advocated.

Bulletin de l'Académie de Médecine, Paris

February 16, LXXIII, No. 7, pp. 213-476

46 *Provisions for Infant Welfare During the War. (Protection de l'enfance pendant les cinq premiers mois de guerre dans le camp retranché de Paris.) A. Pinard.

47 Wounds of the Ear, Nose and Throat. (Considérations cliniques sur l'oto-rhino-laryngologie en temps de guerre.) E. Moure.

48 *Germs in the Breath. (Transport et multiplication des germes contagieux par l'air expiré.) A. Trillat.

49 The Trench Foot. (Les gelures aux pieds dans les tranchées.) A. Castex.

50 Vital Staining and Electric Tests in Examining Nerves Wounded in War. (La chirurgie des nerfs sous le contrôle direct de l'injection colorée, de la biopsie et des réactions électriques: bio-histo-physiologie.) J. A. Sicard and Others.

51 Operations on Nerves; One Hundred Cases. H. Claude.

46. **Provisions for Infant Welfare During the War.**—Pinard relates the organized work for infants undertaken at Paris when families were disrupted by the call of the breadwinner to the colors. An "office centrale d'assistance maternelle et infantile" was organized on the principle that during a war and as long as the army is kept mobilized every woman without adequate means who is pregnant or has a child under 3 years of age, should be assured the social, legal and medical protection to which she has a right in civilized society. Never have pregnant women been so well cared for; 74 per cent. of the 16,579 childbirths during the first five months of the war were in institutions, some improvised to serve as maternities during the war. Never have all the parturients and young children had so much done for their welfare as in Paris at this time. Comparing the figures with those of the previous year, the result is shown in a much lower morbidity and mortality and there were only 45 foundlings to 662 in the same period in the previous year, and all this notwithstanding the anxiety of the mothers with their dear ones in the trenches. All of the women delivered in the institutions were able to nurse their infants at first. Pinard thinks the time will come when notification of every pregnancy reaching the fifth month will be made compulsory. (See also Paris Letter, p. 1010.)

48. **Germs in Breathed-Out Air.**—Trillat's disquieting views in regard to the transmission of infectious disease were summarized in THE JOURNAL, Jan. 2, 1915, p. 88. The micro-organisms in expired air may serve as nuclei on which moisture becomes condensed. The moist dust thus formed obeys physical laws different from those governing dry dust. His experiments have shown further that the microbes are capable of proliferating in this moist dust and when it alights on any surface. Cold induces condensation of the moist dust on a surface, and this may be one factor in the disturbances and infections which follow getting chilled. The moist dust floats lower and condenses on a surface more readily on cold, damp days, and where many persons are breathing in a crowded room. The volatile nitrogenous substances in breathed-out air serve as nutrients for micro-organisms and promote their proliferation. Infection of others may thus result from later generations of the micro-organisms expelled in the breath. The gases in vitiated air may also rouse to virulence micro-organisms floating dormant in the air as saprophytes. Recent research has demonstrated how slight may be the causes influencing the biologic aptitudes of microbes, how virulence

may be a merely temporary attribute, and how an infectious disease may vary in consequence from the mildest sporadic form to violent explosions of epidemics. (Further details in Paris Letter, p. 1010.)

Presse Médicale, Paris

February 18, XXIII, No. 7, pp. 49-55

- 52 Treatment of Wounds of the Nerves in War. S. Pozzi.
- 53 Wounds of the Genital Organs. E. Delorme. (See Paris Letter, p. 1089.)
- 54 Localization of Metal Foreign Bodies in the Tissues. (Méthode pour localiser exactement les projectiles après la radioscopie.) A. Vergely.
- 55 Iodized Charcoal in Treatment of Infected Wounds. (Charbon iodé dans le traitement des plaies infectées.) L. Lemaire.
- 56 Reenforced Sheet Lead Splints for Fractures. (Gouttières en plomb pour fractures.) Rigot.

Revue Médicale de la Suisse Romande, Geneva

February, XXXV, No. 2, pp. 57-116

- 57 Luxation of the Semilunar Bone of the Carpus; Three Cases. H. Vulliet.
- 58 *Eosinophilia Consecutive to Experimental Resection of the Sciatic Nerve. N. Loewenthal.

58. **Disturbances Following Resection of the Sciatic Nerve.**—Loewenthal has been studying for years the behavior of the sciatic nerve in rabbits after resection. In the course of this research he noted the effect on the skin, lymph glands and blood, and calls attention here in particular to the marked eosinophilia which results in various organs that ordinarily do not contain eosinophils. It is possible thus to influence their production in large numbers, in remote organs, merely by severing this nerve.

Archiv für Verdauungs-Krankheiten, Berlin

February, XXI, No. 1, pp. 1-88

- 59 Importance of Gravity as a Factor in Swallowing. (Ueber den bewegenden Einfluss der Schwerkraft beim Trinken in aufrechter- und Kopfstellung.) J. Schreiber.
- 60 *Etiology of Dysenteriform Affections. H. Strauss.
- 61 Pathology of the Appetite. B. Stiller.
- 62 *Suppurating Bronchial Glands Perforating into Esophagus. (Ueber Bronchialdrüsenentzündung.) G. Kelling.
- 63 Roentgen Findings with Gastric Cancer. (Das Ventrikelkarzinom in typischen Röntgenbildern.) T. E. H. Thaysen.
- 64 *Tetany and Gastric Ulcer. (Tetanie und Magengeschwür.) F. Schilling.

60. **Etiology of Dysenteriform Affections.**—Strauss remarks that dysentery was regarded first as a clinical picture, then as an anatomic condition, and, later than this, as a manifestation of a certain bacterial infection. Recent experience has shown, however, that a number of intestinal micro-parasites are able to induce hemorrhagic disease of the bowel, including paratyphoid and Y bacilli as well as the Flexner and Kruse-Shiga bacilli. Only by examining both the stools and serum is it possible, as a rule, to differentiate the virulent from the harmless types of both acute and chronic dysenteriform affections. In typical chronic colitis gravis, swelling of joints, iridocyclitis and venous thrombosis are not uncommon, testifying to the infectious nature of the process. Tonsillitis or meat poisoning preceded the bowel trouble in some cases. In others, streptococcus or staphylococcus infectious processes accompanied it. In one case of chronic hemorrhagic and ulcerative disease of the lower bowel paratyphoid B bacilli were found—the second instance on record, Strauss remarks, of a chronic paratyphoid affection. He tabulates the findings in seven cases of chronic hemorrhagic colitis in which he applied the agglutination test with both dysentery and paratyphoid bacilli. The trouble had developed in all without any acute onset. The Y bacillus or the typhoid bacillus was agglutinated in one case each and the Shiga-Kruse in two cases, but the findings in the stool did not coincide in any instance. In a still later case serum from a woman of 22, who for over two years had had abdominal pains and bloody stools, agglutinated the Kruse-Shiga bacillus 1 to 200 and the paratyphoid bacillus 1 to 100, but not the typhoid bacilli.

62. **Perforation of Bronchial Glands into Esophagus.**—Kelling describes three cases in which he made the correct

diagnosis of suppurating bronchial lymph glands perforating into the esophagus. The patients were young adults, inclined to "scrofula" and exposed to unusual inhalation of dust or soot. There were no symptoms to attract attention until perforation occurred, and then crumbly, blood-stained products of suppuration or pigmented, ill-smelling masses came up in the mouth when the patients reclined, but there was no vomiting. Other differential symptoms are pains between the shoulder blades, coughing without expectoration, rise of temperature and the Roentgen findings. Sometimes there is difficulty in swallowing and salivation. Esophagoscopy is liable to be dangerous. Gastric ulcer must be excluded. He explores the esophagus with a sponge-holder, as he explains in detail; some of the pus sticks to the sponge.

A cancer in the esophagus usually causes more or less trouble from stenosis, while this is exceptional with lymph-gland trouble. Treatment must be by keeping up the strength with nourishing food which yet must be soft, perfectly chewed, and washed down with fluids to reduce to the minimum the irritation of the esophagus walls. Healing required several months in his cases, the patients keeping quiet and lying down much of the time, as deep inspiration tends to stretch the abscess. Vaccine therapy with bacteria cultivated from the lesion might be considered. It might be possible to rinse out the esophagus with hydrogen dioxid or alcohol, after closing the outlet below with an inflatable bag. Girard advises temporary gastrostomy to leave the esophagus completely at rest or permit its thorough rinsing out, draining away the fluids through a tube in the opening into the stomach. Rehn in one case opened the mediastinum and removed tuberculous glands compressing the esophagus and bronchi, and the patient, a young woman, recovered; there had been no perforation in this case. Kelling does not believe this is practicable when perforation has already occurred, but it might be possible to aspirate out the contents of the abscess with suction, as with Bier's suction-pump devices. A long, oval bulb, studded with holes, on the end of a catheter connected at the other end with a rubber bulb might answer the purpose, the patient breathing deep as the suction is applied.

In all the cases the clinical picture suggested gastric ulcer at first, except for pain in the back at the fourth thoracic vertebra; sometimes the spinous processes along here were tender. Fibers of the vagus are liable to be compressed and cause reflex pain and other disturbances, even paralysis of the vocal cords or laryngospasm. The mouthful of food swallowed sticks in the esophagus for a moment and then slides gradually onward; there may be pain at the manubrium.

64. **Gastric Ulcer and Tetany.**—Schilling reports two cases which confirm the fact that tetany may develop merely from excessive concentration of the blood from loss of blood or other fluids with gastric ulcer. Fluids by the rectum were not absorbed fast enough to ward off the tetany. One of the patients died in the attack of tetany; her complaints of intense thirst had not been sufficiently heeded. Subcutaneous or intravenous infusion in time would probably have saved her.

Correspondenz-Blatt für Schweizer Aerzte, Basel

February 20, XLV, No. 8, pp. 225-256

- 65 *Theory and Practical Importance of the Wassermann Reaction. W. v. Gonzenbach. Commenced in No. 6.

65. **The Wassermann Reaction.**—Gonzenbach writes from the Hygienic Institute at Zurich that material sent in from all over that part of Switzerland has sustained the general view that, while a positive Wassermann is not specific, yet it is so characteristic that a positive reaction in the absolute absence of syphilis is so exceptional that the possibility need not be regarded in practice. He warns, however, that a positive reaction indicates merely syphilis in the system; a dubious manifest lesion may be of other nature. Bruck has reported two cases of leukoplakia of the tongue with a tumor on the tongue and positive Wassermann. The microscope showed that the tumor was a cancer in one case, and tubercle bacilli were cultivated from the tumor in the other case.

Gonzenbach tabulates the findings with the test in the various stages of syphilis in 3,755 cases. In 57 cases of aortic insufficiency the reaction was positive in 37; in 15 of 31 cases of aneurysm of the aorta, but only in 9 of 52 cases of other heart affections and in 2 of 27 cases of arteriosclerosis. In disease of the central nervous system, the reaction was constantly negative in all the 26 multiple sclerosis and 13 polyneuritis cases. In 16 cases of pernicious anemia the reaction was positive in 4, and in one of them a complete cure was realized under specific treatment. The findings in 911 eye cases showed the prominent rôle played by syphilis in atrophy of the optic nerve (29 per cent.) oculomotor paralysis (51.9 per cent.) and keratitis (55.7 per cent.). Of the total material sent to the institute for investigation, a negative Wassermann was obtained in 61.4 per cent. of the 10,193 cases. A change from positive to negative under treatment occurs more readily with recent than old infection; refractory cases are not uncommon when the interval is over three years.

Deutsches Archiv für klinische Medizin, Leipzig

CXVII, No. 2, pp. 79-127. Last indexed February 20, p. 702

- 66 Laws Regulating the Concentration of the Serum as Studied with the Refractometer. (Zur Frage der Restitution der Serumkonzentration.) J. Löwy.
- 67 Importance of Measurement of Pulse Energy in Study of the Cardiovascular Apparatus: Sphygmobolometry. (Untersuchungen mit dem neuen Sphygmobolometer nach Sahli.) C. Hartmann.
- 68 Research on the Dynamics of the Pulse; the Energometer and the Volumometer. (Die Füllung des Pulses und das Pulsvolumen.) T. Christen and H. Sahli.
- 69 Pathology of the Blood with Chronic Lead Poisoning. (Zur Pathologie des Blutes bei der chronischen Bleivergiftung.) Schnitter.

Deutsche medizinische Wochenschrift, Berlin

February 18, XLI, No. 8, pp. 213-240

- 70 *The Water Supply in Villages Entered by the Troops. (Schnelluntersuchungen und provisorische Verbesserungen von Brunnen im Kriege.) K. Kisskalt.
- 71 Grazing Wounds of the Skull. (Streifschüsse an der Schädelkapsel.) Noehte.
- 72 Transportable Extension Splint. H. Töpfer.
- 73 Substitutes for Iodin in Sterilizing the Skin. (Zur Desinfektion des Operationsfeldes mit Jodtinktur oder anderen Arzneimitteln.) J. Schumacher.
- 74 Aviator Darts. (Fliegerpfeil-Verletzungen im Kriege.) H. Rimann.
- 75 *Disease of the Liver Accompanying Heart Disease. (Kardio-pathische Hepatitis.) P. Heinrichsdorff.
- 76 Secondary Rays in Deep Roentgen Treatment as Substitute for Radio-Active Substances. II. F. Salzmann.
- 77 *Probably Non-Tuberculous and Non-Rachitic Hip-Joint Trouble in Boys. (5 Fälle der Calvé-Perthesschen Krankheit.) K. Michelsen.
- 78 Metallic Mercury, etc., to Ward Off Lice. (Zur Bekämpfung der Läuseplage.) A. Blaschko.

70. **Provisional Measures for Improving the Water Supply.**—Kisskalt refers to the water supply in places entered by the troops, and gives summary directions in regard to examination of wells, improving those capable of improving, closing those that are hopelessly contaminated, and digging new ones. Recent research has demonstrated that ammonia and large amounts of organic substances may be found in wells that are above reproach, while frequently the water is chemically pure in an uncovered well. He says that a well must be regarded as incapable of improvement if there is danger of contamination and the sides are of wood, peat or uncut stones. By letting down a lantern into the wells it is easy to see where dirt-bringing water seeps through a brick or cement wall. The cover should be made water-tight with roofing paper or sheet iron. A few pounds of chlorinated lime shaken into the water will stop the use of a hopelessly contaminated well, or it can be rendered unfit for human use, without harm to cattle, by coloring the water with fluorescein.

75. **Cardiopathic Hepatitis.**—Heinrichsdorff insists that with disease of the heart the liver suffers also not only from interference with its circulation but also from the toxic action of the cause primarily responsible for the heart disease itself. This toxic action is felt not only by the heart but by the liver also. It entails in the latter central degeneration of the acini and inflammation of Glisson's capsule. These changes in the liver coordinated with the changes in the heart can be called cardiopathic hepatitis, to distinguish the condition from that

with mechanically produced congested liver. He describes the various changes induced, the chronic form finally running into fibrosis. The congestion and the toxemia may affect the liver when the heart is injured only secondarily. Hence the same pathologic findings in the liver may be encountered with pulmonary tuberculosis and vascular and kidney affections. Even when there is no impeding of the circulation in the liver, the discovery of heart disease throws light on the causes of a liver affection. This non-cyanotic heart-liver trouble is the clearest evidence we have testifying to the toxic origin of the affection.

77. **Juvenile Deforming Osteochondritis.**—Michelsen's article has appeared elsewhere and was summarized in these columns Oct. 24, 1914, p. 1514. The diagnosis is based on the extensive changes in the bone, shown in the Roentgen picture, and the negative tuberculin skin reaction. Treatment should be with massage to prevent atrophy of the muscles, with rest for the joint at other times. It is better to have the child use crutches, with a thicker sole on the sound foot, to keep from use of the limb affected as long as the trouble seems to be progressive. In twenty known cases, seventeen were in boys. The age is usually between 5 and 10. The trouble is not of an inflammatory nature but resembles more the disturbance in the scaphoid bone and patella to which Köhler called attention; all are probably of nutritional or vascular rather than traumatic origin.

Deutsche Zeitschrift für Chirurgie, Leipzig

January, CXXXII, Nos. 5-6, pp. 381-604

- 79 *Local versus General Anesthesia in Surgery. (In welchem Masse kann die Lokal- und Leitungsanästhesie die Allgemeinnarkose in der Chirurgie ersetzen?) E. Holzwarth.
- 80 Wound from Navy Signal Pistol. (Ueber Signalpistolenschüsse ohne Hautperforation; einfacher Lochbruch des Schädels.) M. zur Verth and K. Scheele.
- 81 *Splénomegaly with Anemia. G. Zaccarini.
- 82 *Primary Acute and Subacute Purulent Osteomyelitis of the Vertebrae. J. Volkmann.
- 83 *Surgery of the Stomach and Its After-Effects. (Magenchirurgische Probleme, insbes. die Wirkung der Gastroenterostomie.) H. Brun.
- 84 Experiences with Nail Extension. (Nagelextension.) A. Grabowski.
- 85 Wounds of the Nerves in War and Use of Calf's Artery as Protecting Sheath. G. Hirschel.
- 86 Surgical Experiences at the Western Seat of War. Simon.
- 87 Anatomic Results of Operative Treatment of Habitual Dislocation of the Shoulder. R. Selig.
- 88 *High Urobilinogen Content in Urine in Appendicitis a Sign of Destructive Lesions. E. Eisner.

79. **Local Versus General Anesthesia.**—Holzwarth reports that of the last 1,438 major operations at Budapest, in only 71 was the anesthetic given by inhalation; the others were done under direct local anesthesia or by blocking the nerve. This includes the entire material in Dollinger's service; Braun's technic was usually followed. A curtain on a small frame shuts off the patient's view of all but the "moral anesthetist" whose task it is to divert the patient's attention. The general condition after the operation is so far superior to that after general inhalation anesthesia, that this alone, he reiterates, would turn the scale in favor of the local anesthesia or nerve blocking. Their technic is so harmless and they have so many points of advantage over the inhalation method that he urges more general use of them and extension of their sphere.

81. **Splénomegaly.**—Zaccarini's long article is a detailed study of the histology and clinical manifestations of enlarged spleen and the results of its removal. The patient in the case described was a woman of 40 whose spleen had been enlarging for five years while severe anemia kept pace with it, a typical case of Banti's disease. The woman died with suddenly developing fever the sixteenth day after the spleen had been removed. It weighed 1,800 gm. The disturbances in the circulation were evidently secondary to the primary changes in the spleen.

82. **Osteomyelitis of the Spine.**—Volkmann summarizes all the cases of osteomyelitis of the vertebral column which he has been able to find on record, classifying them according to the vertebrae involved—a total of 90 cases including 4

from his own experience. In 68.8 per cent. of the cases the onset was stormy. In a few cases the affection ran such a fulminating course that necropsy alone revealed what was the trouble, and only in about a third of all the cases was the osteomyelitis differentiated during life. A history of furuncle, abscess, eczema or felon should suggest the possibility of osteomyelitis, or a trauma affecting the spine. If the patient has complained of vague pains, perhaps radiating into the limbs, and gradually becoming localized in the spine, this should suggest spinal trouble, and by palpating and tapping on the vertebrae it may be located. If an exploratory puncture reveals pus, an operation should follow at once.

In 18 cases the osteomyelitis was mistaken for typhoid, for tuberculous spinal trouble, rheumatism, meningitis or pneumonia, influenza, general sepsis, glandular fever, torticollis, acute myelitis, Landry's paralysis, subphrenic, paranephritic or lumbar abscess, kidney colic, peritonitis or appendicitis. The symptoms may deceptively simulate meningitis except that there is seldom enlargement of the spleen or herpes. With rheumatism, there is never any tendency to a hump or gravity abscess, and the pains seldom cling to one spot. The total mortality was 41.8 per cent.; this is a great improvement over the record a decade ago. But when the spinal cord was involved, the mortality averaged 60 per cent. Incision and curetting of the focus should be supplemented by horizontal extension to prevent deformity of the spine. The after-care is particularly important when the cervical vertebrae are involved. A psoas abscess requires an ample incision.

83. Gastric Ulcer.—Brun argues that the primary factor is spasm of the pylorus. This causes the pain, the retention of stomach content and the resulting hypersecretion. When a gastro-enterostomy puts an end to the causes which have been inducing the pylorospasm, then the pains stop at once although the ulcer has not yet had a chance to heal, so the ulcer is not responsible for the pains. This suggests that possibly an operation on the pylorus or on the vagus innervating it might remove the cause for the ulcer. He declares that surgeons should analyze the functional disturbances more, instead of studying merely the pathologic-anatomic findings. Among the suggestions he makes along this line is that it might be possible to connect with a segment of duodenum the esophagus and the stomach, thus bridging over a cancer at the cardia, a palliative makeshift like a gastro-enterostomy.

88. Diagnosis of Destructive Appendicitis.—In cases of appendicitis Eisner examines the urine for urobilinogen, and he has always found it in abnormally large amounts when there was a destructive lesion in the appendix.

Monatsschrift für Geburtshilfe und Gynäkologie, Berlin

February, XLI, No. 2, pp. 109-188

- 89 *Diagnosis of One or More Placentas at Birth of Twins. (Diagnose ein- oder zweieiiger Zwillinge ante und intra partum.) F. Ahlfeld.
- 90 *The Sugar Content of the Blood in Eclampsia. (Blutzucker und Eklampsie.) J. Widen.
- 91 Efficacy of Diathermy in Treatment of Inflammation in the Ovaries or Tubes. S. Recasens.
- 92 Large Papillary Adenocystoma of the Labii majoris of Fetal Origin. H. Ehrlich.
- 93 *Radium Treatment of Cancer of the Uterus. (Gebärmutterkrebs.) L. Adler.

89. Twin Births.—Ahlfeld states that if there is but one placenta, the second twin still in the uterus is liable to be bled to death if the cord of the first twin born is not ligated on the side toward the placenta. But as this is, or should be, the routine procedure, it is really of no practical importance to determine whether the twins are derived from one ovum or more. Nevertheless he reviews the signs and symptoms which point to one or the other. The blood spurts or pulsates rhythmically in the severed cord only if there is a single placenta, and not always then. If the sex of the twins is different, this speaks for two ova, as also when the membranes around the second twin consist of both chorion and amnion.

90. Sugar in the Blood and Eclampsia.—Widen used Bang's micromethod for determining the sugar content of the blood. As this requires only a drop of blood, he repeated his examinations before, during and after the convulsions, at various stages of the disease, and reports here the findings in eight cases. In every case, the women had abnormal amounts of sugar in the blood at times but not constantly. In the one case with fatal outcome, only very slight hyperglycemia was found and only once. In the others it fluctuated; the average ranged from 0.16 to 0.27 per cent. and the duration from one to seven days. The patients had from two to forty convulsions in all.

The severer the case, the lower the vitality and blood pressure, the less the tendency to hyperglycemia. It thus may aid in the prognosis. In one of his cases the hyperglycemia first became manifest when the woman was in profound coma. Its appearance justified a favorable prognosis, confirmed by the outcome. It seems to parallel the intoxication up to a certain point; when the intoxication passes this, then the system is unable to respond with hyperglycemia. The sugar content of the blood did not seem to be influenced by evacuation of the uterus. No connection was apparent between the hyperglycemia and albuminuria. In five cases of simple albuminuria without eclampsia, the sugar content was normal or only slightly and transiently above, but in one case of uncontrollable vomiting at the third month of pregnancy the sugar content was quite high. The sugar content in the blood from the umbilical vein was never above normal in the eclampsia cases, even when it was abnormally high in the maternal blood.

93. Radium Treatment of Uterine Cancer.—Adler operates in all operable cases but when this was not possible he has found radium treatment of great benefit. The technic is strictly individualized, the dosage moderate. In the last few months he has made a practice of prophylactic exposures after operating. He begins it about the tenth day, continues at four weeks' intervals, using at most 50 mg. at a ten hour sitting. He makes a point of testing the susceptibility of the patient, placing on the skin capsules with varying amounts of radium and with various filters, thus determining the individual erythema dose. As much of the inoperable growth as possible is removed, and then after an interval of two or three days, five exposures are made, each for twelve hours, the intervals between the exposures ranging from twelve hours to several days according to the local and general reaction. A second and a third series are then given after suspending for three or four weeks. The amount of radium used varied from 29 to 50 mg.

Thirty-four patients have been given radium treatment on these principles, and of the 18 who have completed the course, one has died since from abscesses in the lungs; 3 were not benefited or merely improved, but the 14 others are clinically cured. This includes 9 cases of cancer of the cervix; 2 of the body of the uterus; 2 of the rectum and 1 of the vagina. All were inoperable except in one case in which the patient had refused an operation; it was contra-indicated by severe diabetes or obesity plus age in the others.

Wiener klinische Wochenschrift, Vienna

February 18, XXVIII, No. 7, pp. 169-196

- 94 Improved Technic for Precision Stereoscopic Roentgenograms. (Neues Verfahren zur Raummessung an stereoskopischen Aufnahmen, insbes. an Röntgenaufnahmen.) W. Trendelenburg.
- 95 *Inoculation Against Cholera. (Choleraschutzimpfung.) O. Buiwid and L. Arzt.
- 96 General Principles for Treatment of Tetanus. (Behandlung des Wundstarrkrampfes.) H. Hinterstoisser.
- 97 *Extension for Fracture of the Legs in War. (Einige technische Behelfe zur Behandlung von Schussfrakturen der unteren Extremität.) G. Engelmann.

95. Inoculation Against Cholera.—Buiwid tabulates the details of forty-seven cases of cholera which developed among men who had previously been inoculated against this disease. Also of sixteen other cases in which men had been inoculated while already under the influence of cholera. The data confirm the far-reaching influence of the inoculation in preventing cholera and in attenuating it if it develops later. When the inoculation was done during the incubation of

cholera, its course was not aggravated thereby but rather the reverse; none died in this group. The 6.3 per cent. who died had been given only one of the three injections regarded as necessary for complete inoculation.

97. Simplified Splints.—Engelmann comments on the enormous numbers of splints required for the wounded, and the necessity for their being extra strong, simple and interchangeable. Plaster casts are too much trouble to make. To meet these requirements he has devised an extension splint which is proving extremely satisfactory. It is described with twelve illustrations showing the application of the principle for patients able to be up and for those in bed. For the former, the splint consists of two strips of metal connected with a ring at the top which fits over the thigh as high as it can be pushed up against the crotch. It is fastened at the lower end with a spike on each side which is driven into the shoe between the sole and the upper, close to the heel. A slide and thumb screw on each strip adjust it to the proper length. The trouser leg is slit and cut across above and below the lesion so it can be turned back and buttoned across the back to a row of buttons mounted on the outer strip of metal forming the splint.

Zeitschrift für Geburtshilfe und Gynäkologie, Stuttgart

LXXVI, No. 3, pp. 677-908. Last indexed January 23, p. 376

- 98 *Etiology of Chorea in Pregnant Women. H. Albrecht.
99 Jaundice of the Newly Born an Infectious Disease. (Der Kernicterus der Neugeborenen eine Infektionskrankheit.) B. Pfälzer.
100 Intolerance of Fibromyomatous Uterus with Twin Pregnancies. F. Montuoro.
101 *Treatment of Placenta Praevia. C. H. Stratz.
102 Pathologic Functioning of Mammary Glands. (Zur Pathologie der Brustdrüsensekretion.) P. Lindig.
103 Indications and Contra-Indications for Use of Hypophysis Preparations in Obstetric Cases. E. Vogt.
104 Mechanism of Pathologic (Straight) Engaging of Fetal Head. (Etiologie des hohen Gradstandes, dargestellt an 6 eigenen im Laufe von einem Jahr beobachteten Fällen.) H. Martius.
105 Etiology of Jaundice of the Newly Born. T. Heynemann.
106 Changes in the Parietal Decidua with Exochorial Pregnancy. (Endometritis uteri gravid praecipue traumatica.) H. Hinselmann.
107 *Diagnostic Significance of the Antitryptic Power of the Serum. (Antitryptischer Titer des Blutserums.) T. Chotzen.
108 Absorbing Capacity of the Puerperal Genital Organs. F. Ahlfeld.

98. Chorea Gravidarum.—Albrecht reports a case of recurring chorea during each pregnancy, promptly cured by serotherapy. The recurrence sustains his assumption that the chorea is a manifestation of toxic injury for which the pregnancy is responsible. This assumption is further corroborated by the prompt cure under serum treatment as for a pregnancy toxicosis. The chorea returned at the young woman's second pregnancy, and treatment with sedatives for twenty-two days gave no relief; then 20 c.c. of serum from a normal pregnant woman was injected and within twenty-four hours the severe chorea that had tormented her for over three months, subsided permanently. He suggests that a similar toxic action during the prepuberty stage may be the explanation of chorea in the young—the approach of puberty is causing more or less of a revolution in the internal secretion system, like the changes inaugurated by gestation.

101. Placenta Praevia.—Stratz has had 173 cases of placenta praevia in his care and has lost but one of the patients, and this was one of his very first cases. Of the children, 77 were born dead and 20 had long been dead, a mortality of 45 per cent. The statistics for the entire Netherlands in 1914 were 881 cases with mortality of 7 per cent. among the mothers and 43 per cent. of the children. In 236 cases in which the Braxton Hicks method was systematically applied, 2.7 per cent. of the women succumbed and 68 per cent. of the children. Analysis of this material confirms the value, with slight hemorrhage, of absolute quiet and narcotics for the mothers; no tamponing under any circumstances. If there is considerable hemorrhage, version according to Braxton Hicks; under constant oversight, without pulling hard on the foot; allowing spontaneous expulsion up to the shoulders. Delay extraction as long as possible and do it with extreme caution.

The inflatable bag is not required when the case is managed in this way. Cesarean section should not be considered unless the woman is very anxious for a living child or other complications compel it. It is hard to sacrifice the child to the mother's safety, to listen to the heart sounds dying out before the moment has come when the rest of the child can be safely delivered. But to hesitate and think of the child is to juggle with the life of the mother. He adds that it takes more moral courage to deliberately sacrifice the child in this way than to yield to the impulse to venture the utmost to save both mother and child. In conclusion he reiterates his warning against tamponing at the beginning of the childbirth, and against haste in extracting the child. The indispensable condition for correct and successful treatment of placenta praevia is the rock-firm conviction that the Braxton-Hicks procedure is all that is necessary, and that it will certainly save the mother's life.

107. Diagnostic Significance of the Antitrypsin Titer of the Serum.—Chotzen tabulates the findings in 134 different persons, including 57 pregnant women and 40 with cancer. They show that the antitrypsin titer is regularly increased in pregnancy and with cancer, so that negative findings tend to exclude both.

Zeitschrift für Urologie, Berlin

January, IX, No. 1, pp. 1-40

- 109 Special Electrode for Diathermy in Treatment of Gonorrhea. R. Boerner and C. Santos.
February, No. 2, pp. 41-80
110 The Organic Framework of Bladder Stones. (Das organische Gerüst der Harnsteine.) E. Pfister.

Zentralblatt für Chirurgie, Leipzig

February 20, XLII, No. 8, pp. 113-128

- 111 *Experiments with Therapeutic Chilling of Tissues and Organs. (Abkühlung von Geweben und Organen.) O. Lanz.
112 Advantages of Extension in Treatment of Wounds of the Pelvis. (Extensionsverband bei Verletzungen der Beckengegend.) W. Levy.

111. Action of Transient Cold on the Tissues.—Lanz has always been impressed with the way in which the skin bears freezing with ethyl chlorid without resulting injury, while the action of a corresponding amount of heat causes a severe burn. Even inflamed tissues and tumors do not make the skin over them more sensitive to the ethyl-chlorid freezing. He noticed, however, in his experiments in this line that anemic persons and those with thyroid insufficiency seemed to react with more disturbance to the freezing. On the basis of this he gave thyroid treatment to patients with chilblains, and it was a success. Cross-fire application of the ethyl chlorid did not seem to modify various organs when applied to animals, even in an intensive form. The freezing also proved impotent to arrest bleeding; the blood stopped flowing when a frozen cake of blood obstructed it, but it flowed again when the cake thawed. It is possible, he adds, that by freezing in this way we might be able to arrest temporarily the functioning of an organ without injury. This would be a useful aid in study of the glands with an internal secretion. Diathermy might perhaps answer the same purpose, with better control.

Zentralblatt für Gynäkologie, Leipzig

February 20, XXXIX, No. 8, pp. 113-128

- 113 Treatment of Pregnancy Kidney and Eclampsia. M. Steiger.

Policlinico, Rome

February 14, XXII, No. 7, pp. 221-252

- 114 *Artificial Pneumothorax. G. Breccia. Commenced in No. 6.
January, Surgical Section, No. 1, pp. 1-52
115 Tissue Flaps to Arrest Hemorrhage in Parenchymatous Organs. (L'emostasi negli organi parenchimatosi dell'addome a mezzo di trapianti liberi di tessuti.) A. Pignatti.
116 *Spontaneous Perirenal Hematoma. A. Bevacqua. Commenced in No. 12, XXI.
February, Medical Section, No. 2, pp. 49-96
117 *Efficacy of Vaccine Therapy of Typhoid. V. Pensuti.
118 *Fatal Diplococcus Sepsis in Child. (Sindrome emorragica acutissima e setticemia diplococcica.) O. Moreschi.

114. **Artificial Pneumothorax.**—Breccia concludes this long study of the mode of action of a therapeutic pneumothorax by emphasizing the modifications it induces in the functioning, the circulation, the dynamics and the trophic conditions in the region. The conditions in these respects are abnormal, to start with, in a lung containing a disease process, and the latter maintains and aggravates a vicious circle. All this is arrested by the collapse of the lung under the artificial pneumothorax, while the other lung is stimulated to extra work, and by its increased functioning becomes less susceptible to disease.

116. **Perirenal Hematoma.**—Bevacqua describes a case in which the pathogenesis of the perirenal hematoma was manifest. The patient was a man who had succumbed to pneumonia. There were signs of old syphilis and the large perirenal tumor proved to be an old hematoma encircling and crowding out the kidney. A small miliary aneurysm and a ruptured artery were found in the region and the inner surface of the adipose capsule had also evidently contributed to the hematoma. He published the case ten years ago, but brings it up again to compare it with twenty-three other cases that have been published since. He tabulates the details of them all, classifying the intracapsular and the extracapsular cases, diffuse or cystic.

117. **Vaccine Therapy of Typhoid.**—Pensuti is convinced that antityphoid inoculation has a future as an effectual method of treating typhoid. He declares that his experience with sixty-nine cases certainly justifies this assumption as he describes in detail. Eighteen of his patients were children.

118. **Diplococcus Sepsis.**—Moreschi relates the clinical course and necropsy findings in a case of what he calls an extremely acute hemorrhagic syndrome and diplococcus sepsis in a boy of 5, fatal the tenth day. The history of the case showed a constitutional tendency to ecchymosis at the slightest excuse, and this hemorrhagic predisposition produced a unique syndrome when the toxic-infectious diplococcus septicemia became superposed on it. A colored plate shows the blood findings and the findings in the bone marrow and lungs.

Brazil-Medico, Rio de Janeiro

January 22, XXIX, No. 4, pp. 25-32

- 119 Convulsions Following Administration of Camphor Bromid. W. de Almeida.
- 120 Lipoids and Blood Production. (Hematose e lipoides.) P. Heger and D. Baruch.
February 1, No. 5, pp. 33-40
- 121 Discovery of Selenomonas in Cecum of a Rodent. A. M. da Cunha.
- 122 Solitary Bone Cyst. (Caso de kysto osseo.) C. Werneck and R. D. Estrada.
February 8, No. 6, pp. 41-48
- 123 Mesothorium in Treatment of Uterine Cancer. F. Magalhães.

Mitteilungen a. d. med. Fakultät der k. Univ. Tokyo

XIII, No. 2, pp. 197-409. German Edition. Last indexed p. 1039

- 124 Case of Myeloid Chloroma. K. Sakaguchi.
- 125 *Heart Block. (Zur Kenntnis der Dissoziation des Herzens.) S. Sakai.
- 126 *Pathologic Anatomy of Paratyphoid B. Infection. H. Sawasaki.
- 127 Epithelium of the External Sulcus Spiralis. T. Wada.
- 128 Changes in Blood of Rabbits After Injection of Typhoid Bacilli. I. S. Tachigara and Y. Miura.
- 129 Local Changes After Subcutaneous and Intravenous Injection of Salvarsan. K. Moteki.
- 130 Mouse Tumors. (Erfahrungen mit Mäusetumoren.) T. Aoyama.
- 131 Improved Test for Sugar in Small Amounts of Blood. N. Kamimura. (See THE JOURNAL, July 25, 1914, p. 355.)
- 132 Ocular Symptoms and Flaccid Paralysis with Cerebellar Tumor. (Fall von doppelseitiger Blickparese supranucleären Ursprungs mit ausgedehnter Muskelhypotonie bei einer Kleinhirnerkrankung.) T. Mitamura.

125. **Heart Block.**—Sakai compares the electrocardiograms and necropsy findings in two cases of heart block with what has been written on the subject, describing some special features of one of his cases. Two colored plates accompany the article.

126. **Paratyphoid Infection.**—Sawasaki summarizes nineteen cases of paratyphoid infection from the literature, including

several he has previously published himself. It seems to be a septicemia, and the principal pathologic-anatomic findings are the tumefied spleen, the enlarged mesenteric glands, parenchymatous degeneration of various organs, and swelling and ulceration of the lymphatic tissue in the small and large intestines. Abscesses are sometimes found in internal organs. The aspect and structure of the ulcerations resemble those of typhoid, but the arrangement is more that of dysentery. Bacteriologic examination is the only certain means of differentiation.

Hygiea, Stockholm

LXXVII, No. 2, pp. 49-95

- 133 *Diabetes Insipidus of Hypophysial Origin. (Fall av diabetes insipidus av sannolikt hypofysärt ursprung.) G. Krikortz.

133. **Diabetes Insipidus Following Meningitis.**—Krikortz relates that a previously healthy little girl of 6 developed polyuria with general depression. After a few weeks of this, headache, stiff neck and almost total blindness came on, with other signs of cerebrospinal meningitis. The meningitis evidently was most predominant in or restricted to the region of the hypophysis, so that the symptoms of diabetes insipidus had been for a long time the only signs of trouble. The inflamed tissues had probably compressed the pedicle of the hypophysis and thus shut off its secretion from the blood, bringing on the diabetes insipidus. Syphilis can be excluded in this case; the meningitis was probably of tuberculous origin although no bacilli could be discovered in the fluid drawn by lumbar puncture. The symptoms of meningitis gradually subsided; vision improved by the fifth month and the girl began to walk again. The gait is still slightly spastic and there is some conjugated deviation of the eyes but nothing pathologic in the fundus of the eye.

Nordisches medizinisches Archiv, Stockholm

XLVII, Surgical Section No. 1, last indexed Nov. 28, 1914, p. 1990

- 134 Arthrodesis of the Shoulder for Deltoid Paralysis; Nine Cases; Results Excellent. G. Asplund.
- 135 Important Operative Indications Learned from Laparoscopy. H. C. Jacobaeus.
- 136 Successful Operation for Large Intrathoracic Goiter. E. Key.
- 137 Malformations of Female Genital Organs. (Einige Fälle von Missbildung der weiblichen Geschlechtsorgane.) J. Kaarsberg.
- 138 Pathology of the Biliary Passages from the Clinical Standpoint. (Einige Fragen der Gallenwegpathologie in klinischer Beleuchtung.) J. Berg.

Ugeskrift for Laeger, Copenhagen

February 11, LXXVII, No. 6, pp. 209-240

- 139 *Sugar in the Blood in Diabetics. (Blodsukkerbestemmelser—Ivar Bang's Mikrometode—hos Diabetikere og deres kliniske Betydning.) M. Lauritzen.

139. **The Sugar in the Blood in Diabetics.**—Bang's method of determining the sugar content of the blood is proving remarkably simple and reliable while only 0.1 c.c. of blood is required for it. Lauritzen has applied this test repeatedly to 100 diabetics, and here tabulates the findings before and after dietetic measures, classifying the cases with and without hyperglycemia, acetonuria, acidosis, kidney disease or exophthalmic goiter. This experience demonstrates the convenience of this test in detecting an abnormal sugar content in the blood with diabetes. It thus throws light on the prognosis in cases in which the acetonuria or diaceturia does not reveal the grave prognosis. Equally important is the information to be derived from the test in respect to the effect of treatment; repeated examination of the blood for sugar thus enables supervision of the course of the case.

Instead of relying on the sugar content of the urine as the guide to treatment, we now, with this simple test, can select the diet with which there is no hyperglycemia after meals. This is the criterion, and it is important, as we can thus ward off complications such as neuralgia, gangrene, skin affections and tuberculosis. In mild and moderate cases without complications it enables us thus to steer clear of hyperglycemia, because hyperglycemia destroys the tolerance in diabetes. (The technic for Bang's "micromethod" was described in THE JOURNAL, Nov. 22, 1913, p. 1942.)

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SCHICK REACTION

WITH A REPORT OF EIGHT HUNDRED TESTS

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Systematic observations by numerous workers, notably among them Schick¹ of Vienna and Park² of New York, indicate that the blood serum of about 80 per cent. of the new-born, from 50 to 60 per cent. of children and 90 per cent. of adults* contains sufficient diphtheria antitoxin to make them insusceptible to diphtheria, and hence makes it unnecessary for them to receive a prophylactic injection of diphtheria antitoxin. Experience bears out this statement.³

A practical method for determining whether or not a person is susceptible to diphtheria has recently been devised by Schick¹ while working in von Pirquet's clinic in Vienna. The reaction⁴ depends on the local irritant action of minute quantities of diphtheria toxin when injected intracutaneously, in the absence of antitoxin.

Schick's results are in accord with those obtained by the more elaborate method of Römer⁵ which makes it possible to titrate accurately the amount of antitoxin in the blood serum. Briefly Römer's method consists in the intracutaneous injection in guinea pigs of a defi-

nite minute quantity of diphtheria toxin and a definite amount of the serum to be tested for antitoxin. If no necrosis results, the toxin has been completely neutralized by the available antitoxin in the serum.

For the carrying out of the Schick tests it is essential to have an accurate 1 c.c. all glass hypodermic syringe, having a scale divided into ten parts, and a short, sharp, fine platinum iridium needle, sufficiently fine to be introduced between the layers of the skin. To introduce the needle, have the opening or beveled aspect of the point looking upward and hold the head of the syringe lower than the point when introducing the needle into the skin.

TECHNIC

The skin of the flexor surface of the forearm (upper one-third) is prepared by cleaning with tincture of green soap and 95 per cent. alcohol. With the thumb and first finger of the left hand pinch up a small portion of the skin and carefully insert the needle into, but not through the skin so the opening in the point of the needle is covered and so the needle can be seen beneath the superficial layer.

A dilution of a fresh standard diphtheria toxin is made of such a strength that 0.1 c.c. contains 1/50 of the minimum lethal dose for a 250-gm. guinea pig, and this is injected, pressure being exerted in an upward direction. If the injection has been properly given, there is to be seen at once

a white bleb-like elevation which persists for several minutes and is distinctly studded with little pits corresponding to the opening of the hair follicles.

RESULTS

The results are available at the end of twenty-four hours. If antitoxin is absent or present only in very small amounts—insufficient for protection—a positive reaction appears, which is characterized by a constantly increasing circumscribed area of redness (halo) and induration of from 10 to 25 mm. in

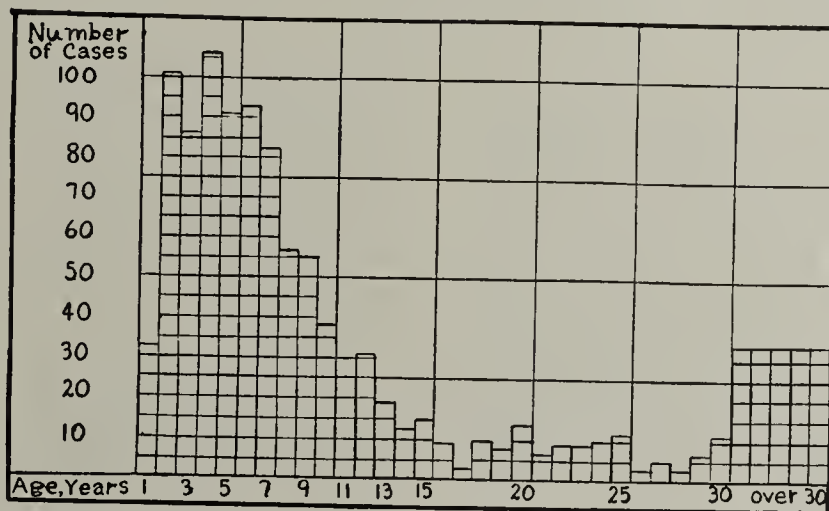


Chart 1.—Distribution of ages in 1,000 cases of diphtheria reported to the Department of Health, Chicago, November and December, 1914. The figures above 30 years are distributed through five periods on chart while in reality it considers all cases above 30 years, hence apparent high percentage.

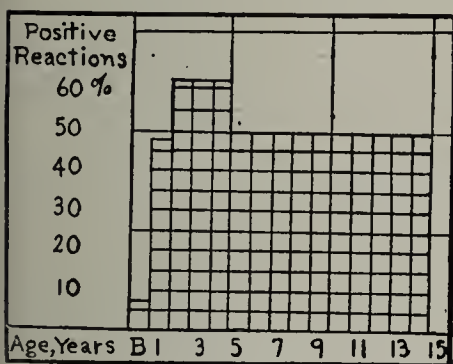


Chart 2.—Per cent. positive Schick reactions (747 tests).

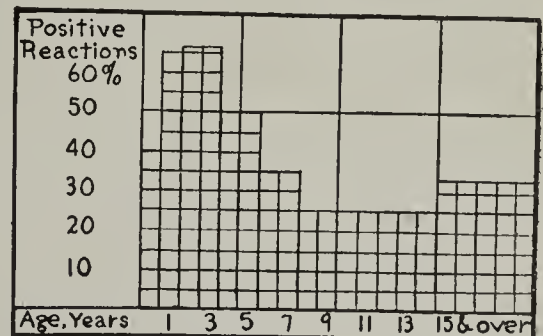


Chart 3.—Per cent. positive Schick reactions (700 tests). Figures from Park, New York. Figures above 14 years are distributed through five periods on chart; in reality it considers all cases above 14 years, hence the apparent high percentage.

1. Schick, B.: Die Diphtherietoxin-Hautreaktion des Menschen als Vorprobe der prophylaktischen Diphtherieheilsseruminjektion, München. med. Wchnschr., Nov. 25, 1913, p. 2608.
2. Park, Zingher and Serota: Schick Reaction and Its Practical Applications, Arch. Pediat., xxxi, No. 7, p. 481.
3. Schick: Experimentelle Diphtherieserumtherapie beim Menschen, Ztschr. f. d. ges. exper. Med., July, 1914, p. 83.
4. Park and Zingher: Proc. New York Path. Soc., October, 1914.
5. Otto, R.: Ueber den Gehalt des Blutes an Diphtherie Antitoxin bei gesunden Erwachsenen, Rekonvaleszenten und Bazillenträgern, Deutsch. med. Wchnschr., March 12, 1914, p. 542.

diameter that reaches its maximum in forty-eight hours. It persists for about a week, and on fading shows a brownish pigmentation with superficial scaling and a characteristic central infiltration.

Positive reactions indicate that there is less than 1/30 unit of antitoxin in 1 c.c. of blood serum. Such persons are susceptible to diphtheria. Though intensity of the reaction varies in different individuals, a

was promptly and completely suppressed in an orderly manner.

This instance is but one of a number making up our eight hundred tests and demonstrates conclusively the possibilities of this reaction.

We note that in eight hundred persons 60 per cent. are possessors of antibodies in sufficient numbers to make a prophylactic injection of diphtheria antitoxin superfluous.

No case of diphtheria has developed in those showing a negative Schick reaction, and we feel perfectly safe in leaving a case showing a negative result without prophylactic inoculation, no matter how intimately exposed.

In regard to the new-born, their high percentage of immunity is undoubtedly accounted for by the fact that the colostrum and even the milk of nursing mothers to a certain degree is antitoxic. Park concludes that infancy is protected from most of the common communicable diseases through this absorption

from the colostrum during the first days of life.

Of those cases showing a negative result, 8 per cent. had diphtheria at some previous time, while 23 per cent. of those yielding a positive reaction had suffered from diphtheria. Ott's researches confirm the assumption that a single attack of diphtheria does not cause sufficient antitoxin production to produce lasting immunity.

Of the forty-four "carrier" cases, 70 per cent. were negative and 30 per cent. showed a very faint reaction. Not one frankly positive occurred among the forty-

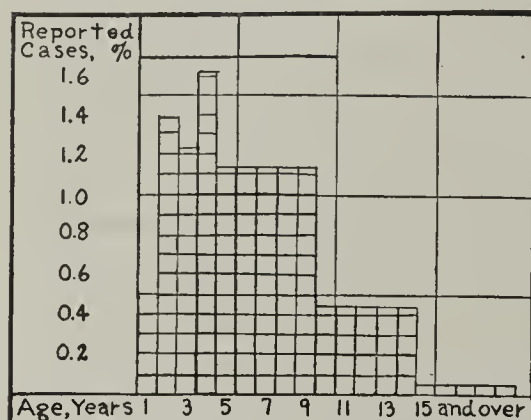


Chart 4.—Percentage of diphtheria cases reported to the Department of Health, Chicago, by ages or groups of ages. Percentage obtained by dividing actual cases at age or group of ages by estimated number of persons living at that age, based on the distribution of population by ages (U. S. Census, 1910).

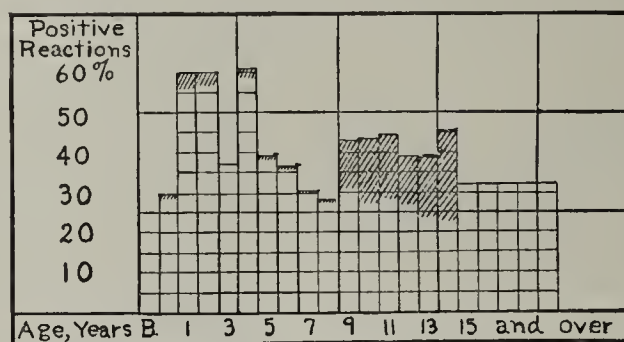


Chart 5.—Per cent. positive Schick reactions (800 tests). From figures of Chicago Health Department. Shaded area indicates faintly positive cases. Figures above 14 years are distributed through five periods on chart; in reality it considers all cases above 14 years, hence apparent high percentage.

well-marked redness indicates a complete or almost complete absence of diphtheria antitoxin. Faint reactions point to the presence of small amounts of antitoxin.

The researches of Loos, Karasawa, Schick and others have proved that there are no protective bodies (antibodies) against diphtheria in the blood serum of children taken sick with diphtheria; that those persons taken sick prior to injection with antitoxin always give a positive skin reaction, while the negative intracutaneous reaction always proves the existence of pro-

SCHICK REACTIONS IN EIGHT HUNDRED CASES

Years of Age	Number of Cases			Per Cent. Positive
	Total	Positive	Negative	
New born.....	5	1	4	20
During first year.....	55	16	39	29
1.....	10	6	4	60
2.....	20	12	8	60
3.....	16	6	10	37.5
4.....	20	11	9	61
5.....	20	7	13	39
6.....	19	7	12	37
7.....	28	9	19	31
8.....	32	9	23	28
9.....	39	17	22	43.5
10.....	77	25	52	43.9
11.....	87	39	48	44.8
12.....	113	45	68	39.8
13.....	129	51	78	39.5
14.....	85	39	46	45.9
15 and over.....	45	15	30	33
	800	315	485	39.4

TECTIVE bodies in sufficient numbers for prophylaxis against diphtheria toxins.

In the fall of 1914, there were discovered among the eighty-seven inmates at the Norwegian Lutheran Childrens' Home, near Chicago, one case of diphtheria and nine "carriers." Conditions were such that an epidemic seemed imminent. It was decided immediately to apply the Schick test. Only those yielding a positive reaction were immunized, with the result that no further cases developed. Thus with a simple, practical test, available to every physician, an epidemic

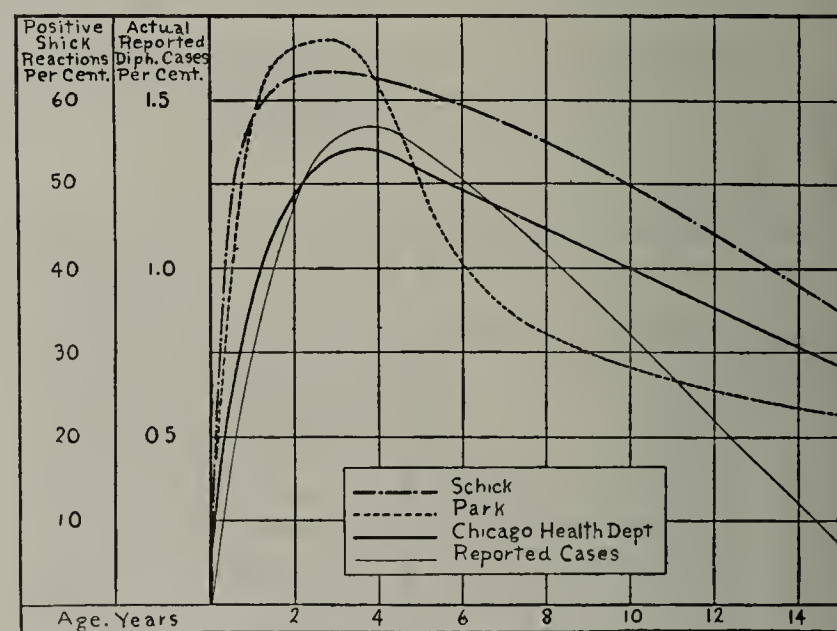


Chart 6.—Comparison of Schick, Park and Chicago Department of Health figures as to per cent. positive of Schick reactions and percentage of actual reported diphtheria cases according to age.

four cases. Bacillus "carriers" invariably have a high antitoxin proportion and depend on this factor for immunity. This is why they are "carriers" and not true cases of diphtheria.

A fact which is worthy of note is that we found that children of the same family invariably gave a similar reaction. They were either all negative or all positive.

CONCLUSIONS

By means of the Schick test we are in a position to tell definitely who is susceptible to diphtheria and when an epidemic breaks out can inject those and those only, paying no further attention to the ones giving a negative reaction.

By it the danger of cross-infection is greatly decreased. Children with diphtheria that have had scarlet fever and are therefore immune from scarlet fever can be placed in scarlet fever wards when the inmates yield negative Schicks, etc.

It permits a great reduction in antitoxin bills. Much needless pain and annoyance of patients is avoided, and the possibility of anaphylactic shock is greatly minimized.

City Hall.

SOME OBSERVATIONS OF THE
SCHICK TEST

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AND

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Among the studies which have, from time to time, helped us toward a better understanding and more effective treatment of nose and throat conditions, those concerned with diphtheria command a prominent place. The introduction of antitoxin of course revolutionized the treatment of this disease, and numerous investigations of its value, dosage, possible sequelae, the immunity produced, etc., have since added much to the literature of the subject.

A feature of especial interest and value which stands out among these is the fact, now well established, that certain persons have a natural immunity to diphtheria and will not take it, however much exposed. Many of these, indeed, become carriers of the Klebs-Loeffler bacilli, and infect others, although themselves safe from the disease.

Finding the diphtheria organism in the throats of such persons is of uncertain diagnostic value unless supplemented by a test to show whether immunity is present or absent. In such cases sore throats due to other organisms may easily be confounded with diphtheria, the diagnosis being established by the laboratory finding the Klebs-Loeffler organisms.

These are among the cases which puzzle and worry the doctor. He finds, for instance, a case of slight tonsillitis (clinically), sends a swab for examination, ordering a mild gargle and perhaps an iron mixture meantime; back from the laboratory comes the report, "Diphtheria positive," and he hurries back to his patient with antitoxin only to find that in the brief interval everything has cleared up and the patient appears normal. The next patient showing a similar picture he decides to treat in the same way, but in place of clearing up it progresses to a virulent case of diphtheria in which he now finds himself disappointed in the use of antitoxin, late injections of this being of comparatively less value.

From such experiences he argues that either the laboratory is of little use to him, or antitoxin is an overrated remedy; or still more likely, concludes that thereafter whenever there is the possibility of diphtheria being present he will do best to inject promptly the antitoxin and not wait for any laboratory report. He feels that the injection will do no harm, and if it

turns out to be diphtheria he has gained so much in time and effect. In the last he is certainly right, and yet every medical man would prefer to avoid the use of this remedy in any case in which he might safely do so.

The Schick¹ test for immunity offers a promising aid in this matter. If by a simple injection into the skin we can determine who is, and who is not, liable to infection, a long step is taken toward simplifying the handling of these situations.

1. The use of immunizing doses of antitoxin will not be necessary if persons exposed to infection are found to be naturally immune.

2. Even when bacilli are found in the throats of such persons, no injection of antitoxin need be given when they suffer from tonsillar or other pharyngeal infections.

3. Nurses in institutions, when proved immune, can safely care for diphtheria patients while susceptible nurses are kept away and employed on other cases.

4. Much aid can be had in solving the puzzle of why one patient recovers without antitoxin while the next, apparently an exact counterpart, dies in spite of the use of this valuable remedy.

Park² has given an interesting and very complete description of the Schick test, its technic, etc., and for the benefit of the reader who has not access to such information part of the matter is included here.

It has been shown that only persons who have either no antitoxin or but a minute amount in their blood and tissue are liable to contract diphtheria. With this fact before us we have but to estimate the amount of antitoxin present in any individual to know whether he will be safe from infection or liable to it if exposed.

Methods of doing this previously proposed have been too troublesome for practical use, but Schick's test is at once simple and safe, and seems to be reliable.

It is not more difficult to make than the Pirquet test made with tuberculin for tuberculosis, and consists of the intracutaneous injection of a prepared solution containing minute quantities of diphtheria toxin. This will produce a positive reaction in twenty-four or forty-eight hours if antitoxin is absent, or present in amount insufficient for protection.

The reaction consists of redness and slight swelling over the injected area. It continues for a week or more and leaves a brownish pigmentation with superficial scaling for a time after this.

In a small percentage of older children and adults there is a pseudoreaction even when large amounts of antitoxin are present, and these must be carefully distinguished from the true reactions.

The pseudoreaction can be recognized by its earlier appearance, its less sharply circumscribed form, greater infiltration, and the fact that it disappears in twenty-four hours or two days at the latest. The spot is less pigmented later, and superficial scaling is not noted. The directions for making the test are as follows:

An accurate syringe with a sharp but short-pointed, fine needle is necessary. The usual 1 c.c. record tuberculin syringe with a fine platinum iridium needle serves well.

1. Schick: Spezifische Therapie der Diphtherie, *Centralbl. f. Bacteriol.*, 1913, Ivii, Part 1; Ref., Beiheft, p. 16; Die Diphtherietoxin-Hautreaktion des Menschen als Vorprobe der Prophylaktischen Diphtherieheilseruminjektion, München. med. Wehnschr., 1913, lx, 2608.

2. Park, W. H., and Zingher, Abraham: Practical Applications Obtained from the Schick Reaction, *Proc. New York Path. Soc.*, October, 1914. Park, W. H.; Zingher, Abraham, and Serota, H. M.: The Schick Reaction and its Practical Applications, *Arch. Pediat.*, July, 1914.

A standard diphtheria toxin is diluted at first 1:10, in 0.5 per cent. phenol (carbolic acid); this dilution will keep in the ice box for at least two weeks. Park advises care in securing a proved quality of toxin. The diphtheria toxins provided for this purpose by the commercial houses have not proved reliable. For use, further dilutions are now made in normal saline, of such strength that 0.1 c.c., or as stated above, 0.2 c.c., contains $\frac{1}{50}$ minimum lethal dose for the guinea pig. This amount is injected intracutaneously on the flexor surface of the arm or forearm.

The intensity of the reaction varies in different individuals, but a well-marked redness indicates an almost complete absence of antitoxin. Faint reactions point to the presence of a very small amount of antitoxin, not sufficient to protect against diphtheria. To prevent the appearance of the reaction, according to Schick, at least $\frac{1}{30}$ unit of antitoxin per cubic centimeter of blood is required. This amount he considers sufficient to protect against diphtheria. According to von Behring, even as little as $\frac{1}{400}$ unit of antitoxin will protect against the disease in uncomplicated cases.

The following tests were made in Lincoln Hospital, New York, and were begun because of a troublesome outbreak of diphtheria among the nurses in December, 1914, which continued to crop out at intervals through the following January; 0.2 c.c. were used for each injection.

The nurses were colored women ranging from 25 to 35 years of age.

Seven had no history of diphtheria, or of having had antitoxin. Three gave Schick positive; four, Schick negative.

Five cases had clinical diphtheria within six weeks of the test; all gave a negative Schick.

Eleven cases were isolated because the Klebs-Loeffler bacilli were found in the throat. They all gave a negative Schick and did not develop clinical diphtheria. They were given local treatment for the throat, and repeated cultures were made. Two gave a positive culture once. Two gave a positive culture twice, and the other seven gave more than two positive cultures.

Twelve cases had no diphtheria, but had immunizing doses of antitoxin within six weeks of the test. Ten were Schick negative; two were Schick positive.

Three cases had diphtheria from eight to ten years previously. Two were Schick positive and one was Schick negative.

Eighteen children ranging in age from 3 weeks to 5 years were also tested. These patients were in the hospital for a variety of causes: feeding, intestinal troubles, hernia, pneumonia, fractures, etc.

In nine children under 14 months, three were Schick negative and six Schick positive. In nine children from 14 months to 5 years, two were Schick negative and seven Schick positive.

None of the children had had diphtheria or antitoxin.

Twenty-six patients, adults, were also tested. Eighteen gave a positive Schick and eight a negative Schick. One of the negative cases had received antitoxin a month previous. So far as these tests were carried, they confirm the findings of Schick, Park and others.

CONCLUSIONS

1. The most susceptible age is between 1 and 5 years.

2. Immunity obtained by having the disease or by the use of immunizing doses of antitoxin lasts from a month to several years, varying greatly in different individuals and being very brief in children.

3. The Schick test is a helpful agent in testing the efficiency of immunization by antitoxin as well as the natural immunity existing in many persons.

4. It has helped to place on more certain grounds the assurance that bad cases of diphtheria should receive early and large doses of antitoxin by intravenous injections. Antitoxin is ten times as effective when so used, as compared with the ordinary method of administration.

5. Park has obtained results in families showing a striking similarity in reactions to the test. If the youngest child of a family has a negative reaction, all the older children are likely to be negative, and if the older children are positive, the younger ones are also. When variations are found, the younger children show the positive reaction.

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THE INTRADERMIC DIPHTHERIA TOXIN TEST*

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It has been known for some time that a certain percentage of persons have antitoxin to diphtheria in their blood, and that only those individuals whose natural immunity is low, or who have no natural immunity whatever, are susceptible to the disease. Römer designed a biologic test for estimating the quantity of antitoxin in the blood, but it was too tedious and cumbersome to be of practical use. In 1909, Schick conceived the idea of using diphtheria toxin in the manner employed by von Pirquet for the use of tuberculin in the diagnosis of infection with the tubercle bacillus in children, and he found, by running controls by the Römer method, that individuals who reacted to the toxin were susceptible to diphtheria while those giving negative tests were immune. Somewhat later, in order to control the amount of toxin absorbed, he began using intracutaneous injections and found that a negative reaction to $\frac{1}{50}$ the minimum lethal dose for a 250 gm. guinea pig indicated that the individual had at least 0.031 units of antitoxin per cubic centimeter of blood, which quantity he believes to be sufficient to protect against the development of clinical diphtheria. Von Behring believes that even $\frac{1}{100}$ unit of antitoxin per cubic centimeter of blood will protect against the development of the disease, and Park reports the suppression of the Schick test in a 3 year old child weighing 35 pounds, twenty-four hours after the injection of ten units of antitoxin.

Schick, in his work, used 0.1 c.c. of toxin dilution which contains exactly $\frac{1}{50}$ the minimum lethal dose, and Park preferred to use 0.2 c.c. We, however, have been using a dilution in which 0.05 c.c. contains $\frac{1}{50}$ the minimum lethal dose, as the results seem to be quite as constant and the discomfort accompanying the injection of the smaller quantity is less.

The positive reaction which indicates the absence of antitoxin in the blood appears in twenty-four hours as a circumscribed hyperemic, indurated area, usually becomes most marked in forty-eight hours, persists for from a week to ten days and heals by central brownish pigmentation and scaling which clears up in

* From the Department of Pediatrics of the Washington University Medical School and St. Louis Children's Hospital. Read before the St. Louis Medical Society, Jan. 23, 1915.

from two to three weeks. A "pseudoreaction" has been reported in older children and adults, which does not show the same degree of induration nor the typical scaling and pigmentation. Two patients in the Children's Hospital who gave "pseudoreactions" also showed positive reactions to injections of ordinary bouillon and it seems probable that the reaction may indicate a skin sensitiveness which has no relation whatever to diphtheria toxin.

Table 1 gives our results in 524 cases, none of which had received any form of immunization.

The figures in this table show approximately the same results as Schick and Park obtained. It will be seen that the period of greatest susceptibility to diphtheria is between the first and sixth years. This bears out the clinical experience. The periods of least susceptibility are under one year and over 15, which also corresponds to the clinical experience.

Even recently it has been suggested that the diphtheria toxin reaction might be due to a general reaction to all toxic materials. Intradermic tuberculin reactions are made on all patients entering the St. Louis Children's Hospital, and of the first 180 patients

TABLE 1.—RESULT OF SCHICK TESTS MADE ON NON-IMMUNIZED INDIVIDUALS IN 524 CASES

Age	No. of Cases	Number Positive	Number Negative	Positive, Per Cent.
Under 6 mo..	31	11	20	35.4
From 6 mo. to 1 year	17	5	12	29.6
From 1 to 2 years	36	20	16	55.5
From 2 to 4 years	63	40	23	64.5
From 4 to 6 years	76	43	33	56.5
From 6 to 8 years	115	51	64	44.3
From 8 to 15 years	171	55	86	39.0
Over 15 years	45	12	33	26.6
Total	524	237	287	45.2

who were also tested with diphtheria toxin, only thirty-four gave similar reactions to the two tests.

In order to determine whether or not the negatively reacting individuals were carriers, and owed their antitoxin to an active immunization, cultures were taken on 200 negatively reacting patients, and, in spite of the fact that all of these had been exposed to diphtheria, positive cultures were obtained in only eleven. The knowledge that only a small percentage of negatively reacting persons are carriers and that none of them will develop clinical diphtheria makes the handling of epidemics somewhat easier. A similarity of reactions in families was noted in our cases and by Park. He believes this to indicate that there are factors other than abortive infections with the Klebs-Loeffler bacillus which give rise to the so-called natural immunity.

At the time of a recent epidemic, all patients who were admitted to the wards of the St. Louis Children's Hospital with conditions other than diphtheria and whose Schick test was positive, were given immunizing doses of antitoxin; but a few cases of clinical diphtheria developed from two to four weeks after receiving the antitoxin. We have not seen a case of true clinical diphtheria in negatively reacting individuals.

By making the Schick test at intervals before and after the administration of antitoxin in each of the three methods, subcutaneous, intramuscular and intravenous, we have been able to confirm the work of Schick which shows the greater immediate efficiency of intravenous administration and the relatively greater efficiency of the intramuscular over the subcutaneous injection.

TABLE 2.—RESULT OF SCHICK TESTS TO DETERMINE DURATION OF IMMUNITY*

Age, Years	Number of Cases	Number Positive	Number Negative	Positive, Per Cent.
From 2 to 4..	3	2	1	67—
From 4 to 6..	5	3	2	60
From 6 to 8..	19	4	15	21
From 8 to 15	205	51	154	24.5
Over 15	84	18	66	21
Total	316	78	238	24.5

* These patients all received 1,000 units of antitoxin subcutaneously, four weeks previous to the Schick test.

An opportunity to determine the duration of immunity following the standard immunizing dose of antitoxin, was offered at the St. Louis Industrial School, where, following the development of a few cases of clinical diphtheria, all children received 1,000 units of antitoxin subcutaneously. Four weeks after this antitoxin administration, Schick tests were made on 316 children with the results according to ages as shown in Table 2.

Seventy-eight out of the 316 cases, or 24.5 per cent., reacted positively, which is a little more than one-half the percentage of positive reactions obtained in non-immunized children as shown in Table 1. It will be seen that the relative percentage of positive tests corresponds fairly well, according to ages, with the results in individuals who were not immunized. This seems to indicate that, at any age, the immunity conferred by the usual prophylactic dose of antitoxin is effective for a period of less than four weeks in over half of the cases immunized.

TABLE 3.—RESULT OF TEST WITH ONE-TWENTY-FIFTH MINIMUM LETHAL DOSE ON PATIENTS GIVING NEGATIVE REACTIONS TO ONE-FIFTIETH MINIMUM LETHAL DOSE

Age	Number of Cases	No. Mildly Positive	Number Negative	Positive, Per Cent.
From 1 to 2..	7	1	6	14
From 2 to 4..	4	1	3	25
From 4 to 6..	10	3	7	30
From 6 to 8..	14	4	10	28
From 8 to 15.	20	2	18	10
Total	55	11	44	20

In order to determine how many of the cases which reacted negatively to the 1/50 minimum lethal dosage, and therefore had as much as 0.031 units of antitoxin per cubic centimeter of blood, would have as much as 0.06 units of antitoxin per cubic centimeter of blood, fifty-five cases were tested with 1/25 the minimum lethal dose, that is, with exactly twice the quantity of toxin. Table 3 shows the results in this series.

Eleven showed mildly positive reactions which, however, did not show typical healing. Forty-four,

or 80 per cent., gave negative reactions, which may be taken to indicate that, per cubic centimeter of blood, this percentage of cases has more than twice the amount of antitoxin that is necessary to protect from diphtheria.

There is no immunity conferred by this minute dose of toxin, as cases which react positively continue to show positive reactions to injections over a period of weeks, unless immunized by an active diphtheria or by the administration of antitoxin.

CONCLUSIONS

The test is of definite clinical value in differentiating between persons who are susceptible to diphtheria and those who are not susceptible, and is therefore useful in determining which cases, of those to be placed in an environment where the liability to exposure is great, should be immunized.

It is of value in differentiating between clinically doubtful cases of diphtheria, positive reactions being obtained in clinical cases, negative reactions in carriers.

It is useful in experimental work in determining the effects of various forms of immunization and the duration of immunity conferred by these methods.

It has a definite value in the handling of diphtheria epidemics in institutions.

I am indebted to Parke, Davis and Co. for diphtheria toxin to perform these tests.

THE SUPERSTITION OF FLAT FOOT

THE HIGH VERSUS THE LOW ARCH AS A CAUSE OF PAINFUL SYMPTOMS IN THE FOOT

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The subject of static disorders of the feet has been extensively discussed under the names of "flat foot," "the broken down arch," etc., and a fair statement of present medical opinion would be to this effect: that under unfavorable conditions of weight bearing, the structure of the foot is so changed that the arch of the foot is lowered by the relaxation of ligaments and muscles, and that pain results from this malposition. It is with this point of view as explaining most cases of static disability in the feet that I desire to take issue in the present paper.

The term "flat foot" was originally the only one in use to describe static disorders of the feet, and was almost universally applied to them twenty-five years ago. Then came the terms "pronated foot" and "weak foot," and among the laity of late years one hears much of "broken," "dropped" and "fallen" arches, and finally there is now beginning to be used what is apparently the most correct name of all, namely, "foot strain."

Real flat foot of course exists, but the use of the term should be restricted to feet which are really flat and which touch the ground where the arch should be, a matter which the most casual examination can detect. These flat feet may be rigid and resist correction, or in the non-weight bearing position the arch may return to a certain extent, the former being rigid flat foot and the latter flexible flat foot. Flat feet, however, are not necessarily painful feet, but often are very serviceable. In the observations on the nurses to be spoken of, there were discovered

five or six nurses with perfectly flat feet who experienced no trouble whatever in their three years of training.

The views here expressed were originally formulated during a research covering several years on the nurses of a large general hospital, where I examined and recorded the condition of the feet of the nurses on entrance, and where I saw and again recorded the condition of every one of those nurses who developed any static disturbance of the feet during a three years' course in the training school. These nurses worked in a day and night shift in badly ventilated wards, and foot trouble among them was extremely frequent. Observations on about 800 nurses were made, and the results of the analysis of the first 500 were published,¹ and the records in the remaining 300 cases were confirmatory of the facts published. The views thus formulated have been verified in a series of a good many hundred cases in private practice.

The case that impressed me most was one of the first of the series, a vigorous young woman with a foot which was theoretically so good that at my first examination I noted it as a type of the "good" foot, and photographed it later. But this young woman developed so much pain and discomfort in three months under the strain of her work that she was incapacitated for two months, and finally was compelled to leave the school on account of her feet. During her trouble there was no change in the position of the foot or in its imprint, *nor in any one of the 800 nurses thus studied was there a single case in which there was found any change in the arch of the foot*, that is, there was no evidence that these troubles were caused by a lowering of the arch. In every instance the nurse stood for examination on a slab of plate glass with a mirror placed underneath at an angle to reflect the weight-bearing areas, which appeared as greenish-white patches. These areas were sketched in the record and the amount of pronation noted, so that the statement that no change in the arch relations occurred rests on fairly accurate evidence—certainly accurate enough to detect any appreciable "falling" of the arch. There was in some of the cases a shifting of the weight-bearing areas slightly inward at the second examination when painful symptoms arose, that is, the foot had rolled over a little on to its inner side without change in the arch, but in many painful cases there was not even this change.

The conclusion which was formulated was to the effect that the static troubles in the feet which developed among these 800 nurses of the type which would ordinarily be described as "flat foot," "pronated foot," "weak foot," etc., could not be traced to any particular type or structure of foot. I had naturally expected that the pronated foot and the foot with a low arch would prove less enduring under strain than the foot with a high arch, but the figures as to the durability of these feet showed that the foot with the high arch, which touched the glass only at the front and back and not on the outer border at all, was slightly less enduring than any other form of foot—in other words, that a high arch was more likely to give trouble than a low one. In short, a careful examination of the foot did not enable me, as I supposed it would, to predict at all which feet would be enduring under strain. This was shown by taking consecutively a certain number

1. Lovett, R. W.: Am. Med., July 4, 1903.

of nurses with painful symptoms and contrasting them with a similar number taken consecutively who had no symptoms.

The inevitable conclusion from this research, which has been wholly borne out by my experience in private practice, is that the pain and disability cannot be attributed to the lowering of the arch, but to muscular strain, not necessarily attended by any perceptible change in the structure of the feet, and that the foot with a high arch is notably subject to foot strain. That continued muscular effort is attended by pain may be demonstrated easily by the attempt to hold the arm out horizontally for five minutes. Chronic muscular strain in the same way is likely to be evidenced by continued pain and irritability. In foot strain it is probable that ligaments also become irritated by the failure of fatigued and overstrained muscles to reinforce them as they should normally do, and thus that ligaments also serve as a source of pain and tenderness. Moreover, some degree of synovitis may arise in the tarsal joints, as, for instance, in the astragaloscaphoid joint, the under surface of which is frequently thick and tender in cases of foot strain.

All this has an important bearing on diagnosis, for many a patient is left to suffer from foot strain because the doctor can detect no lowering of the arch, and on the prevalent theory is naturally unwilling to diagnose any static trouble with the foot.

But if the shape of the foot was not to be regarded as predisposing to trouble, and if no lowering of the arch could be found to account for the symptoms, one had to look further and investigate other factors, and the question of the general condition of the nurses was next taken up. An investigation of the influence of the environment and general condition showed that 64 per cent. of the troubles developed in February, March, April and May, when the general condition was probably the poorest, and 60 per cent. of all cases of trouble occurred in the first two or three months of the nurses' training. The onset of the trouble was frequent after grip, tonsillitis and acute illnesses of one sort or another, and began more frequently during the menstrual periods than between them.

From this side, then, one is to look for a disproportion between the weight to be borne and the muscular power to bear it. General muscular power is weakened by acute illnesses, depression of the general condition, old age, prolonged fatigue, overuse and trauma, and of course the muscles become relatively insufficient when the body weight is greatly increased. The muscular power is, moreover, to be considered as always unfavorably influenced by the boot, because the foot as a weight-bearing structure is an exceedingly complicated mechanism. The weight of the body in standing and walking comes down on an elastic arch composed of twelve bones of different shapes joined together by ligaments and connected with muscles. This complicated structure must bear at each step the entire body weight, and instead of being left free to perform its function, as is the case with the other joints, such as the knee or elbow, it is encased from early childhood in a restraining and distorting leather covering which compresses and deforms the forefoot, a process tending not only to produce distortion of the foot, which exists in all adult shoe-wearing persons, but also to weaken the muscles, as shown most clearly in the plantar muscles of the shoe wearer as contrasted with those of the savage. For this reason the boot must be regarded as the most important contributing

factor to foot strain, for the shape of the boot is never the shape of the normal adult human foot. The back part is well enough, but the front practically always compresses the forefoot, and this does much harm in narrowing and weakening the base of support which the forefoot should afford; yet to my mind this is not the chief evil, which it is usually supposed to be. This chief evil I believe to lie in the curve of the sole of the boot, for the following reasons:

In the investigation of the weight-bearing area of the feet in nurses there were three types of foot seen in the pressure areas on the glass:

1. A flat foot in which the forefoot made a broad pressure area which tapered back gradually to the round of the heel, but little indentation showing under the arch.

2. A broad oval area in front connected by an isthmus along the outer border of the foot with the circular area of the heel. This is the so-called "normal" imprint of the foot figured in the text books.

3. A form to be described as "two islands," in which there appeared in standing two areas not connected, one an oval in front for the forefoot and a circular one behind for the heel. This form is clear when the imprint of the foot is observed through the glass plate, but is not so clear in smoked and wet tracings.

Now the shape and curve of the sole of the boot assume that all feet are alike and that all feet possess rather a low arch; consequently a fair proportion of the community are wearing shoes which impede the muscular action of the foot, but do not afford a prop in the arch to compensate for it. In other words, the arch of the sole of the boot is often not so high as the arch of the foot. In most cases this does no harm, because the individual is vigorous enough to overcome the handicap; but it is a bid for foot strain in those less well equipped, and in my opinion accounts for many if not most of the cases of so-called flat foot, when there is no perceptible flat foot.

The influence of the heel I have never felt so clear about as have many of my colleagues. It was originally devised to keep the back part of the foot out of the mud, but has forgotten this function, and has increased to a very considerable height. But in many instances this height is conservative, and many a woman is made exceedingly uncomfortable by her doctor's orders to put on low heels. The woman with a weak deformed foot, the result of years of bad shoeing, has naturally a weak arch, which may not be able to support her weight without pain. But if she puts on a pointed shoe and a high heel the toes are held by the front of the shoe and the foot slides up on itself, the strain thus being taken off of the muscles supporting the arch, and the arch staying in place without muscular support by having its ends crowded toward each other.

But there is another function to the heel in the case of persons with short calf muscles, a condition described by Shaffer² as non-deforming club foot, by Bradford and myself as contracted foot,³ and by Hibbs⁴ as the muscle-bound foot. In these cases the foot cannot be passively dorsally flexed beyond a right angle, perhaps not so far as that. There is no space here for a discussion of the condition except to note that it is exceedingly common in a slight degree, and

2. Shaffer: *Med. Rec.*, New York, March 23, 1885.

3. Bradford, E. H., and Lovett, R. W.: *Orthopedic Surgery*, Ed. 2, N. Y., 1899, p. 600.

4. Hibbs: *New York Med. Jour.*, Oct. 24, 1914.

that such patients as a rule are uncomfortable in low heels, because at every step the calf muscle is pulled on, and when the calf muscle is short and reaches its limit of extensibility, the necessary strain in finishing the step must come on the sole of the foot. If a horse goes lame in his posterior leg tendons, we raise the calks of his shoes; but if a patient goes lame from a similar cause, it is too often the case that the heel of the boot is lowered instead of being raised as it should be. I find that in cases of painful feet it is much more often necessary to raise the heel than to lower it.

But whatever the defects of the modern boot may be, we may as well accept them as conditions under which we must treat patients. The public has been informed fully of the facts, but turns a deaf ear to our attempts to better conditions, and only in the case of children can we hope to accomplish much in improving footwear.

The condition having thus been formulated, the question of a treatment based on this hypothesis becomes of importance. Real flat foot, if painful, must be treated; if not painful, it should be let alone. If it is to be treated, rigid flat foot is to be reduced under ether, or in extreme cases a wedge of bone must be taken out of the inner side of the arch. Painful flexible flat foot may be treated by supports.

The question of interest, however, comes in the treatment of flat foot which is not flat foot, which should be spoken of as foot strain. What has been said here would show that in formulating such treatment I should attach little importance to whether or not the foot was pronated. But I should attempt most carefully to study the conditions which produced strain, with a view to relieving it, and I should be especially on the lookout for an unduly high arch. The shape of the sole of the boot should be compared with the curve of the sole of the foot, and it will often be found that the leather of the sole inside of the boot under the arch of the foot has never even been defaced by the pressure of the foot.

If one considers the problem from my point of view, we are dealing with tired and overstrained muscles, probably irritated ligaments and disturbed circulation in the foot, attended by no especial lowering of the arch, but perhaps with a little rolling of the foot on its inner side. From this point shall we follow the "back-to-nature" method by whipping the tired horse and insisting on a treatment by exercises and the use of a flexible soled shoe, said in the advertisements to "cure flat foot," or shall we attempt to remedy the defect in the shoe which caused the strain, and supply to the irritated foot the support to the sole, the lack of which caused the trouble in the first place? It would seem on this ground reasonable that rest should be furnished to the overstrained muscles by supporting the under side of the foot most at its inner side. This support would best be furnished by a boot the sole of which was of a proper curve to support the arch of the foot, but it is practically impossible to get such boots made, and one finds it far easier to modify a ready-made boot than to secure one made to order fulfilling the proper requirements.

It is possible in the slighter cases, when an obviously bad boot has been worn, to remedy the trouble by the use of one of the good ready-made boots with as high an arch as may be obtainable; but more often it is necessary to raise the arch higher than this, which is readily done by splitting the leather forming the shank, removing the small piece of iron or stiffening

which is already there in most boots, and replacing it by a piece of steel with a higher and longer curve, which can be easily made. If the foot seems to be tipped too far in when the patient stands, that is, is too much pronated, especially if there are present symptoms of strain at the inner side of the foot and ankle, the inner side of the heel may be made a quarter of an inch thicker than the outer, thus changing the whole bearing of the foot more to its outer border. For temporary support, the well-known strapping by adhesive plaster is of use. In shoes with a stiff enough shank, pads of felt cut to fit the arch of the foot may be of use in some of the milder cases.

Of late years it has become the fashion to decry the use of plates as producing muscular atrophy of the foot and doing great harm of an obscure nature, instances of which are not quoted. But the moderate and severe cases will in most instances be more quickly relieved by a proper fitting metal support than by any other means. The object of this metal support is not to my mind, as conceived by Whitman and others, to force the arch of the foot back into place, but simply to do what the boot does not do in supporting the strained and irritated arch; consequently, heavy plates with flanges are not necessary; neither do I find plaster casts of the foot often required. Plates of soft steel of graded sizes can be made to a neutral shape over the cast of normal feet, and by means of a monkey wrench and a round-headed hammer can be easily shaped to any foot by the surgeon. They have no flanges, and extend from the back of the heel behind to a point just behind the heads of the metatarsals in front. In width they are slightly narrower than the foot. When laid on the foot they should lie as smoothly as a layer of wet cloth. When they are put in the boots they should be comfortable, and if not they should be lowered until they are. Such strained feet as a rule are at least slightly swelled and thick in the arch, and as such swelling subsides, as it usually begins to do in two or three days, the plates may have to be raised slightly, after which they are tempered and nickel plated or covered with leather. They are worn as long as may be necessary, and in my experience the great majority of patients sooner or later are able to do without them without a return of symptoms, especially if they wear a boot which supports them better in the arch. If they have to wear them permanently, it is because the foot has been so damaged or is intrinsically so weak that it must be supported, and in our inability to get properly constructed boots made we have to resort to the clumsy addition of a metal plate.

Ill-fitting plates do harm by contusing the soft parts of the foot, and sometimes by straining it by holding it in an improper position. The plates as sold in shoe stores have too short a curve, and as a rule are sold by persons wholly ignorant of the first principles of plate requirements. They are often so soft that they bend under use, and nothing is more irritating than a rigid support which does not support. With regard to detriment to the foot, I feel no more hesitation in putting a plate on a lame foot which requires rest than I do about putting a sling on a lame shoulder, and for the same purpose in both instances, to relieve muscular strain temporarily.

I have never been convinced of the benefit of exercises as a treatment for foot strain in the acute stages, and I have seen many cases made worse by them, as I have by the use of the flexible shoes so frequently

prescribed. Such shoes may have their use as a method of muscular exercise when the acute irritation is subsiding, but not I believe in the acute stage. Yet it is only fair to say that I have three or four times seen patients with seriously painful feet relieved by these shoes when the plate treatment had failed.

Massage, I believe, is of benefit in all cases, but not necessary in most. Attempts at the gradual discontinuance of the plate should be made after a few weeks or months, and if it fails, then a series of exercises should be prescribed, after which a further attempt should be made.

SUMMARY

Feet vary in shape as much as do our features; some are naturally flat, others have a moderate arch, and some a very high arch.

Any foot may become painful from foot strain without any change in the height of the arch under unfavorable general conditions, overuse, ill health, etc.

Boots are a predisposing factor to foot strain not only by cramping the foot, but especially by not supplying adequate support to the sole of the foot. For this reason persons with high arches are quite as liable to foot strain as persons with low arches, if not more so.

When foot strain occurs, it is desirable to rest the tired structures by support, most often a metal plate.

Exercises in acute cases and the use of a flexible shoe generally do harm rather than good.

My final heresy consists in the belief that painful feet are more often helped by raising the heels than by lowering them.

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THE PREVALENCE AND PREVENTION OF INSANITY*

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There has been a great deal of careless writing, and many wild statements have been made, concerning the increase in the number of insane. The intelligent citizen, who must have an opinion about everything, and whose encyclopedic misinformation is obtained by wasting time reading the newspapers, is not to be blamed if he fears that before long this will be a world of madmen, for almost all he reads, were it true, would prove such a result to be inevitable. Fortunately, most of the "science" that he learns is untrue, and of course the world is in no danger of going wholly mad; but it is possible that the number of the insane in our country is increasing more rapidly than the general population. Let us see, therefore, what facts we can discover concerning the matter, and then decide whether there are data enough on which to base an opinion.

The important question is whether there is a percentage increase: a mere gross increase is probably inevitable as the population thickens, unless and until better preventive measures than those now at our command are discovered. To determine the percentage rate accurately and correctly it would be necessary, first, to find out the number of insane year by year,

and this is not known in any country. The United States census office tried once to enumerate the mental defectives at a given date, but the results were so confessedly faulty that a second attempt has never been made. It is impossible to make a correct census of the mentally diseased because so many of them are not in institutions or even under medical treatment, and replies given by laymen relatives are for many reasons usually incorrect. Our only trustworthy figures, therefore, and they are trustworthy only to a degree, concern the number of insane and feeble-minded in institutions. Now comparing the number to-day with ten, twenty and thirty years ago, the figures increase with great rapidity. Therefore, say the innocent dabblers in the profound science of statistics (and it is remarkable what a large number of people think statistics mean the mere getting together and comparing the lists of figures), insanity must be greatly increasing. They forget several things: namely, that the population of the country has increased so rapidly that even a large gross increase does not mean a percentage increase; that only in recent years have the state governments begun to take care of the mentally diseased (previously they received scant care from anyone) and that in consequence of the increase in the number of hospitals many patients are now counted as insane who were previously overlooked; that hospital care lengthens life so that there is an ever-increasing number of hold-overs; that the conception of insanity has greatly widened, and many types of disease, doubtless some incorrectly, are to-day so diagnosed which formerly were neglected or classified differently. When all these facts are remembered, the outlook becomes less dark, and we are led to conclude that there probably is a small percentage increase; there certainly is a gross increase. The data obtainable do not permit a more positive statement.

Admitting a percentage increase, what are the facts that cause it? Only two things can increase the insanity rate in any country for any great length of time: either a change in the race occupying the country, a more normal race being replaced by one less normal, or some change in the people themselves rendering them more prone to degeneration. External influences play but little part. War, famine and plague may temporarily increase the number of the insane, but these ills are soon recovered from and their effects are not lasting. They do not permanently affect the character of a nation. The same is true of alcohol. The strongest modern races have been most given to drinking. This does not mean that alcohol increases either racial or individual power, except that in a few persons it increases the emotional brilliancy of intellectual work and in others temporarily enables them to do greater physical work, but that the strong withstand it and a large number of the weaklings are quickly killed by it and hence do not procreate as they do under other conditions of life in which an attempt is made to protect them against themselves. Alcohol helps the strongest in the battle of life by getting rid of the competition of the weaklings who become its victims. The good it does is paid for at a very high price, but it does help the race by destroying the unfit. Insanity and its increase depend on the inherent nature of a people. Has there, then, been a change of races in America, or has some subtle change occurred in the people? I am inclined to believe that both are factors.

* Read at the meeting of the Philadelphia County Medical Society, Jan. 13, 1915.

Surely a part of the increase is caused by the character of the people who have of late years been coming into the country. The immigrants of to-day do not in the lump compare favorably with those of the last century and earlier. I cannot prove this save on a small scale, because we have no figures covering the country. The case of Philadelphia, however, will serve as an illustration. In Philadelphia there is now and has been for at least ten years a foreign-born population of 24.7 per cent. It supplies 44 per cent. of the indigent insane in the city.¹ In New York State, 27 per cent. of the registered insane are not citizens. The other large cities and many parts of the country are no better off. There has been an increase in the foreign-born insane rate since the Civil War.

Several writers have minimized the evil effect of the open door in immigration. Great opposition has been met with in passing any laws restricting it, and every obstacle has been put in the way of administering such restrictive laws as we have. Many of the writers, not a few of whom are of foreign birth and hyphenated in their allegiance not only to government but also to race, in arguing against health restrictions in immigration laws pay no attention to the real point at issue, namely, whether or not it is justifiable to exclude the unfit, but indulge in mock heroics, tremulous oratory, and emotionalism about the great work immigrants have done and are doing in building up the country, all of which is true but has nothing to do with the matter. The insane, those who become insane, and the degenerates in general do not help build up the country, and their exclusion does not mean the exclusion of any healthy person. Let me say here parenthetically that literacy laws, such as the one now being discussed in Congress, will not benefit us in the least. Ability to read is not a test of either virility or of sanity. The healthy illiterate man with clean moral reflexes is worth more to the country than the imbecile or degenerate who may read well. We have quite enough people who can read and not think: we need more people who can work. We need all the immigrants we can get who have had good moral training: we need none whose education is in that stage when they pass their time discussing whether there is such a thing as morals, which they usually speak of as ethics. The high grade imbecile uses his education for evil purposes: the more his learning the greater menace he is. Physical and mental health, which is a very different thing than education, and, so far as it can practically be determined, moral integrity, not schooling, should be the test. Those who champion the cause of the foreigners always say that each layer of immigration has met the same criticism from the older layers, and yet the descendants of each, they say, have given their quota to the country's good. The reply is, it was not the descendants of the insane and degenerate in the older immigration who have built up the country. Further, it is an undoubted fact that the older streams of immigration were made up of men and women of a higher type, both physical and mental, than those who have been coming of recent years. They were the first squeezing from the press of Europe, and were as much better than the present comers as the first squeezing of the wine press is better than the last. They came for the most part from countries that had at least a measure of self govern-

ment, and they themselves had had generations of training and thinking, even if not always in acting, politically. The men who came here in the early days had the spirit of adventure, were virile and strong: the weak could not stand the stress of getting here. The criminals sent here as a punishment by the English government in colonial times were too few to influence the development of the country, though one would conclude from some of the articles written on the subject that America was entirely settled by convicts; and, according to some authorities belonging to the newest and most advanced and therefore most correct school of sociology, it is rather a good thing to have a criminal ancestry, because a criminal is a strong good man trying to break the fetters of a wicked society. To-day travel is so easy that any one can come; no one is so weak that he cannot stand the stress, and if he breaks, a comfortable bed in a hospital awaits him. A large number of the immigrants of to-day belong to races that have never had the responsibility of self government thrown on them. They and their ancestors have been treated as children politically, and they interpret freedom to mean license. Many of them are semi-oriental in their moral sense. I do not wish what I say to be interpreted to mean that most or even a large number of our present-day immigrants are in any way unfit: they are not; but the small minority who are unfit will do untold damage if not excluded. The old story of the rotten apple in the barrel continues true: the new version continues untrue.

More important than the direct influence of immigration in increasing insanity is the change that has come over the country in the character of the people. In no other country and at no other period in the world's history has there been such a rapid change in a nation's outlook on life, its opinions about the most vital things in life, as has taken place in America in the last thirty years, and the change has been altogether and entirely for the worse. This accounts in large measure for the increase of insanity, because this disease differs from others in, sometimes at least, having moral causes and always leading to moral degeneration. Insanity is both a result and a cause of racial decay. All the developmental insanities are the result of some biologic sin, a very different thing from theologic sin, somewhere in the ancestry. Many cases of imbecility, on the other hand, are the result of purely accidental causes at or before birth or of febrile infection in infancy or childhood. The sin may have been committed in innocence and ignorance, but nevertheless it was sin. Wherever biologic immorality predominates, wherever the fundamental natural laws are continuously broken, no matter how pure and good the intention of the law breakers may be, degeneracy will prevail, if not in that generation then in the next and thereafter.

One unavoidable and seemingly irremediable cause of the increase is the large number of insane among negroes of this generation. There is an increasing number of degenerates of all kinds among them, the result of the increasing responsibilities thrown on them in consequence of freedom and the hardships to which they are subjected. The slave was protected from alcohol and syphilis. The free negro is succumbing more and more to degeneracy, the result of bad living. Also, in the North, he is in many places not allowed to learn skilled trades, carpentry, house-

1. Burr, Charles W.: The Foreign-Born Insane, *THE JOURNAL A. M. A.*, Jan. 3, 1914, p. 25.

painting, smithing and the like, and hence is of necessity driven to habits of idleness and crime. He is, by no fault of his own, becoming more and more a casual worker. We and not he are to blame, and we as well as he will suffer. The thing most needed for the moral redemption of the negro, and the measure that will be most potent for his mental health, is freedom of labor, opportunity to work. We have given him the, to him, useless bauble of citizenship and in theory the right to vote: we have largely deprived him of a chance to earn a living.

What measures can be taken not only to prevent the percentage increase of insanity, assuming that there is an increase, but also to decrease its frequency? A great deal has been written which is absolutely untrue, and many statements have been made about the causation, the prevention and the cure of insanity which are false. It is a common statement among popular writers that 40 or 50 per cent. of all cases of insanity arise from causes which were, in the individual case, preventable. This statement is not true, is not based on any properly studied statistics, and comes from calling things insanity which are not, and from guessing at the number of cures.

Most of the popular writing about the therapy of insanity is erroneous. There is no need to tell physicians that moral insanity cannot be cured by trephining the skull and is not caused by a hypothetic increase of intracranial pressure resulting from a suppositious skull injury received years before. We know that serious concussion of the brain and sunstroke, not mere heat exhaustion, increase the liability to certain types of insanity (dementia) in those predisposed, but this is a very different thing from so-called moral insanity or moral imbecility. Yet the newspapers frequently report cases of criminal youths who are to have or have had their skulls trephined in order to be cured of criminal instincts. Very often a cure is reported immediately after the operation, but we are never informed by what miraculous means a surgeon, or even an alienist, can judge the moral state of a boy having a beautiful time in a comfortable hospital and not tested by conduct. Sometimes a very honest newspaper reports that Johnnie Doe, who was cured a few weeks before by a most remarkable operation, never done previously, has just been arrested for some new crime. The evil is that parents read the stuff about curative operations and have their hopes lighted up, only to have them dashed to the ground in a short time. Another popular fallacy is that defective vision, bad teeth and a hundred and one physical defects having nothing to do with the mind, and often in themselves trifling, are the cause of what is euphemistically called retarded development when imbecility is what is meant. It is conceivable that a boy's eyesight may be so bad as to make the study of books impossible; that such a boy may, by the hopelessness of being able to study, become lazy and idle, and hence drift into a criminal life and on account of his little schooling be very ignorant; but this is not imbecility, or backwardness, and the occurrence of such a series of events is extremely rare, though it is natural for any boy to blame his moral deficiencies on anything if it will relieve him from punishment. Yet we read all the time statements such as "Eighty per cent. of all school-children have defective vision and many are mentally deficient in consequence." "Lateral curvature makes

deep breathing impossible, and constant lack of air causes mental backwardness." It is no uncommon thing for a vicious boy to take advantage of some defect, the importance of which he has learned by talking to his comrades, as an excuse for bad conduct. There is a great amount of exaggeration in the writings of amateur pedagogs and unskilled, self-trained psychologists about this whole subject of the influence of peripheral disorders on mental growth. We may dismiss, then, as worthless all attempts to prevent or cure insanity or imbecility by mechanical operations on the skull, the eyes, ears, nose, tongue, etc.

The people who believe in remedying all evils by passing laws have proposed many things. Most talked about are laws regulating marriage. Since we have agreed to abolish the constitution, because being upward of a hundred years old it must be out of date, and have decided that we are to be governed by oratory, since talkers are to be more honored than doers, and the golden tongue is held more useful than wise actions; since we have discovered that in passing a law we must not stop to find out whether the evils brought about by its enforcement may not be worse than those sought to be abolished, since we are rapidly attaining the acme of democracy, which is, not that the individual is to be free, but that we are to be the slaves of each other and no one is to attend to his own business and care for himself, and all are to worship the idiot god Demos; since we have become a country without law but with many laws, it is useless to discuss how far the state has a right to regulate marriage. It might, however, be well for some of the innocent reformers of all things, whose leaders are not always as innocent as they would have us believe, but have learned how easy it is to earn a living by pretending to be good and writing about it, to learn that an increasing number of children are born outside wedlock and this not only in the terribly wicked large cities but, and some authorities believe more numerous, in the country districts. It is also well to remember that a very large number of persons who have children who become insane on account of heredity do not present symptoms which even the wildest eugenist (it is a great pity that this useful and harmless word has come to have such a bad odor on account of the use it has been put to) would regard as justifying prohibition of marriage. It is not only the insane who procreate children who will become insane; indeed, relatively small numbers of the technically insane bear children, but many people who to the common eye are normal, though to the skilled they often reveal many signs. The eccentrics, the genio-cranks, the people with a mission to earn an honest penny by preaching the doctrine of the "upset," those who are so affected by the woes of others as not to help, but to weep, those who love us so much that if we will not be their brothers they will kill us out of love, those who have their own idiosyncratic moral code, in short, all those who have "too much ego in their cosmos," add and add enormously, by procreation, to the army of the degenerate. But we cannot prevent the marriage of such people.

The laws passed in certain states authorizing and sometimes requiring an operation on men guilty of certain crimes, or imbeciles, which, while making conception impossible, yet leaves the man capable of having intercourse, will in a very slight degree decrease procreation but will in very large degree increase the

number of cases of sexual disease. To remove the ovaries of an imbecile girl and then let her go at large will have the same effect. She will be used by men for evil purposes and act as a carrier of gonorrhea and syphilis. Fortunately, operations of asexualization will be done so infrequently as to be practically negligible. The laws belong to the class that cannot be carried out, and become laws only by the constant effort of small groups of people who think they have discovered panaceas, while the great mass of citizens pay no attention to what the law makers are doing.

The laws in some states requiring before marriage a thorough medical examination and a clean bill of health in all respects are impossible of being enforced. No one physician has the skill and knowledge necessary to make such an examination as the law orders. Their main evil, and it is a very vital and fundamental one, is that they increase the already portentous American contempt for law. No one dreams that because a law is on the statute book it is going to be enforced. In one state at least the applicant becomes his own diagnostician and naturally always swears he is well and free from all disease. Of course all applicants, epileptics, consumptives, syphilitics, are well. In another state the clerk of the court is required to decide the mental state of applicants. He, after casually looking at the person (the examination must be casual, for the clerk has time for nothing more), must decide whether the person is competent to breed mentally healthy children. The clerk takes a more or less solemn oath to this effect. The task is a little difficult.

Certain things can be done by local, state and national governments to prevent insanity. The degenerate, imbecile, criminal and insane foreigners can be kept out of the country. The national government has already done a good work in this matter, but much remains to do. The number of examiners at ports of entry is too small. The government physicians doing the work are well trained, industrious and conscientious men, but the amount of work they are required to do is far beyond their power. There ought to be some way by which the medical corps could be increased and physicians could be on board the vessels bringing immigrants so that they could be thoroughly studied during the voyage. The laws should be rigidly enforced, and no soft-hearted political official at Washington should have the power to abrogate them because his feelings and sentiments have been worked on. Why, for example, as is alleged, on good authority, to have happened, should a high grade imbecile boy be permitted to enter this country because his father wants to get in and not be separated from him? The boy undoubtedly will be better, that is, more extravagantly, cared for here than in his home country, and it is an admirable quality for a father to want to have the company of his son; but the son will add a burden to the country which will not cease with his own death, and may increase indefinitely. From the point of view of the emotionalist he ought to be admitted because it is too sad to see a father weeping over his son. But if you want a strong, healthy and moral race you must not disregard laws because you weep with ease. It should be less difficult to deport aliens whose insanity appears after landing. Those who become insane should be returned whence they came, even though it is not possible to prove that the cause of their disease arose before com-

ing here. Under certain conditions resident degenerate aliens can now, under the law, be deported; but there are too many restrictions.

Degeneracy in general would be diminished if the imbeciles were gathered up and put in state institutions for life. This would cost money, but in the long run would be less expensive than our present method of dealing with the problem. The institutions should be farms, not boarding schools, and the inmates should be taught according to their capacity and physical strength to do all kinds of farm work. They would be partly self supporting. To permit imbecile boys or girls to go out into the world is to give them an opportunity, which they will seize, to increase the degenerate population. The offspring of two imbeciles is always a degenerate; if only one parent is afflicted, the child may possibly escape. It surely is a function of state government to take care of the imbecile and idiotic. Not a single state does it properly. Many states do it after a fashion, but in every one there are hundreds and in the more densely settled states thousands of feeble-minded persons at large. Every one of them is a danger to the community. Of the relatively few who are sent to institutions as children, quite a large number are returned to their homes when they reach maturity. What often happens is this: the parents find that after the son or daughter has been in the institution several years, he or she has been trained to do a certain class of manual labor, steadily and fairly efficiently. They also find that he is quieter and better behaved than he was at home. They think he is cured; and being ignorant and usually not overbright themselves, they of course are saturated with the belief which the "uplift" papers have been spreading abroad for years, that all managers of all institutions and corporations, indeed, every successful person, is a grafter; and when told that the boy or girl should be kept in the institution, they believe that the managers want him there to get work out of him. They take him home, and very soon all the good effect of institutional discipline is lost and he becomes a menace to the neighborhood. He procreates with others of his kind and he commits many petty crimes before he comes into the grasp of the law and is sent to jail. The remainder of his life is spent in getting in and out of houses of correction, jails and almshouses. The hope cherished by the optimists fifty years ago that imbeciles could be taught morality has turned out false. The imbecile is amoral, not immoral. He is morally color blind. He can be taught to obey, and to be happy in doing so, while under the discipline of a well-regulated institution: he cannot be taught the real meaning of right and wrong. He can be trained as a dog is trained, but there cannot be implanted in him any realization of righteousness. He cannot be educated morally in the proper sense of the word, and any mental training he gets he will use for bad purposes. He should be given manual, not scholastic, training.

Proper treatment of the criminal class, the habitual criminal, the man who lives by crime, would do much to decrease the number of the insane and degenerate. Though crime is not a symptom or proof of insanity, and many sane men commit even horrible crimes, yet many of the habitual criminals are mentally abnormal, and this, coupled with the usually vicious habits of their lives, increases the danger of their offspring being degenerate. There is no doubt that the great

decrease in crimes against the person and property in England during the latter part of the nineteenth century, and the great respect for law still existing there in comparison with American contempt for all authority, was in part the result of the rigid enforcement of stern criminal laws for many years. A part of this result came from preventing procreation by hanging and by long jail sentences, which were carried out, pardons being rare. Our moral sense, on the contrary, has become so twisted and perverted that we, or rather the people who pretend to have the right to teach us a new morality, regard the criminal as a poor unfortunate, the victim of the sins of society, who should be treated with kindness and gentleness and regarded as an ill man, not as a vicious parasite. The older morality taught children to shun criminals as they would the plague. The rising generation is, in some quarters, being taught sympathy, and this not infrequently will lead to imitation. One of the evils of the parole system is that it gives the criminal greater opportunities for procreation. Our murder rate is appalling, and punishment decreases in severity as the crime increases. I speak of murder simply because it is the most striking crime; all others are increasing equally in frequency. Nothing will stop the increase except condign and certain punishment. The habitual criminal should be imprisoned, at labor, for life. When free, he adds to the degenerate population. It would cost the state much less to keep him at work in jail than to be repeatedly sending him there only to let him out again.

Most important of all is proper education and training of the young. Many dwellers in America are losing, indeed have lost, the old mental and moral attitude which held that man was put into the world to work, and have taken up the religion of play. This doctrine is being especially promulgated by the self-appointed leaders of the newest movement concerning education. Children must not be taught duty and self control, but must be spared from all responsibility and work. School must be made entertaining. Boys are being feminized. They are being taught that peace is the greatest good and war the greatest evil. Their healthy imaginations must not be fed on the wholesome fairy tales of former times because fairy tales are, say these modern moralists, lies; but they are taught the worst of all lies, that the greatest and most important thing in life is to live. They must not play soldier lest they become too virile. They must not have war-suggesting toys lest when they grow up they will not be pacifists. They must not work hard at school. They must not be whipped lest their dear little souls be hurt. They must not be taught obedience lest they lose their sense of freedom. Their teachers are women. All this leads to weakness and degeneracy. The greatest thing that needs to be done is to teach children self control, not as is now the fashion, to protect them from stress and strain, but to teach them how to withstand stress and strain.

Fortunately, the destiny of the universe does not depend on man. Evolution goes on careless and unconcerned at the trifling efforts of mankind to help or to hinder, so that we may have hope that the present wave of soft-heartedness and soft-headedness going over the country will be a mere wave, transient in its existence, transient in its effects, and that later there will be a reaction toward virility and a striving for and a worship of strength. To-day we are having

preached at us the doctrine that the weak shall inherit the earth. It will not work. It is not true. Fortunately there is a large element of the community never heard from in public places and entirely uninfluenced and somewhat bored by the prevalent tendency to upset all things and start out anew. They will breed a strong race who will carry the burden of true civilization. They and not the weak will inherit the earth. They are not the offspring of weaklings and they will not breed weaklings.

PREVENTION OF BERIBERI AMONG PHILIPPINE SCOUTS BY MEANS OF MODIFICATIONS IN THE DIET

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Among investigators in the orient a large majority, I believe, now accept the tenet that beriberi is the result of subsisting on a diet deficient in certain substances, termed "vitamins," which are essential for the normal functioning of the nervous system. There are, however, some authorities who still question the deficiency theory, and who maintain that beriberi is probably of an infectious nature. In view of this skepticism it seems worth while that the experiences of the United States army with beriberi among its Filipino (native) troops should again be brought to notice at this time. I feel that I may do this, first, because I was in charge of the beriberi work in Manila from 1910 to 1912, when the disease was eradicated from the native troops, and am therefore familiar with the circumstances attending this change; secondly, it may be done now because at the present date (January, 1915) there has elapsed a period of time sufficient to render it extremely improbable that the abatement of beriberi in 1910 was a temporary remission merely coincident with, but not due to, a change in dietary.¹

The War Department of the United States maintains in the Philippines a body of native troops officially designated as the "Philippine Scouts." The commissioned officers are white Americans. The enlisted men are Filipinos belonging to various tribes and gathered from all parts of the archipelago. There are about 5,200 men in the scouts, and the companies are located in numerous garrisons throughout nearly all portions of the Philippine Islands. Organizations are frequently changed from one section of the archipelago to another, and the contact between the scout soldier and the adjacent population is close and constant. Beriberi is at all times present among the civilian natives, and no effort is made to isolate the sick. Until the calendar year 1910, beriberi was a scourge to the Philippine Scouts. The total annual admissions from this cause ranged from a minimum of 115 to a maximum of 618, and there was a considerable death rate and many discharges from the service for permanent disability. In spite of six years of vigorous effort to suppress the disease, a climax was reached in 1908 and 1909, when the total admissions for beriberi reached 618 and 558, respectively. During 1910 certain changes in the dietary of the native soldiers were inaugurated, and in that year

1. Chamberlain, W. P.: Disappearance of Beriberi from Philippine (Native) Scouts, *Mil. Surgeon*, 1911, xxviii, 5, 509; *Philippine Jour. Sc.*, Sec. B, 1911, vi, 133.

the beriberi admissions dropped to fifty. In 1911 there were three admissions, in 1912 two, in 1913 none and in 1914 only one up to June 30, when last reports were received.

The remarkable decrease in the incidence of the disease is most strikingly shown in Table 1 and the accompanying chart.

In 1908 and 1909, when beriberi was at its worst among the scouts, the ration supplied to these natives was that shown in Table 2.

The chief components were 12 ounces of fresh beef, 8 ounces of flour, 8 ounces of Irish potatoes and 20 ounces of rice. The rice furnished was a highly milled or polished² grain imported from Siam. When used as an exclusive article of diet for fowls this Siam rice was found to produce polyneuritis gallinarum in about twenty-five days.³ The flour was a high grade wheat flour. It is now known, as a result of the work of Wellman and Bass,⁴ Little,⁵ and Ohler,⁶ that wheat flour will induce polyneuritis when used as the only article of diet for chickens, and further, Little has shown that beriberi develops among white men in Labrador and Newfoundland when

have reported contradictory results with Irish potatoes.⁸ Vedder and Clark have shown that 10 gm. of meat, either cooked or uncooked, exercise some protective influence when fed to fowls subsisting on polished rice, as indicated by a prolongation of the incubation period beyond the average for polyneuritis gallinarum, but the influence of 10 gm. of meat was far less than that of 10 gm. of peas or peanuts, since that amount of the latter articles conferred complete protection against neuritis. It is impossible to determine how much meat the individual scout ate, but evidently the amount was in many instances insufficient to counterbalance the shortage of vitamins in the polished rice, wheat flour and Irish potatoes. Therefore beriberi developed.

As a result of the work of Braddon, and Fraser and Stanton, the United States Army Board for the Study of Tropical Diseases became convinced in 1909 that oriental beriberi was due to a diet in which polished rice bulked largely. A propaganda of education regarding the prevention of beriberi was started among the scout officers, and on Nov. 3, 1909, orders were issued by the division commander that the rice component of the native ration

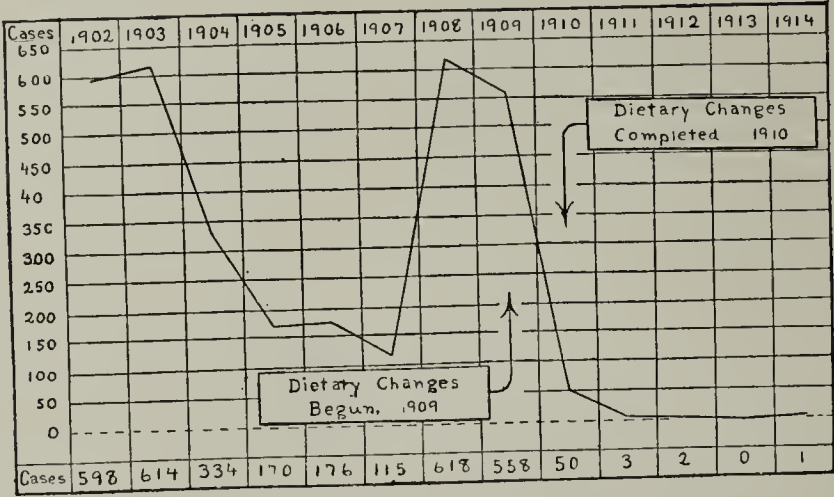


Chart of admissions of Philippine Scouts for beriberi during calendar years 1902-1914.

TABLE 1.—BERIBERI STATISTICS FOR PHILIPPINE SCOUTS, CALENDAR YEARS 1902-1914

Calendar Year	Mean Strength	Admissions		Deaths		Discharges for Disability	
		Number	Rate per 1,000	Number	Rate per 1,000	Number	Rate per 1,000
1902	4,826	598	121.42	29	6.01	2	0.41
1903	4,789	614	125.60	22	4.59	5	1.04
1904	4,610	334	74.62	7	1.52	6	1.30
1905	4,732	170	35.93	6	1.21	1	0.02
1906	4,759	176	36.98	9	1.79	6	1.19
1907	4,679	115	24.58	6	1.28	3	0.64
1908	5,085	618	121.54	7	1.35	13	2.50
1909	5,369	558	103.93	12	2.17	33	5.96
1910	5,422	50	9.22	2	0.36	3	0.55
1911	5,266	3	0.57	1	0.19	0	0.00
1912	5,407	2	0.37	0	0.00	0	0.00
1913	5,096	0	0.00	0	0.00	0	0.00
1914*	4,883	1	0.20	0	0.00	0	0.00

* To June 30 only.

they subsist mainly on bread made from fine wheat flour.⁷ Wellman and Bass also found that multiple neuritis developed when fowls were fed exclusively on Irish or sweet potatoes, but some other observers

2. "Polished rice," "highly milled rice," "soured rice," and "white rice" have been used by various writers as synonyms. They are contrasted with "undermilled rice," "medium milled rice," "unpolished rice" and "red rice," all four terms indicating that more or less pericarp, or inner skin, has been left on the grain. Some rices have red pericarp and others have yellowish white. If the red pericarp is all milled off, the grain is then white. Therefore the use of the term "white rice" to indicate a highly milled article is objectionable because it leads to confusion between milling processes and color of pericarp. So far as the presence of adherent pericarp is concerned, undermilled rice corresponds with the "cured rice" of India (not used in the Philippines). Filipino No. 2 rice, referred to later, was an undermilled rice of rather low grade, containing many broken and unhusked grains and considerable dirt.

3. Chamberlain, W. P.; Bloombergh, H. D., and Kilbourne, E. D.: Influence of Rice Diet and of Inanition on Production of Multiple Neuritis in Fowls, *Philippine Jour. Sc.*, Sec. B, 1911, vi, 3.

4. Wellman, C., and Bass, C. C.: Polyneuritis Gallinarum Caused by Different Food Stuffs, *Am. Jour. Trop. Dis. and Prev. Med.*, 1913, 1, 2.

5. Little, J. M.: Beriberi, *THE JOURNAL A. M. A.*, Oct. 10, 1914, p. 1287.

6. Ohler, W. R.: Experimental Polyneuritis, *Jour. Med. Research*, xxxi, 2, 238.

7. Little, J. M.: Beriberi Caused by Fine White Flour, *THE JOURNAL A. M. A.*, June 29, 1912, p. 2029.

should be reduced from 20 to 16 ounces, and that 1.6 ounces of beans should be added in place of the quantity of rice withdrawn. In March, 1910, the scout ration was radically altered to the form shown in Table 3. This change was adopted as a result of the efforts of persons who wished to put native products into use as far as possible.

The ration shown in Table 3 was satisfactory as regards its beriberi-preventing qualities, but gave rise to a number of practical difficulties. Mongos and camotes were hard to get in proper quantities, and the latter did not keep well. The Filipino No. 2 rice was unsightly, and consequently aroused opposition among the men. Ginger root could not be popu-

8. Eijkman and Vedder and Clark did not observe polyneuritis when fowls were fed exclusively on potatoes, but Vedder and Clark concluded that the neuritis-preventing vitamins were present in potatoes in relatively small amounts. Therefore, for a man subsisting largely on polished rice, the addition of a small quantity of potatoes would not supply sufficient vitamins to prevent the appearance of beriberi. See Vedder, E. B.: Beriberi, New York, William Wood & Co., 1913, pp. 217, 259, 316, 402.

lar. Therefore the ration was changed on May 8, 1911, to the form shown in Table 4, which has continued in force to the present date. This ration obviates the practical disadvantages of the preceding one, yet embodies all the features important for beriberi prevention, namely: *use of unpolished rice in an amount not exceeding 16 ounces, and compulsory consumption of 1.6 ounces of beans.* The beans used are ordinary dried navy beans (for which mongos

TABLE 2.—FILIPINO RATION, ARMY REGULATIONS, 1908, PARAGRAPH 1220, IN FORCE UP TO THE LATTER PART OF 1909

Component Articles	Quantities, Ounces	Substitutive Articles	Quantities, Ounces
Beef, fresh	12	Bacon	8
		Canned meat	8
		Fish, canned	12
		Fish, fresh	12
		Hard bread	8
Flour	8		
Baking powder, when in field and ovens are not available	0.32		
Rice	20		
Potatoes	8	Onions	8
Coffee, roasted and ground	1		
Sugar	2		
Vinegar*	0.08		
Salt	0.64		
Pepper, black	0.02		

* In this and the following ration tables the vinegar measurement is in fractions of a gill.

TABLE 3.—FILIPINO RATION, GENERAL ORDERS NO. 24, WAR DEPARTMENT, 1910, IN FORCE FROM MARCH, 1910, TILL NOVEMBER, 1910*

Component Articles	Quantities, Ounces	Substitutive Articles	Quantities, Ounces
Beef, fresh	12	Bacon	8
		Canned meat	8
		Fish, canned	12
		Fish, fresh	12
		Hard bread	8
Flour	8		
Baking powder, when in field and ovens are not available	0.32		
Rice, Filipino No. 2†...	16	Rice, Saigon (when Filipino No. 2 is unobtainable).	16
Camotes‡	8		
Mongos§	4		
Coffee, roasted and ground	0.5		
Ginger root	0.5		
Sugar	2		
Vinegar	0.8		
Salt	0.64		
Pepper, black	0.02		

* After the revocation of this ration, and prior to the establishment of the ration shown in Table 4, undermilled rice continued to be issued in most instances.

† "Filipino No. 2" rice, as the term is used in this ration, means an undermilled or unpolished rice. Although this ration began to go into effect in May, 1910, the issue of Filipino No. 2 rice was not accomplished till July and August, 1910.

‡ The camote is a vegetable allied to the sweet potato.
§ The mongo (*Phaseolus radiatus*, Linn), is allied to the bean or pea (Dutch, katjang idjo). Mongos had been used for several months before May, 1910, as a result of the order of the division commander previously referred to.

may be substituted). The undermilled rice is of the highest grade, has a white pericarp, is palatable and not unsightly in appearance, and contains over 0.4 per cent. of phosphorus pentoxid.⁹ Numerous series of experiments have shown that fowls can subsist exclusively on this grain without developing neuritis.

9. Phosphorus pentoxid is not the substance which prevents beriberi, but since most of the phosphorus in rice is located in the pericarp and aleurone layers an estimation of the phosphorus pentoxid present provides a simple chemical method of determining the degree of milling of the grain.

The reduction in beriberi by months, as compared with the figures for 1908 and 1909, appears in Table 5. In an article published several years ago¹ I showed that a reduction in the amount of polished rice consumed by the scout soldier and the use of a certain quantity of beans or mongos was gradually put into practice, beginning in the latter part of 1909. *These two changes proved sufficient to eradicate beriberi, the disease disappearing before the substitution of unpolished for polished rice had been accomplished. I believe that the consumption of beans, to the daily amount of 1.6 ounces, would unaided have prevented a recurrence of beriberi, but it would obviously be difficult to make sure that all the men ate their share of this article over long periods, and it is, therefore, much safer that the largest component of the diet, rice, should be of the unpolished variety and by itself sufficient to prevent neuritis.*

The seven cases which have occurred since August, 1910, can readily be explained on the assumption that certain soldiers did not consume the average diet as furnished to the company, and made up the deficiency by eating largely of polished rice outside of the mili-

TABLE 4.—FILIPINO RATION, ARMY REGULATIONS 1913, PARAGRAPH 1205, IN FORCE FROM JUNE, 1911, TILL PRESENT DATE*

Component Articles	Quantities, Ounces	Substitutive Articles	Quantities, Ounces
Beef, fresh	12	Bacon	8
		Canned meat	8
		Fish, canned	12
		Fish, fresh	12
		Hard bread	8
		Soft bread	8
Flour	8		
Baking powder, when in field and ovens are not available	0.32		
Rice, unpolished	20		
Potatoes	8	Onions	8
Coffee, roasted and ground	1		
Sugar	2		
Vinegar	0.08		
Salt	0.64		
Pepper, black	0.02		

* "Scout organizations will be required to use the entire allowance of the meat component, and not more than 16 ounces of rice per day to be used for each ration. The purchase of 1.6 ounces of beans per ration in substitution of the portion of the rice ration not drawn will be made, and use of as large an extent as possible of native products, such as camotes, mongos and squash, will be required."

tary post, many of the scouts being married, with families living near the government reservation. Probably a number much larger than seven did this, but only the rare individual, who was especially susceptible to neuritis, so far reduced his supply of vitamins as to show symptoms.

During the year 1910 there were no improvements in the sanitary conditions among the scouts, except the dietetic changes, which could account for the lowered incidence of beriberi observed in that year and persisting ever since. It will be seen from Table 6 that from 1902 there has been a gradual, though not always progressive, reduction in the admission rates for diseases other than beriberi. This decrease, however, was no more marked, in fact was rather less marked, during the year when beriberi disappeared than at some other periods. The decrease in diseases other than beriberi is to be attributed to the steady improvement in the general sanitary situation among the scouts. This reduction was not at any time paralleled by a corresponding reduction in the beriberi rates, for in 1908 and 1909 the beriberi admis-

sions were greater than in any year except 1903. Since the year 1910, when beriberi disappeared coincidentally with the dietetic improvements, there has been a well-marked, steady, but not spectacular, reduction in the incidence of diseases other than beriberi. This gratifying decrease in morbidity should be attributed in part to the continued improvement in the general hygienic condition of the native army, and in part directly to the alleviation of vitamin famine by which the susceptibility to many other diseases is undoubtedly increased if the vitamin starvation is sufficiently marked to produce recognizable beriberi, and perhaps even when the deficiency is not present to such an extreme degree.¹⁰

During the years prior to 1910, beriberi among the scouts had been combated mainly on the assumption that the disease was infectious. The complete failure to prevent its occurrence by isolation and disinfection is clearly indicated by the figures in Tables 1 and 5. Beriberi has been greatly reduced, and in some instances eradicated, in the civil institutions in the Philippines by the application of the same dietary principles which have proved so successful among the scouts. The disappearance of beriberi in the scout

tion were dependent for its development on a specific dietary deficiency.

Brief mention should be made of the occurrence of so-called beriberi among American troops serving in the Philippines. The reports of the surgeon-general of the army show twelve admissions for this cause in the period from 1904 to 1913, and fifty in the years 1902 and 1903. Lapse of time and lack of records render it impossible to determine by case analysis the real significance of these figures. It is important to consider, first, that in the earlier years of the Philippine occupation many of the physicians serving with the army had but a limited experience with tropical diseases; and, secondly, that the differential diagnosis between the peripheral neuritis of beriberi and that due to alcoholic poisoning is not always easy. Furthermore, there have been many occasions, notably during the first few years covered by Table 7, when detachments or companies of white troops have made extremely arduous campaigns on short rations, often living largely off the country, mainly on rice and native potatoes (camotes). When any component of the authorized ration was available to supplement this diet, it was most likely to be "hard bread," which is

TABLE 5.—ADMISSIONS FOR BERIBERI BY MONTHS, CALENDAR YEARS 1908 TO 1914

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1908*	14	34	102	23	51	33	55	39	63	59	88	63	624
1909	138	89	96	88	38	24	28	36	7	27	22	11	604
1910	19	8	12	3	4	1	0	2	0	0	0	0	50
1911	1	0	0	0	0	0	0	1	0	0	0	0	2
1912	1	0	1	0	0	1	0	0	0	0	0	0	3
1913	0	0	0	0	0	0	0	0	0	0	0	0	0
1914	0	0	0	1	0	0	?	?	?	?	?	?	1

* The discrepancy between the totals for the years 1908 and 1909, as shown in this table and in Table 1, is due to the fact that the above was compiled from the records of the chief surgeon of the Philippines Division and Table 1 from the reports of the surgeon general of the army. In the surgeon general's reports one admission is recorded for each case, while in the chief surgeon's records a new admission appears when a patient is transferred from one hospital to another.

organizations and in the civil institutions was not coincident with a decrease of the disease in the general population. On the contrary, at the date of its disappearance from the scout organization, and for two years subsequently, beriberi was on the increase in Manila and was not abating in the provinces. Although a campaign of education has apparently diminished the incidence of beriberi to a considerable degree in Manila in 1913, yet the disease still prevails extensively in that city, partly because of the unwillingness of the native to use undermilled rice, and partly because of difficulty in obtaining such grain in the general markets. With the disease everywhere prevalent about the scout garrisons, and with the native soldiers mingling with the diseased civilians in the most intimate manner, it seems inconceivable that the years 1911, 1912 and 1913 should have passed with only five cases among the scouts if the malady were caused by an infectious agent, unless indeed, the infec-

made of fine wheat flour. That beriberi did not develop more frequently among whites in the early Philippine campaigns is due doubtless to the fact that the so-called "incubation period" of beriberi, even for natives subsisting mainly on polished rice, is a very long one, ranging from sixty to one hundred and sixty days, as shown by Fraser and Stanton,¹¹ and by Strong

TABLE 6.—RATES PER THOUSAND OF ADMISSIONS FOR BERIBERI AND FOR ALL OTHER DISEASES AMONG PHILIPPINE SCOUTS

Calendar Year	Beriberi	Other Diseases
1902	121.42	1,489.14
1903	125.60	1,144.85
1904	74.62	948.59
1905	35.93	1,101.43
1906	36.98	1,138.27
1907	24.58	956.83
1908	121.53	786.24
1909	103.93	727.14
1910	9.22	738.67
1911	0.57	665.97
1912	0.37	616.79
1913	0.00	585.36

and Crowell.¹² That a diagnosis of beriberi among American troops has been made but twelve times for the period 1904 to 1913, inclusive, the mean annual strength of the command averaging about 12,000 men,

10. It has long been known that scurvy is due to the absence from the food of some substance necessary for proper nutrition, to which the name "vitamin" has been given by Funk. He suggests that the pellagra syndrome with stomatitis, gastro-intestinal lesions, erythema and nerve symptoms may also be due to vitamin starvation, and several other observers have expressed the opinion that pellagra might be a deficiency disease (Blue, Rupert: Problem of Pellagra in U. S., Tr. Nat. Assn. for Study of Pellagra, Second Meeting, 1914, p. 1; Sandwith, F. M.: Can Pellagra Be a Disease Due to Deficiency in Nutrition? Ibid., p. 27). Darling (Pathologic Affinities of Beriberi and Scurvy, THE JOURNAL A. M. A., Oct. 10, 1914, p. 1290) has recently discussed the affinities and overlapping symptomatology of rickets, infantile scorbutus, scurvy, experimental scurvy of guinea pigs, ship beriberi, beriberi, and polyneuritis gallinarum. Grieg (Epidemic Dropsy in Calcutta, Calcutta Gov't Reprint, 1911) is of the opinion that epidemic dropsy is due to defective nutrition. The subject of vitamin deficiency offers a wide and hopeful field for future investigation of obscure diseases.

11. Fraser, H., and Stanton, A. T.: Etiology of Beriberi, Studies from Inst. for Med. Research, Federated Malay States, 1909, No. 10.
12. Strong, R. P., and Crowell, B. C.: Etiology of Beriberi, Philippine Jour. Sc., Sec. B, 1912, vii, No. 4.

is extremely significant when it is remembered that those same American troops were mingling freely with natives, both civilian and military, among whom beriberi was always rife. If the determining factor in the incidence of beriberi was an infectious agent I believe there would have been a large admission rate for the disease among the white troops. As regards the possible confusion of beriberi and alcoholic neuritis, it should be mentioned that among the American troops the continuous excessive use of strong liquors

TABLE 7.—ADMISSIONS DIAGNOSED AS BERIBERI AMONG AMERICAN TROOPS IN THE PHILIPPINES

Year	Mean Strength		Number of Admissions
	White	Negro	
1900	64,353	2,529	1
1901	55,533	4,387	0
1902	30,300	2,642	28
1903	23,818	0	22
1904	11,996	0	1
1905	11,057	0	5
1906	11,885	737	2
1907	9,854	1,858	1
1908	9,840	2,296	1
1909	12,055	1,159	2
1910	12,333	0	0
1911	12,454	0	0
1912	11,006	1,351	0
1913	9,572	1,811	0

is only too frequent, while on the other hand the Filipino soldier is from racial habit very abstemious.

Only six diagnoses of beriberi have been reported among the negro troops serving in the Philippines, one in 1900, and five in 1902. These cases are included in the figures given in Table 7. As shown in the table the number of black troops serving in the archipelago has varied greatly from year to year, but for the entire period has averaged 1,400 men. The negro soldiers are furnished the same dietary, and live under the same hygienic conditions as do the white troops. The ration is a very liberal one, containing as chief components 20 ounces of beef, 18 ounces of flour, 2.4 ounces of beans and 20 ounces of potatoes. Rice is used only to a trifling extent. The methods of cooking are identical with those employed by whites in the United States.

The opponents of the deficiency theory of beriberi have perhaps had their case strengthened by the fact that the majority of the advocates of the theory have carried out their practical work for the most part in the orient, and have dwelt almost entirely on polished rice as a factor in the etiology of the disease. In the orient rice is, indeed, the factor of importance. In other lands, where rice is little used, the case is quite different. The two following points have received insufficient attention from certain writers:

1. *Many articles of diet, other than rice, are relatively deficient in neuritis-preventing vitamins.* Among these may be mentioned fine wheat flour, wheat bread,¹³ macaroni, "ship biscuit," sago, hominy, cornstarch, various breakfast foods, and possibly potatoes: (Wellman and Bass,⁴ Little,⁵ Ohler,⁶ Vedder¹⁴). The

exclusive use of these substances leads to polyneuritis gallinarum.

2. *Exposing food to a temperature above a certain point decomposes the neuritis-preventing vitamins present.* It was first shown by Eijkman, and has been abundantly confirmed, that a temperature of 120 C. destroyed some substance in undermilled rice, barley and rye, with the result that multiple neuritis developed when these foodstuffs were used as exclusive articles of diet for fowls. In a neuritis-preventing extract of rice polishings it was found in Manila that boiling, when prolonged for many hours, destroyed some or all of the vitamins present. It is probable that the process of sterilizing necessary for the preservation of canned foods, such as meat, beans and peas, destroys the beriberi-preventing elements originally present. It is well known that the vitamin necessary to prevent infantile scorbutus is destroyed by a temperature at or even below the boiling point, but the substances which avert beriberi appear to be somewhat more resistant to heat.

Therefore when confronted by a syndrome suggesting beriberi it is unsafe to assume that the condition is not due to a vitamin starvation until the dietary has been studied most carefully, and from a point of view entirely different from that occupied a few years ago.¹⁵ Mere dependence on proper amounts of fats, proteins, carbohydrates and salts is not sufficient. One must learn, by animal experiments if necessary, whether the essential components of the ration contain vitamins in quantities adequate to maintain nerve nutrition. It must further be determined whether or not vitamins, originally present in the various articles, are being in part or in whole decomposed by the culinary processes employed. Attention to these points will probably explain the occasional outbreaks of beriberi in lands where the disease is not endemic and where rice is not a food staple.¹⁶

Furthermore, it is important to remember that beef (and possibly many other articles not yet studied) contains enough vitamins to prevent the development of neuritis, when fed exclusively to fowls, yet the quantity present is relatively small when compared with the amount found in beans, peas, mongos, barley, peanuts, yeast, or the bran (polishings) of rice or wheat. Therefore if the chief components of the ration are greatly deficient in neuritis-preventing substances the addition to the dietary of a small amount of meat will not supply sufficient vitamin to prevent the onset of disease.

Whole wheat in the kernel, whole wheat bread made without yeast, whole corn, and undermilled rice can be fed indefinitely to fowls, as an exclusive diet, without inducing neuritis. Evidently in all these cereals the neuritis-preventing elements reside mainly in the outer coatings of the kernel (pericarp and aleurone layer). This has been abundantly proved in the case of the last named grain, since neuritis does not occur among fowls subsisting on highly milled rice provided

15. Vedder, E. B.: Further Remarks on Beriberi, *Am. Jour. Trop. Dis. and Prev. Med.*, 1914, i, 12, 826.

13. The result was the same whether the bread was made with or without yeast, though when yeast was used the incubation period was a little more prolonged. (Ohler, W. R.: Experimental Polyneuritis, *Jour. Med. Research*, xxxi, 2, 238). Yeast is known to contain a neuritis-preventing substance, but evidently the small amount required in making bread is not sufficient to overcome the shortage of vitamins in the highly milled wheat flour. Holst has shown that polyneuritis does not develop on an exclusive diet of rye bread, with or without yeast.

14. Vedder, E. B.: Beriberi, New York, William Wood & Co., 1913, pp. 217, 259, 316, 402.

16. In Brazil Lovelace attempted unsuccessfully to eliminate beriberi by abolishing the use of rice. In place of rice he substituted macaroni. The other staple foodstuffs were dry biscuit, meat (dried and tinned meat and codfish) and beans. We now recognize that a diet of macaroni or wheat flour (from which the biscuits were presumably made), leads to polyneuritis in fowls, and that the latter article (flour) can cause beriberi in man (See Notes 4, 6 and reference at end of Note 8). In the tinned meat the vitamins had probably been destroyed by heat. There is no information as to whether the beans were also tinned, or if not tinned, whether they were used in proper quantity. The experience of Lovelace, so far as it has been possible to investigate it, by no means throws doubt on the deficiency theory of beriberi.

they receive a daily dose of polishings (bran) or an alcoholic extract of polishings. The use of this same extract, or of substances isolated from it, will rapidly cure polyneuritis in fowls, and beriberi in adults and infants¹⁷ (Vedder,¹⁴ Chamberlain and Vedder,¹⁸ Andrews,¹⁹ Calderon²⁰).

If beriberi is due to a specific deficiency in the food it may be asked why it is that only a relatively small proportion of the oriental natives develop the disease, though nearly all are subsisting largely on a rice diet. The answer will be that the appearance of recognizable beriberi depends on facility in obtaining food and also on personal idiosyncrasy. Undoubtedly the bulk of the laboring classes, as a result of poverty and racial custom, are much of the time on the verge of vitamin starvation. At some seasons of the year the harvest will supply cheaply and in relative profusion certain articles rich in vitamins, notably mongos. The ingestion of these beriberi-preventing foodstuffs will raise the nerve nutrition of the oriental temporarily above the danger point. Furthermore, when he cultivates his own rice, and prepares it himself by hand-pounding, the product will be relatively rich in pericarp, and so beriberi-preventing. If before the harvest season his home-raised supply runs out he must purchase rice, and will usually find for sale a grain highly polished and very low in vitamins. In some persons a larger amount of vitamin is necessary to maintain the proper metabolism of the nervous system than is the case in others. Thus we see patients with every grade of beriberi, ranging from the most trivial signs difficult to distinguish, down to absolute prostration quickly ending in death. Among chickens subsisting on polished rice alone the majority develop symptoms of polyneuritis within one month, occasionally as early as the eighteenth day. Some, however, will not become paralyzed before forty days, rarely one will still appear well at the end of two months, and in three instances I have seen fowls that were free from paralytic signs after eighty-one, eighty-nine, and one hundred and twenty-five days, respectively, at which times the observations were discontinued. Vedder and Clark²¹ have shown that in many instances slight degenerative changes can be demonstrated in the nerves of fowls which have been killed before any signs of polyneuritis were manifested. The so-called "incubation period" of beriberi is much longer than that for polyneuritis in fowls. The experiments on human beings in the orient have shown that it may range from sixty to one hundred and sixty days. The quantity of food the individual consumes, as well as the quality of the ration, probably influences the

result. This idiosyncrasy in incubation period, combined with the seasonal variations in food supply mentioned above, adequately explain why the bulk of the population are able to keep their vitamin demands supplied to an extent sufficient to prevent obvious or disabling signs or symptoms of beriberi.

The eradication of enteric fever from the United States army as a result of compulsory antityphoid vaccination; the suppression of yellow fever in Cuba and at Panama through the activities of Reed and Gorgas; the disappearance of beriberi from the Philippine scouts following intelligent dietary supervision; these notable events stand as three of the most complete, practical and spectacular triumphs in preventive medicine. All were accomplished through the efforts of medical officers of the United States army who were not hampered by the necessity of bending before the whims and prejudices of those they were about to benefit. These successes give bright promise of the advances which may be expected in civil life when the public is educated to accept, and the health authorities are given power to enforce, the rules necessary for the prevention of disease. Beriberi is a much more serious menace to the oriental races than is typhoid fever to the peoples of the occident. The danger from beriberi could be averted almost entirely by such legislation as would prevent in the orient the sale, manufacture and importation of rice which has been too highly milled. Yet in spite of agitation, extending over several years, the necessary laws have nowhere been enacted.

Plattsburg Barracks.

COOPERATION IN PUBLIC HEALTH ADMINISTRATION *

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LA SALLE, ILL.

Cooperation in the field of education is no longer an experiment, but a thoroughly tried out reality. We are all familiar with the successful township high school or the consolidated rural schools, and we are convinced that these schools as a rule are better equipped and more efficient than could be maintained by each of the communities which have agreed to cooperate. It is obvious that two or three adjacent communities of from 1,000 to 5,000 inhabitants can unite and build and maintain a first-class high school with a corps of teachers who are specialists in their chosen fields. This, of course, would not be possible if each of these communities attempted to maintain a high school, because every subject taught would have to be offered in three different places, with a result that the scope and thoroughness of the school would be curtailed, there would be unnecessary duplication, and the burden of taxation would be too great; hence the impracticability of carrying out the scheme.

In the field of public health very little has been done in the direction of cooperation by adjacent cities and towns. It would seem, however, that fully as much could be gained by cooperation in this field as in the field of education. But in order to carry out the cooperative plan satisfactorily, it will in many instances be

17. In the disease known among the Filipinos as "taon," and which Manila observers believe to be infantile beriberi, Vedder and myself have reported remarkable cures immediately following the administration of extract of rice polishings to breast-fed infants. (Vedder, E. B.: Beriberi, New York, William Wood & Co., 1913, pp. 217, 259, 316, 402. Chamberlain, W. P., and Vedder, E. B.: Cure of Infantile Beriberi by Administration to Infant of Extract of Rice Polishings, Bull. Manila Med. Soc., 1912, iv, 26. Andrews, V. L.: Infantile Beriberi, Philippine Jour. Sc., Sec. B, 1912, vii, 67. Calderon, F.: The Taon Treated at La Gota de Leche, Bull. Manila Med. Soc., 1911, iii, 144. Gregg, D.: Infantile Beriberi in the Philippines, Boston Med. and Surg. Jour., 1913.) Symptoms, like aphonia, which are due to nerve degeneration of course improve only slowly, but the change in the general condition is as prompt and striking as that seen when fruit juice is used in the treatment of infantile scorbutus.

18. Chamberlain, W. P., and Vedder, E. B.: Cure of Infantile Beriberi by Administration to Infant of Extract of Rice Polishings, Bull. Manila Med. Soc., 1912, iv, 26.

19. Andrews, V. L.: Infantile Beriberi, Philippine Jour. Sc. Sec. B, 1912, vii, 67.

20. Calderon, F.: The Taon Treated at La Gota de Leche, Bull. Manila Med. Soc., 1911, iii, 144.

21. Vedder, E. B., and Clark, E.: Study of Polyneuritis Gallinarum, Philippine Jour. Sc., Sec. B, 1912, vii, 6.

* Read before the Illinois Conference of Charities and Corrections, La Salle, Oct. 28, 1914.

necessary to have state legislation, legalizing it, as has been done in Massachusetts and in New Jersey. With the advent of the sciences of bacteriology, epidemiology and sanitary engineering, our public health work has become so highly specialized that it is impossible to have even a pretense of a health department with only one man giving about a quarter or less of his time to the work and this a man who cares a great deal more for his private practice than for sanitation, and who has, moreover, only a meager knowledge of the rudiments of bacteriology and no knowledge at all of the principles of epidemiology and sanitary engineering. Such a man, besides being poorly equipped, is often unsuited for the position because he is more interested in his private practice than in sanitation and prevention of disease, and his actions are likely to be biased somewhat by his personal interests.

Another serious handicap of such a health department is brought about by entire inadequacy of financial support. The health department in a city of 5,000 inhabitants rarely has an allowance greater than \$1,000 a year, and sometimes the greater part of that is spent on collection of garbage and refuse. The health officer in such a health department does not have the time, the money or the technical training to undertake the most important functions of the modern health department, such as milk and dairy inspection, supervision of water supplies, eradication of flies and mosquitoes, sanitary inspection of grocery stores, meat markets and slaughter houses and medical inspection of schoolchildren.

If, on the other hand, three or four such communities agreed to put their public health appropriations into a central treasury and organized one good health department, most of these important functions could be fulfilled. The minimum requirement for such a modern health department would consist of the following staff: a chief health officer with special training in public health work and medical inspection of schoolchildren; an expert bacteriologist and chemist with a properly equipped laboratory; a food and dairy inspector; one or two school nurses, and an office girl and stenographer. I am strongly of the opinion that the chief health officer should be a graduate in medicine, but he should not be permitted to engage in its practice.

To my knowledge only two experiments have been undertaken in the field of cooperation in public health work. The first of these was carried out in Massachusetts nearly two years ago, under the leadership of Prof. Earl B. Phelps,¹ and the second is the one about to be described from Illinois.

In the Massachusetts experiment eight committees agreed to cooperate, but four of them came in for milk and dairy inspection only. In our experiment we are serving only three municipalities, La Salle, Peru and Oglesby, Ill., but our central health department has entirely replaced the old boards of health in these cities.

Another vital difference between our experiment and the one in Massachusetts arises out of the fact that ours is supported entirely by a private donation. The scope of the work also is somewhat different in that we aim to make ample allowance for original research on the part of the chief health officer and bacteriologist.

La Salle, Peru and Oglesby are three small industrial communities in north central Illinois. They have a joint population of approximately 28,000 people, most of whom are supported by common labor in three cement works, two zinc works, a clock factory, a plow factory and a number of coal mines. La Salle and Peru are situated closely together and are separated only by a political line, whereas Oglesby is nearly 5 miles south of La Salle. Transportation between La Salle and Peru is greatly facilitated by a street car line giving a fifteen-minute service, but Oglesby must be reached by automobile, and a small runabout is part of the equipment of the health department.

Sanitation had long been at a low ebb in these communities, chiefly on account of the large percentage of foreign population, but in part also on account of inadequacy of provision for public health work. Nothing had been done on food and dairy inspection or medical inspection of schools, and the collection and disposal of garbage were rather unsatisfactory. Quarantine regulations were lax and difficult to enforce, and in consequence smallpox, diphtheria and scarlet fever were very prevalent for several years, and often were epidemic.

These conditions were clearly seen and understood by some of the residents, and especially by Hon. F. W. Matthiessen, who had previously done much for this community. It was clear to them that a more modern and more efficient health department was needed to cope successfully with these problems, but it was equally clear that these three municipalities, which are made up largely of laboring people, could not each support such a department with its various specialists. The old health boards could make no important improvements because they had no financial support and no men on their staffs with special training in public health work.

Early in 1913 Mr. Matthiessen, with the advice of his son-in-law, Dr. Phillip S. Chancellor, made a proposition to establish a modern health department for La Salle, Peru and Oglesby, with headquarters in La Salle, and supported by a private donation from Mr. Matthiessen. After a conference with the present director, the following plan of organization and operation was drawn up and submitted to each of the three city councils in October, 1913, for acceptance: The plan provided for the establishment of a hygienic institute in La Salle, under the general guidance of a director who was to be selected by Mr. Matthiessen and Dr. Chancellor. The director of the hygienic institute was to be accepted by each of the three cities as their chief health officer or health commissioner; but in order to give this organization a legal standing it was necessary that the mayor and city council in each of the three cities should appoint an assistant health officer who is a resident of the city in which he serves.

In order to keep these appointments out of politics as much as possible, the director of the institute is given the right of nomination of these appointees. It is understood that these assistant health officers shall work under the direction of the director of the institute, but we have no written agreement to that effect. This cooperation is secured, however, by virtue of the fact that they draw their salaries from the hygienic institute, the funds of which are controlled by its director. The director has a three years' contract with Mr. Matthiessen, which gives him rather full control of the institute, and the city ordinances give him full

1. Phelps, Earl B.: Cooperative Public Health Administration, an Experiment in Small Communities, *Pub. Health Rep.*, Sept. 25, 1914, p. 2477. Cooperation in Public Health Administration in the Small Community, editorial, *THE JOURNAL A. M. A.*, Oct. 3, 1914, p. 1207.

charge of the health department. He is empowered to select his staff of assistants, which at present consists of a bacteriologist, a school nurse, an infant welfare nurse, a dairy inspector, a stenographer and book-keeper, a laboratory helper and the three assistant health officers just referred to. Everybody on this staff draws his salary from the fund given by Mr. Matthiessen.

Our plan provided further that each of the three municipalities shall engage a sanitary policeman, who is to work under the direction of the health commissioner, but shall be paid by the city. The cities were also to provide for the collection and disposal of garbage, and to adopt a more up-to-date sanitary code which would embody recommendations made by the director of the hygienic institute.

The three assistant health officers are medical practitioners and give only a part of their time to this work. They act in the capacity of medical inspectors and are virtually in charge of the contagious diseases in their respective districts. All contagious diseases are, however, reported to the central office, and epidemiologic investigations are conducted from that office.

The general plan outlined was accepted in October, 1913; the new ordinances were passed in April, 1914, and the new health department took charge, May 15, 1914.

In formulating our plan of organization of the hygienic institute and the cooperative health department, economy of operation was not the paramount consideration. The first thing sought after was efficiency in public health administration; but those who advanced the projection were desirous that original research should also be provided for. We therefore aimed to have assistants enough to allow the director and the bacteriologist to devote considerable time to this important side of the work. Mr. Matthiessen's donation in support of this work was as follows: \$12,000 for a suitable building for offices and laboratory; \$5,000 for laboratory equipment and office fixtures, and \$16,350 annually for salaries and maintenance.

When we started the work last spring, we centered our efforts on the insanitary condition of the alleys and on the milk supply. We found that most people threw all kitchen refuse and other waste into the alleys. Some used old wooden boxes or barrels, and a few (not over twenty-five families) had covered, water-tight garbage cans. Stable manure was thrown anywhere in the alleys or on vacant corners of lots. These conditions were considerably improved, but not without a number of legal battles. There still are a great many uncovered garbage cans in the city, and many owners of horses have not yet provided a covered box for holding the manure.

All grocery stores, meat markets and restaurants are being systematically inspected and scored, and the schoolhouses are visited daily by either a school nurse or one of the assistant health commissioners.

All dairies have been inspected and scored, and the dairy cows will soon be tested for tuberculosis. The milk delivered in the cities is subjected to bacteriologic and chemical analysis several times a month. In La Salle all milk is now delivered in sterilized bottles, but in Peru the greater part of it is still dipped from cans in open wagons in the streets.

In order to bring about this improvement without greatly affecting the price of milk, we took part of our

appropriation for equipment and installed a bottle washer and sterilizer, bottle filler and steam boiler in several of the dairies, free of cost to the dairymen. In spite of this assistance, however, the price of milk was advanced from $7\frac{1}{2}$ to $8\frac{1}{3}$ cents a quart, nearly 1 cent a quart.

Permanent records are being kept of all contagious diseases, births and deaths for the first time in the history of these municipalities. The open privies are slowly being eradicated, but most of these improvements are meeting intense opposition. We hope, however, that the greater part of this opposition will soon cease, as it will become apparent that these improvements are for the good of everybody. Industrial hygiene is part of our program, but thus far it has been impossible to give any time to this part of the work.

PITUITARY EXTRACT IN OBSTETRICS*

J. K. QUIGLEY, M.D.

ROCHESTER, N. Y.

"Throw away your forceps and use pituitrin," is the glowing headline of a recent advertisement of a large pharmaceutical concern. An enthusiastic obstetrician, in prefacing a report on its use, says: "Since the introduction of the antiseptic method in obstetrics by Semmelweis and Oliver Wendell Holmes in the early forties, nothing has had such a far-reaching effect on the practice of midwifery as the use of pituitary extract."

While both these laudatory expressions are, to say the least, slightly extravagant, nevertheless pituitary extract is here to stay in the armamentarium of the obstetrician.

The literature on the use of extract of the hypophysis as an oxytocic dates from Blair Bell's paper, read before the Liverpool Medical Institute, Nov. 4, 1909 (just five years ago). For the next three years its practical application was worked out largely by German and Austrian observers, and the German literature was voluminous. During the past two years many Americans have written on its use. The striking feature of all these reports is the unanimity of opinion as to its value and the almost total lack of untoward results, when used within its limitations.

In this brief paper I wish to supplement a more detailed review of the literature and report of twenty-six cases,¹ read before the State Medical Society in April, 1913, so I shall omit any extensive quotations. Since then I have used pituitary extract in twenty-four additional cases.

The physiologic action of extract of the hypophysis as an oxytocic is limited to the extract of the posterior lobe of the gland. From this, quite recently, have been isolated eight constituents, four of which, precipitated by phosphotungstic acid, can be separated from one another by fractional precipitation. These four principles differ in their action on the uterus, blood pressure and respiration. Number 4, for instance, has marked oxytocic properties, but no action on the blood pressure or respiration.

The pituitary hypertrophies during pregnancy to a marked degree—often to twice its normal size. In view of the marked effect of extracts of this gland on the pregnant uterus, what effect, if any, does the secre-

* Read before the Rochester Academy of Medicine, Nov. 9, 1914.
1. Quigley, J. K.: New York State Jour. of Med., June, 1913.

tion of the hypophysis have on the inception or origin of labor pains and on their continuance?

What effect would extirpation of the posterior lobe have on labor in a pregnant animal?

Pituitary extract given per os is practically inert, but given subcutaneously or intramuscularly its effects are noted in from three to ten minutes in a marked increase in the intensity and duration of the pains. This action continues for from sixty to ninety minutes. It shortens the third stage considerably, in my series by one-half. It is a prophylactic against vesical atony, so catheterization is rarely necessary post partum. It is a temporary galactagogue. It is non-toxic and non-cumulative. There are eight preparations on the market: two American, one English and five German. I have used one of these, namely, that of Parke, Davis & Co., in the most of my work, and the pituitary extract made by Burroughs Wellcome Co. and by Farbwerke Hoechst, to a lesser extent.

The original preparation was marketed in ounce bottles and was unstable from deterioration, so that now it is put up in ampules exclusively for hypodermic medication. One c.c. equals 0.2 gm. of dried substance. The earlier doses were unnecessarily large, some using as high as 4 c.c. as an initial dose. I have never used more than 1 c.c., and during the past year have found that $\frac{1}{2}$ c.c. seemed quite as efficient.

If no result is seen in one-half hour, repeat the dose, using 1 c.c. at the second injection. If no response follows this second dose, one may conclude that the use of the agent in that particular case is a failure.

I wish to take exception here to the statement of Druskin² in his paper: "The use of the drug is remarkably free from danger even when given in enormous doses."

INDICATIONS

Uterine Inertia.—This in the second stage of labor is the ideal condition for the exhibition of pituitary extract, meaning a fully dilated or dilatable os, a presenting part that is engaged or can be made to engage, and absence of obstruction either on the part of the passage or passenger. Often, to be sure, in multiparae we find the head unengaged with unruptured membranes and a big pelvis. Here its use is admissible, *but an engaged presenting part with full dilatation is the safest working rule.*

Placenta Praevia Lateralis.—Pituitary extract should be used either after rupture of membranes and intraovular use of a Voorhees bag or without the bag.

Post-Partum Hemorrhage.—In this condition its action is more prompt and energetic, but not so prolonged as ergot. Hence it is well to supplement it with the use of the latter drug.

Cesarean Section.—Here it should be given at the time of the uterine incision. It is more prompt and certain than ergot.

As a Galactagogue.—Hill and Simpson³ of Ithaca, writing in the *American Journal of Physiology*, claim an increase in the mammary secretion in a case in the fifth month of lactation with higher percentage of fat. The amount obtainable on the next morning was diminished, however. I have used it twice during the first three weeks of lactation, with a temporary improvement only.

Induction of Labor.—Pituitary extract will not induce abortion or premature labor (fortunately).

Used in conjunction with dilating bags or the cervical pack, however, or in a case of inevitable or incomplete abortion, it is a valuable aid.

Late Puerperal Metrorrhagia.—One instructive case was that of a woman in her fourth puerperium with a history of severe bleeding at the sixth week post partum in two previous instances, which demanded rest in bed and, in one case, curettement. In this instance she was given 1 c.c. of pituitary extract on the eleventh, twelfth, thirteenth, fifteenth and eighteenth with marked improvement after the first dose, and a cessation of bleeding after the fourth dose on the fifteenth. It was not necessary to put her to bed at any time.

CONTRA-INDICATIONS

First, last and all the time, *obstruction*, as, contracted pelvis, an occiput posterior stationary at the brim, etc. It is not to be used to hurry a case making normal progress, or when the cervix is not taken up; in the presence of marked high blood pressure, or if the fetal heart is unusually slow.

Now as to the objections to its use mentioned by a few observers:

1. *Asphyxia Neonatorum.* The children delivered after the use of pituitary extract commenced breathing as quickly as the average, and no true asphyxia was noted in the cases I have seen.

2. *Tetanic Contractions.* Pituitary extract is undoubtedly the most active oxytocic agent known. It does increase the intensity and length of the pains and shortens the intervals, but I have never seen a true tetany develop.

3. *Post-Partum Relaxation.* Three of my patients had quite a bit more of bleeding after the third stage than is usually seen, but nothing approaching a flooding or that did not respond to simple measures for its relief. If pituitary extract is administered over an hour before expulsion, the administration of the usual dram of ergot will obviate this danger, I think. It should not be used unless the patient can be under supervision for from one and one-half to two hours post partum.

4. *Uterine Rupture.* This, to my mind, is the greatest danger confronting us in the use of pituitary extract, and, at the same time, the easiest of prevention. Some four or five cases have been reported to date. The patient sent to Polak's clinic, Brooklyn, had had 4 c.c. as an initial dose. In a case reported by Druskin of New York, the patient, who had an acute nephritis, had been in labor only three and one-half hours and was making good progress, with strong regular pains, when 1 c.c. pituitary extract was given with the head at the inlet. Symptoms of rupture supervened in about an hour and a half. Herz of Leipzig, in 1913, reported a case of uterine rupture following administration of 1 c.c. to a delicate anemic primipara two days in labor with cervix dilated only two fingers' breadth, with a flat rachitic pelvis and outward bulging of lower uterine segment. It would seem that no comments on this case were necessary.

I cite these three cases first, to show that pituitary extract is a violent stimulant to uterine contractions, that it must not be used except when indicated, and that it must be used with discretion; secondly, to show that in the three cases the details of which are available, it was not used with judgment but, on the contrary, quite recklessly.

A brief statistical study might be of interest, first, as to the percentage of successes.

2. Druskin: Am. Jour. Obst., October, 1914.

3. Hill and Simpson: Am. Jour. Physiol., October, 1914.

In the two series, there were fifty cases with seven failures and three partial successes, or 86 per cent. of successes. Among the cases were 2 of incomplete abortion; 2 of induction in conjunction with hydrostatic bags; 2 of placenta praevia; 2 of cesarean section; 2 of puerperal metrorrhagia, and 1 in which the extract was used as a galactagogue. The balance, cases of inertia, chiefly secondary, included one breech and several occiput posterior cases. In the seven classed as failures it was necessary to resort to forceps delivery.

Secondly, as pituitary extract undoubtedly does supplant the forceps in many cases, it might be well to compare the fetal mortality.

In 147 cases collected by Madill and Allan,⁴ in which pituitary extract was used, there were four deaths, or 2.7 per cent. In 106 forceps deliveries, fifteen deaths, or 14 per cent.; at the Basle clinic, 10.5 per cent.; Edgar (208 cases), 5.7 per cent.; at Dresden, 15.63 per cent.

The maternal prognosis is undoubtedly much better than with forceps, as the chances for infection are minimized.

Thirdly, as to the average time elapsing between the injection of the extract and the birth of the child.

In a series of cases noted by Madill and Allan at the Rotunda Hospital, this was in primiparae, 22 minutes, in multiparae, 11 minutes. Anderson⁵ (Buffalo) gives in 10 cases, which he admits were selected from a large series, an average of 27 minutes. Druskin of New York, 50 minutes. My first series, 18 cases, 55 minutes.

Dividing these, the time in first stage injection cases was 100 minutes; in second stage injection cases, 38 minutes.

In my second series the time was 26 minutes; the minimum in the second series being five minutes. My explanation of this is that since writing my first paper I have narrowed my indications more and used pituitary extract later in labor.

In summarizing I will repeat the conclusions of my original paper.

SUMMARY

1. In pituitary extract we have the most powerful stimulant to uterine contraction yet discovered.
2. Its greatest value is its use in uterine inertia.
3. The ideal time for its exhibition is in the second stage, although good results follow its employment earlier; in these cases it is usually necessary to repeat.
4. No untoward results, such as post-partum hemorrhage or asphyxia, were noted for mother or child in the fifty cases.
5. It shortens the third stage.
6. It renders catheterization post partum almost never necessary.
7. It has no place in the normal case.
8. Preparations for delivery should be made at time of injection, such as sterilizing hands and gloves.
9. The facilities for giving an anesthetic at a moment's notice are prerequisite, for we do not know the susceptibility of the uterine muscle in any particular case.
10. Pituitary extract may advantageously be supplemented by semimarcosis when the presenting part is on the perineum. (This would naturally mean chloro-

form, ether, or pituitary extract. Nitrous oxid is contra-indicated in scopolamin narcosis.)

11. Pituitary extract *must* be used judiciously and with a due appreciation of the possible dangers of so powerful a uterine stimulant. This is the most important point.

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WOUNDS RECEIVED IN BATTLE

SURGICAL AND GENERAL OBSERVATIONS MADE DURING RECENT SERVICE IN AUSTRIA

LLOYD MILLS, M.D.

LOS ANGELES

In June, 1914, I was privileged to become a voluntary assistant in the second eye clinic of the Vienna General Hospital, the service of Hofrat Fuchs. At the outbreak of the war two wards of this service were placed under Professor Budinger, and on volunteering to serve without pay, I was given charge, with the understanding that all the eye cases of this division were to be referred to these wards so far as possible. I was active here for over three months, doing practically all the eye and brain surgery as well as all of the general major surgery of these wards, and assisting in the surgery of the five other wards of Professor Budinger's service.

Including 322 cases of my own, I had the privilege of observing about 1,100 cases of projectile wounds and war injuries of various kinds during this period, and my generalizations are drawn from this mass of material.

Of my own cases, 177 were bullet wounds, 95 were shrapnel, 4 were shell wounds, 7 carried bayonet wounds, 17 were cases of accidental injuries such as crushes of the extremities from the wheels of gun carriages, or fractured ribs from falls into trenches, and 22 were purely medical cases, mistakenly referred to us in the confusion which always accompanied the arrival of a great transport of wounded. The large excess of bullet and shrapnel wounds over wounds produced by shells, the reverse being the case on the French front, was the direct result of the more mobile type of operations on the Russian border, shrapnel being generally employed against masses of troops moving in the open, while shells of various types find their chief use in searching out the depths of trenches and in demolishing cover.

Nearly 63 per cent. of our bullet wound cases were infected, and over 85 per cent. of the shrapnel cases, while of the 188 infected wounds embracing all degrees of sepsis, fifty-eight, or approximately one in every three, came to operation. This high percentage of infection of shrapnel wounds accords with the English observations that practically all shrapnel and shell wounds became infected.

Six septic cases were lost, three being perforating bullet wounds of the knee, in which radical measures were deferred until too late, or not undertaken at all; one was a comminuted open fracture of the left forearm with tetanus, early amputation having been refused; one patient died from peritonitis and pyopneumothorax, and one from meningitis, secondary to a shrapnel perforation of the lumbar spine. The two other deaths were from spinal cord perforation and from spinal cord pulpification.

4. Madill, D. G., and Allan, R. M.: Use of Pituitary Extract in Labor, Surg., Gynec. and Obst., August, 1914, p. 241.

5. Anderson: Buffalo Med. Jour., May, 1914.

Three out of four of my patients with tetanus recovered under antitoxin and chloral. In one of these, a compound fracture of the left hand, amputation in the middle of the forearm immediately turned the scale in the patient's favor. All of these cases were noticeable, on entrance, for their very foul, black-gangrenous wounds and free suppuration.

Three patients with erysipelas and two with gas bacillus infection recovered, amputation of a leg being necessary in one of the latter cases.

Although many of the men were nervously upset in connection with their wounds and the trials of transport, the diagnosis of war psychosis (traumatic neurosis) was made in but six cases. The story usually told by these patients was that the violence of a shrapnel explosion had hurled them several meters into the air, and when consciousness returned, they found themselves partly paralyzed for motion, speech, hearing or vision as the case might be, and yet unwounded. These men regained their control very slowly, especially the hysteric amauroses, and were subject to excited dreams, melancholy and fits of weeping.

Amputations were done for tetanus, gas bacillus infection, torsion necrosis of a fractured leg and for septic knee joints.

At first small multiple incisions were the rule in phlegmons, but they quickly gave way to long, sweeping incisions, which alone gave the needed wide-open drainage.

I noticed, as all other observers have done, that wounds of the left hand and forearm were very common. In the shrapnel wounds of the hands, the terminal phalanges were nearly always torn off. Although literally hundreds of lacerated and infected fingers were seen and treated, in only one case was an amputation done.

Wounds of the bones were remarkable for the almost complete absence of the classical round perforations. Out of 101 such wounds, only two were simple perforations without fracture, while in most cases the comminution was very extensive.

Only one direct abdominal perforation reached us, and it had healed without operation, before the arrival of the patient. The entrance wound lay 2 cm. to the left and above the umbilicus and led slightly downward and to the left. There was no wound of exit. Our other abdominal patient received a rifle bullet at about 400 yards while lying on his left side. The bullet entered in the right supraclavicular fossa, pierced the scapula and followed the contour of the chest downward until it reached the eighth rib in the posterior axillary line. Here it comminuted the eighth, ninth and tenth ribs, the fragments of which acted as secondary missiles and tore open the pleura and peritoneum and deeply lacerated the liver. Despite the freest drainage, the patient died from peritonitis and pyopneumothorax.

Our experience with bullet perforations of the knees was rather unhappy. Of six cases, two made a spontaneous and functional recovery. In the Budinger clinic, when such wounds became septic the custom was to make lateral and posterior incisions over the joint, to open the subcrural bursa freely above and to irrigate with a solution of hydrogen peroxid. One patient recovered after I had replaced the peroxid irrigations by salt solution. The other cases, in which amputation could have been successfully performed at the very beginning of their symptoms of increasing general sepsis, were allowed to drift into deeper sepsis,

despite my requests to be permitted to amputate. This permission was given in one case already overwhelmed by toxic poison, but naturally the operation was too late.

I believe that the reluctance to amputate was the result of the altogether laudable desire to keep down the percentage of amputations; but in my opinion conservatism has little place in septic bullet wounds of the knee joints after the first evidence of beginning generalized poisoning.

Our method of making the flaps as long as possible, depending on the extent of involvement of the skin, rolling them back until they paralleled the direction of the limb and holding them in this position by the dressing, gave the freest possible drainage, kept every part of the large wound open to daily inspection, and minimized the amount of secondary operative procedure.

Recovery took place in all of our lung perforations. One patient was a Russian who recovered despite his voluntary starvation for the first three days after admission, for fear he would be given poison in his food and in spite of pneumothorax on the injured side, pneumonia of the other lung, a bayonet wound in the right scapular region, another in the left abdominal wall and two deep and ugly shrapnel tears in the groins. In these cases the common symptom remaining at the time of discharge was a slight dyspnea, which became a little noticeable on exertion.

Death occurred in three of our vertebral cases. One patient, with a transverse division of the lower cervical cord, died shortly after admission; another, judged too weak to withstand operation, died from meningitis following the lodgment of a shrapnel ball between the first and second lumbar vertebrae, with consequent spinal fistula and infection; the third, completely paralyzed below the nipples, and dyspneic, had an oblique wound of entrance just over the right transverse process of the fourth dorsal vertebra. A wide laminectomy of the fourth, fifth and sixth dorsal vertebrae exposed a perforated and fractured base of the spinous process of the fifth. The bullet had lodged in the deep muscles of the left side and had not come into contact with the cord. Nevertheless, the cord was so pulpified and so like custard in structure, that it could scarcely be recognized. This was a marked example of cord disruption produced by molecular vibration. This case is in contrast to another, presenting a small clean wound of entrance about 5 cm. to the right of the body of the eighth dorsal. The bullet passed through the spinous process of this vertebrae, in much the same manner as in the previous case, but emerged, carrying much of this process before it as a secondary missile which tore out the whole adjacent mass of spinal muscles and left a great, gaping hole of about the size of two fists. The patient recovered without a symptom referable to any disturbance of the cord, although he was left with a sharp left lateral curve.

Another patient recovered after the removal of a shrapnel bullet from between the third and fourth lumbar vertebrae, where it had driven spicules of bone ahead of it and was pressing slightly on the cord. The only symptoms before operation, apart from the local discomfort, were paresthesia and a sensation of cold in the right heel and the toes of the right foot.

Still another patient lost the right transverse process of the sixth cervical vertebrae, the bullet slipping benignantly through the cervical plexus, to lodge in the mastoid. A continuous neuralgic pain and buzzing in

the right ear ceased with the removal of the missile from the mastoid, but the patient had a noticeable right torticollis on discharge.

The immunity of the great cervical vessels and nerves seems to be remarkable, for we had many cases in which bullets passed through the whole length of the neck, or crossed the whole neck obliquely from above downward, or passed transversely without the slightest injury to nerves or vessels. These were the fortunate cases, however, for in those in which lacerations of the great vessels occurred, the men never lived to achieve even first aid attention.

If there were time for diagnostic reflection on the firing line, a study of the rapidly fatal cases would give interesting symptomatic and prognostic data.

Wounds of the head are probably the most frequent of all wounds, and are possibly the most frequent causes of immediate death. This is certainly true of trench warfare, and yet the large number of cases of wounded hands and arms which reach the base and civil hospitals give the false impression that these are the parts most frequently wounded.

Practically every close-range shot of the cranium is fatal at once, from complete disruption of the brain and fragmentation of the skull. The length of the path of the bullet in the brain, however, influences the amount of destruction and the chance of recovery, as the destructive effect is in direct proportion to the amount of brain substance set in motion by the energy of the bullet. The shots in which recovery is most hopeful are those in which the frontal bone is guttered, with a corresponding guttering of the frontal convolutions. The tolerance of this part of the brain is far greater than has been supposed, and I have seen a number of cases of this sort in which the patients recovered from all the immediate effects of their injury.

In trephining these cases, and they all come to trephine or elevation of depressed bone, the caution is often necessary of waiting until the usual mild infection has subsided. Neglect of this rather elementary precaution was the direct cause of death in four successive trephine cases in one of the Vienna services. When symptoms of an abscess of the brain, or other focal symptoms make interference necessary under such conditions, a guarded prognosis must be made.

In cranial wounds the most careful roentgenographic study is often necessary for accurate diagnosis and determination of the extent of subcutaneous destruction. In the case of Lieutenant F., a bullet traversed the right neck and face, ruptured the eye by indirect violence and emerged through the right external angular process. Under the Roentgen ray, an apparently beginning trismus of tetanus resolved itself into a comminution of the right coronoid process. In a case of through-and-through perforation of both petrous bones, a syndrome which simulated the meningitis of an infected basilar fracture was shown by Roentgen ray to be merely a phlegmon of the wound of exit. In one case a small abscess of the brain was recognized roentgenographically and evacuated before dangerous extension could occur. In another case of gutter shot of the outer table, exactly over the sagittal suture, no fracture of the inner table could be found by repeated frontal and lateral roentgenograms, and as the only symptoms were slight headache and vertigo, the rule of exploring all these cases was departed from and the patient made a complete recovery.

Wounds of the eyes and of their immediate surroundings were so diverse and interesting that they have been made the subject of a separate paper. One of their remarkable features was the frequency with which the front of the external wall of the orbit was cleanly shot away, the right orbit suffering about twice as often as the left. In nearly every case the resulting exposure was so like that sought from an ideal Krönlein operation that the injury became known as the "Krönlein shot," at my suggestion. The number of totally blind, following the destruction of both eyes or optic nerves, is appalling.

The cases of bayonet wounds which reached the general hospital were more or less trivial. Bayonet fighting is very deadly, and as the wounds are high, in the neck or upper chest, death usually follows promptly from hemorrhage. The modern bayonet is used as an aid in intrenching and also, if saw-toothed, is often used for such purposes as sawing wood; hence infection is the rule in the surviving cases.

Apparently all the writing of earlier wars had left no impress on the doctors at the front, for in the earlier days of the war, many patients returned beautifully tamponaded with gauze, or with pads of cotton next to the wound and so dried and hardened by the secretion that they formed most efficient plugs. Iodoform powder and tincture of iodine were also used, but in common with the cotton dressings, they coagulated the discharge of blood and serum and patients often reached the general hospitals with the skin distended almost to bursting with thick pus, gangrenous muscle and bone fragments. Later, practice became fairly well standardized and plain gauze dressings the rule.

I venture to say that the final statistics of this war will be quite unlike those of any which preceded it. The incidence of sepsis, in the early months at least, can certainly not be duplicated since medieval times; the proportion of permanently disabled men seems far greater than ever, and the immediate mortality is very high, as a result of the close-range firing, the frequency and extent of hand-to-hand combat and the avowed determination of whole army corps to give no quarter.

One may further venture to ask if the large number of slightly wounded who are so promptly returned to the front in this war may not be a considerable factor in its prolongation.

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Sanitary Improvement in Toronto.—In 1912 a house-to-house inspection revealed 17,181 yard privies in Toronto. In December, 1914, there were only 4,890. In two years the Department of Health abolished 12,291 privies, a very satisfactory record and one probably unique on the continent of America.—The general death rate for Toronto in 1914 was lower than that attained in any American or British city in 1913, being 11.2, while that for 1913 was 12.9.—The improvement in the death rates in Toronto from typhoid fever, scarlet fever and diphtheria is seen in the following statistics: In 1910 the death rate per 100,000 in the above order was 40.9, 23.8, 42; in 1914 it was 7.7, 6.6, 16. This shows an improvement percentage of 81, 72, 62. Altogether, Toronto had 594 fewer deaths than in the previous year. Ordinarily it is customary to give credit for such good work to the health departments; but in Toronto, a chiropractor rushes into public print to state that the reason lies in the fact that Toronto is blessed with more chiropractors than any other city in America, and that diseases are, therefore, more quickly cured. Where do the osteopaths, neuropaths and the Christian Scientists come in as regards this great preventive work?

THE SPINAL FLUID IN PNEUMONIA

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AND

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Perhaps of all the conditions with which the clinician is confronted, none offers as many difficulties in prognosis as lobar pneumonia. With as far as can be determined the same degree of resistance and lung involvement, some patients have relatively mild infections, while others are overwhelmed. With the idea of perhaps finding some cause for the marked physical and mental depression so often seen in the condition, lumbar punctures were made in a series of cases of the disease, and the fluid examined chemically and bacteriologically. At the same time an effort was made to correlate other clinical phenomena so that a fairly accurate prognosis of the individual case might be given.

Our material has been gathered from the wards of Lincoln Hospital, from the services of Drs. L. F.

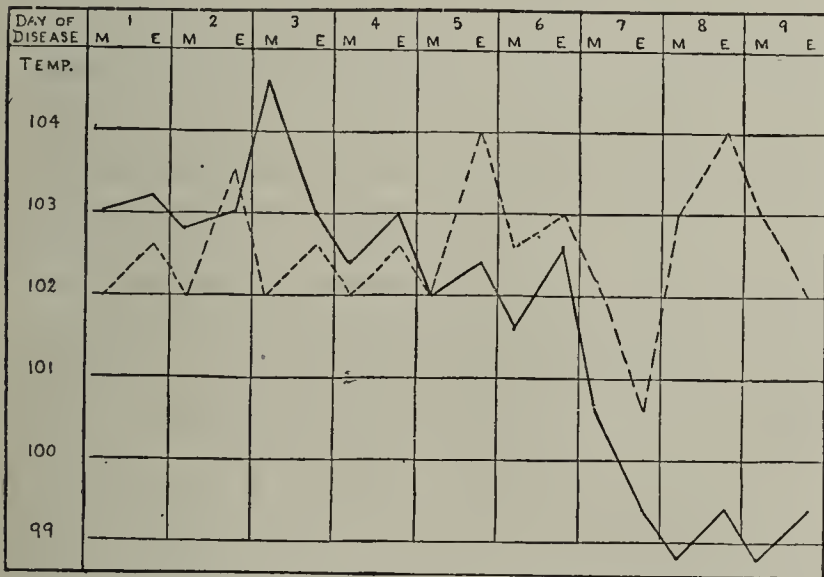


Chart 1.—Temperature chart. In this and the following charts, the solid line denotes recoveries, and the broken line, deaths.

Bishop, L. Scheerer and F. Barrett, to whom we are indebted for the privilege of using the case histories. The series comprises 145 patients of whom sixty-one died and eighty-four recovered, giving a mortality of 42 per cent. The cases were admitted between Nov. 1, 1913, and Jan. 31, 1915. The high mortality rate is due to the type of case admitted, the greater number being underfed, overworked, alcoholic laborers. In our survey we have considered beside the spinal fluid, the temperature curve, the leukocyte count, the results of bacteriologic examinations, and the blood pressure curve.

In our analysis of the temperature we have omitted the four-hour periods, taking, instead, the 8 a. m. reading as the morning temperature and the 8 p. m. reading as that of the evening. In computing the curve we have taken the average of all temperatures so recorded up to and including the ninth day of the disease.

The classical temperature curve of pneumonia is represented as having an initial high point, followed by an irregular plateau lasting three, five, seven, or nine days and then falling to normal either by lysis or crisis. Our analysis, however (Chart 1), shows a

difference in the curve in fatal and non-fatal cases. The peak of the curve in the non-fatal cases occurs on the third day, in contrast to that of the fatal cases, which occurs on the fifth day. It is also interesting to note that the peak in each type of case occurs two days after the peak in the leukocyte curve.

As will be noted in Charts 2 and 3, non-fatal cases have their maximum leukocytosis on the first day of the disease, and after the first day the curve slowly

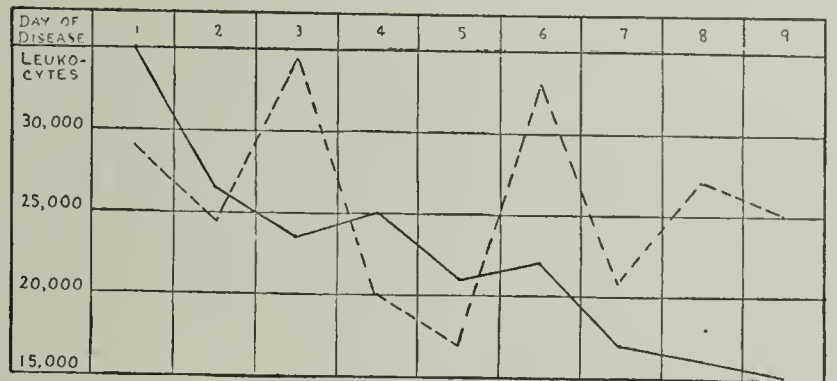


Chart 2.—Leukocyte curve.

drops but does not reach normal for fully ten days after the crisis. The fatal cases, on the other hand, show their maximum leukocytosis on the third day, the curve both before and after this day being decidedly irregular.

The differential count also shows a difference in the two types, the non-fatal cases showing a maximum polynuclear increase on the third and fourth day, and then falling, while the fatal cases show a gradual increase to the sixth day.

According to some observers, the finding of pneumococci in the blood stream is dependent to a greater or lesser extent on the details of technic. In all of our cultures, calcium carbonate broth was used, in about the proportion of 1 c.c. of blood to 30 c.c. of the medium. In our series of positive blood cultures, forty-six patients (56 per cent.) recovered, and thirty-six (44 per cent.) died, while of the negative blood cultures, twenty-eight (100 per cent.) recovered. A negative blood culture, according to our results, can be interpreted as of good omen.

A much more interesting series of observations was first noted by the resident staff men, Drs. Johnston and Hochman. Routine spinal punctures were per-

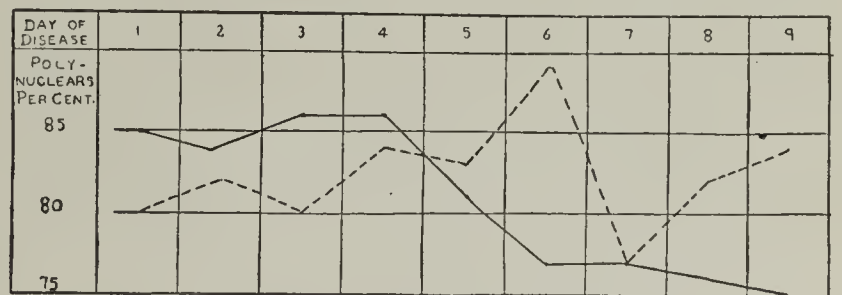


Chart 3.—Polynuclear curve.

formed in a series of cases irrespective as to the occurrence of meningeal symptoms. In this series, of those dying, fourteen (87 per cent.) showed pneumococci on culture, while two (13 per cent.) were negative; in contrast, of those recovering, fifteen (34 per cent.) gave positive cultures, and twenty-eight (66 per cent.) were negative. All of the spinal fluids giving positive cultures were positive for both sugar and globulin. The average cell count in those dying

was 214, while in those recovering it was fifty. The fluids negative to culture showed a very slight increase in cells (thirty), but were otherwise normal.

In but one instance of the entire series was the spinal fluid of such a character that it might be termed purulent, and this was the only case showing meningeal symptoms. All of the patients showing positive cultures were profoundly depressed, reacted badly to the infection, and for the most part were markedly delirious.

No attempt was made to identify the strain of pneumococci; however, a few animal inoculations with the cultures were made. Of ten positive blood cultures injected into mice subcutaneously, four killed the animals, and in three others the pneumococcus could be demonstrated in the blood stream forty-eight hours after injection. Of ten cultures of spinal fluid injected in a similar manner, three mice died, and the pneumococcus could be demonstrated in the blood stream of four others after forty-eight hours.

Another way of measuring the resistance of the patient is that of noting the effect of the toxemia on the vascular system.

In our series only the systolic pressure has been considered, no attempt being made to estimate the cardiac load. As will be noted (chart 4), the blood pressure in the fatal cases continues to fall from an initial high point, in marked contrast to the cases of recovery in which an irregular pressure curve is observed.

The frequency of the various signs is given in the appended table. In our series the presence of two or more has been certain in giving the prognosis; but when but one is present the method is unreliable.

As a result of our survey, it appears that pneumococci are present with much greater frequency in the spinal fluid than is usually thought to be the case without the presence of meningeal symptoms. The early lysis of pneumococci, with the liberation of the endotoxin and its close proximity to vital centers, may well explain the profound and sudden cardiovascular col-

curve with a maximum on the third day, and a steadily falling blood pressure are in our experience indications of a fatal termination.

222 West One Hundred and Thirty-Sixth Street—156 East Fifty-Eighth Street.

WHAT IS THE PRESENT STATUS OF
AUTOSERUM IN SKIN DISEASES?

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Having been an enthusiastic follower of autoserum therapy in skin diseases, and having given it a thorough and impartial trial, I regret to acknowledge my belief that autoserum therapy will prove another "therapeutic fiasco." In the paper read by me before the Section on Dermatology of the American Medical Association in 1913, entitled "Empiricism in Dermatologic Therapeutics,"¹ I

was accused of being too much imbued with nihilistic views in regard to therapy of diseases. In this paper I stated that for lack of knowledge of the etiology of the majority of diseases, we physicians are always ready to adopt and exalt any new remedy or method that may have some promising feature. How any thinking physician can, in the present developmental era, not become a therapeutic nihilist, is rather an enigma to me.

Dr C. J. White,² in his chairman's address before the same section in 1912, said:

The subject of my address is the shortcomings of dermatology—perhaps not a flattering theme to choose for this occasion, but one which

impresses me more and more the older I grow and the more intimately I become involved in dermatologic practice and teaching.

Acknowledging the fact that only 40 per cent. of the common noninfectious skin diseases are of known etiology, Dr. White asks, "What must we confess of our etiologic knowledge?" This also applies to general practice. The fact that unknown etiology leads to uncertain and speculative therapeutics prompted Dr. Zeisler,³ in the chairman's address before the Section on Dermatology in 1913, to complain of faddism in therapeutics.

It is true that clinical pictures, histologic changes and pathologic conditions of skin diseases are easily recognized by the dermatologist, but since the true etiology in the majority of them is unknown, how,

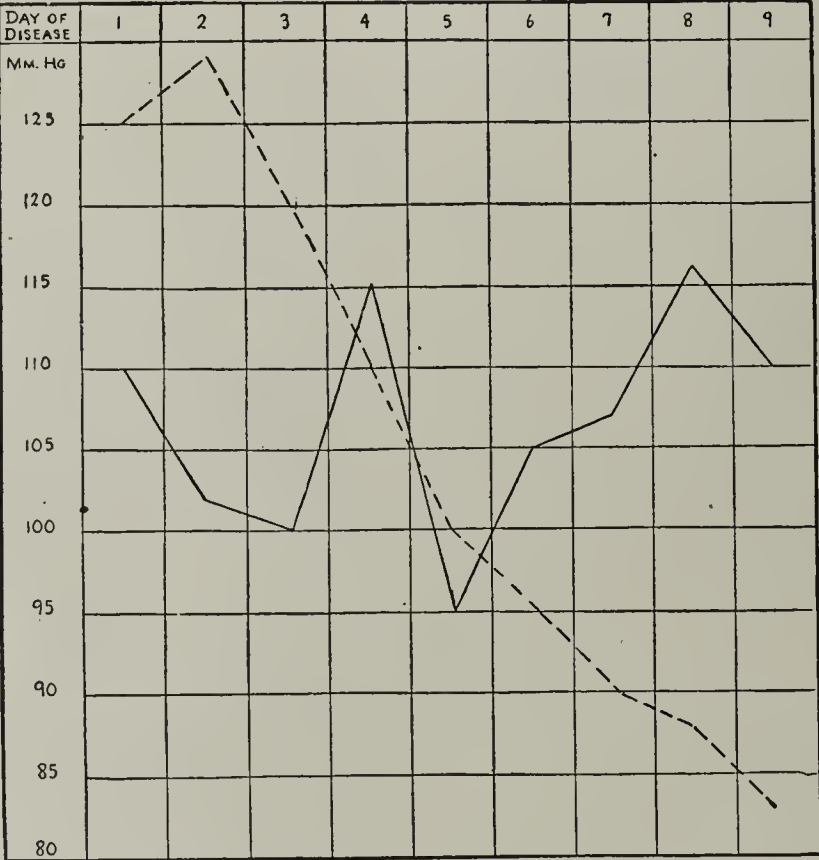


Chart 4.—Systolic blood pressure curve.

FREQUENCY OF THE VARIOUS SIGNS

	Maximum Temperature		Falling	
	Third	Fifth	Blood Pressure	Leukocytosis
Dying	5	56	43	2
Recovery ...	64	20	8	75

lapses, as well as the marked mental symptoms so often noted. Of good prognostic import are a negative blood culture, a negative spinal fluid culture, a falling curve of leukocytosis, and a maximum temperature on the third day. On the other hand, the finding of pneumococci of the spinal fluid and blood, a maximum temperature on the fifth day, an irregular leukocyte

1. Ravitch, M. L.: Empiricism in Dermatologic Therapeutics, THE JOURNAL A. M. A., July 26, 1913, p. 265.
2. White, Charles J.: The Shortcomings of Dermatology, THE JOURNAL A. M. A., June 22, 1912, p. 1915.
3. Zeisler, Joseph: Our Tendency to Fads, THE JOURNAL A. M. A., Aug. 9, 1913, p. 379.

then, can we expect a rational scientific therapy? So, when our old friends "psoriatics," chronic "urticaria," "alopeciacs," "lichenites" and other chronics come to our office with the expectation of being cured, we are anxious to adopt any new method that has some possible promise of success. We are greatly indebted to Gottheil and Satenstein⁴ and to Howard Fox⁵ and also to a few foreign dermatologists, who brought forward new ideas and new methods for the treatment of chronic dermatoses. We have eagerly listened to them and read their papers, and we too have become hopeful and enthusiastic over their new method of treatment by autoserums, though the few cases quoted by them were selected ones and their results have been variously good, "near-good" and indifferent.

Of the foreign investigators Spiethoff⁶ was the first one to use autogenous serum, while others have used the blood and serum from other individuals.

Heuck,⁷ who is often quoted by our American investigators, tried the method of Mayer and Linser and had absolutely no results in psoriasis, neurodermites and chronic eczema. Favorable results were obtained by him in pemphigus and in Duhring's disease, pruritus, strophulus and chronic urticaria.

Veiel had success with serum therapy in pruritus due to pregnancy. Bering asserts that he obtained better results from artificial salt solution than from serum. Bruck claims success with artificial serum, that is, an aqueous solution of various salts, and also says that some cases are rather aggravated by using autogenous serums. Heuck doubts the efficacy of artificial serums.

Very few cases have been reported by the foreign investigators since 1912, though the new method was originated in 1910. The Russian dermatologists, who are rather conservative therapists, have never tried this new method. The serum treatment, after being almost abandoned in the old country in 1912, was revived in this country in 1913, and Drs. Gottheil and Satenstein deserve most of the credit for this revival.

Is it rational and scientific? No method can be called rational and scientific until its action can be interpreted. Since we are unable to understand the action of human serum in the treatment of diseases, why the withdrawal of blood, the separation of its serum, and return of this serum to the body should have caused any change in this serum which could cause reactions in the organism, and how such a change, if it does take place, does really affect the organism, we cannot put this method in the class of rational remedial agents. Although improvement has followed its employment in certain cases of psoriasis, how can we credit the improvement to the autoserum in the face of the fact that its action is useless without employment of chrysarobin, the most important and most active remedy in psoriasis.

Hillario's supposition, that autogenous serum seemingly diminishes the resistance of psoriatic tissue, does not apply to autoserum alone, according to my experiences in many cases. In my experiments with autogenous and artificial serum, with and without the addi-

tion of lecithin, intramuscular injections of cacodylate of soda or mercury and sterilized chaulmoogra oil, and coincident formations of abscesses from various sources, we have seen as beautiful and temporary results as with autogenous serum alone. In fact, any new method, pushed with enthusiastic persistence and arousing psychic influence in the patient, will be met with temporary good results. Had I published my experiments with other methods, I could have also given glowing results at the time of the beginning of the administration of these methods; but as time goes on, my ardor and enthusiasm had to give way to real, cold facts and disappointments. According to my experience, this new method of autogenous serum therapy should be accorded a place in therapeutics, but as to its universal adoption in the treatment of chronic dermatoses, psoriasis in particular, I find its usefulness limited to a very few selected cases only, for the following reasons:

1. Intravenous injection is rather a dangerous procedure, particularly more so, when from six to ten injections must be administered.

2. Only in a minority of individuals, and especially seldom in women, do we find cubital veins suitable for repeated venous punctures and injections.

3. In repeated venopunctures we must beware of endophlebitis.

4. The technic is not simple or absolutely void of infection, no matter how cautious we may be, and the fact that I had no infection in my many cases I attribute as much to good luck as to my extreme care to maintain asepsis.

5. The length of procedure, the risk, the uncertainty of good results and the expense of treatment make it rather prohibitive in the majority of cases.

6. We are in total ignorance of its action, and of the dangers that may accompany such action.

7. Investigators fail to state the real percentage of cures.

8. In the statistics which I have gathered of over 5,000 injections, a comparatively small percentage of cures were reported, and the percentage shrinks as further reports come in, and cases are transferred from the "permanently cured" to the temporarily relieved.

In my autoserum experiments I used precisely the same method as advocated by Dr. W. S. Gottheil. Dr. S. A. Steinberg, my chemist and pathologist, who had a large experience in intravenous injections, had full charge of my work. I also had splendid facilities for clinical experimentation, as my "chronics" were anxious and willing to cooperate with me in order to get rid of their ailments. I employed a very powerful centrifuge making at least 6,000 revolutions a minute. I was able to separate the serum thoroughly in about an hour. According to Dr. Steinberg, a half hour centrifugation is not sufficient for complete separation without loss of some of the serum. No unnecessary transfers of blood and serum were made. Thorough asepsis was maintained; large-caliber smooth platinum needles were used; 20-c.c. all glass Luer syringes were used, at least two being sterilized and laid out for each withdrawal; the blood was discharged from the syringes directly into 50-c.c. glass centrifuge tubes, which were immediately covered with sterile cloths. The blood was allowed to clot thoroughly in the ice box for at least thirty

4. Gottheil, W. S., and Satenstein, D. L.: The Autoserum Treatment in Dermatology, *THE JOURNAL A. M. A.*, Oct. 3, 1914, p. 1190.

5. Fox, Howard: Autogenous Serum in the Treatment of Psoriasis, *THE JOURNAL A. M. A.*, Dec. 19, 1914, p. 2190.

6. Spiethoff, B.: Zur Behandlung mit Eigenserum und Eigenblut, *Med. Klin.*, 1913, ix, 947.

7. Heuck, W.: Erfahrungen über Behandlung Hautkranken mit Menschenserum, *Muenchen. med. Wchnschr.*, 1912, lix.

minutes. The serum could not be reinjected within an hour, as asserted by Dr. Gottheil. It is absolutely impossible if done properly, thoroughly and cautiously. At least two hours should be allowed for this procedure. The amount of blood that we were able to draw from the cubital veins varied from 40 to 90 c.c. The serum was never reinjected in the same vein used for the withdrawal. Only patients with suitable veins are fit subjects for this procedure. Women as a rule are poor subjects, for very few of them have well-developed superficial veins in the arm.

I have divided my subjects into three groups:

1. Subjects suitable for autoserum.
2. Subjects suitable for artificial and lecithinized serum.
3. Subjects suitable only for intramuscular injection of cacodylate of soda, mercury and sterilized chaulmoogra oil.

From four to eight autoserum injections were given, the same number of artificial serum injections were given; from ten to twenty of lecithinized artificial serum were administered; the intramuscular injections of cacodylates varied from twelve to twenty-five.

In the first group three subjects were unable to take the autoserum treatment after the second injection; artificial serum and lecithinized serum were more easily borne by the majority of patients. The mercury cacodylate injections were better tolerated than the sodium cacodylate injections. Ninety per cent. of our subjects were "psoriatics." Two per cent. chrysarobin ointment was used in all the cases of psoriasis.

The conclusions which I have drawn may be summed up as follows:

1. The autoserum is not an ideal or an effective remedy. It was found by me to be absolutely ineffective in urticaria and chronic eczema. It gave striking results in a very obstinate case of psoriasis of thirty-two years' duration. How long the patient will be free from the eruption, time only can tell. The patient is still using a very mild chrysarobin ointment. Sixty per cent. of this class did not respond at all to autoserum, while the rest of the subjects were benefited only temporarily.

2. I had as good temporary results from lecithinized serum, plain artificial serum and injections of cacodylate of soda and mercury.

3. In psoriasis none of the serums made any impression on the disease without the use of chrysarobin.

4. Urticaria and pruritus were not materially benefited by serum of any kind. This must be due to the fact that urticaria and pruritus are in all probability due to some focal infection or internal metabolic disarrangements.

5. A judicious and careful use of chrysarobin externally, with the employment of a suitable drug internally, is as efficient as the autoserum therapy.

It is rather a peculiar fact in my experience with autoserum in psoriasis that my first cases seemingly improved more rapidly than the subsequent ones. Whether this was due to the waning of my enthusiasm and the resultant lessened confidence on the part of the patient diminishing the psychic factor, I do not know, but my method has been the same throughout my work, while the results have become more unfavorable.

Atherton Building.

MUSHROOM POISONING

SOME OBSERVATIONS IN A CASE DUE TO
AMANITA PHALLOIDES *

M. CLARK, M.D., E. K. MARSHALL, JR., PH.D.,

AND

L. G. ROWNTREE, M.D.

BALTIMORE

During the months of August and September, 1914, at least thirty cases of mushroom poisoning were reported in Baltimore, with seven deaths. In September, 1911, twenty-two deaths from this cause occurred in the vicinity of New York in one period of ten days (Ford). The undeniable increase in the incidence of poisoning by fungi, together with findings which throw new light on certain phases of the toxic manifestations, are responsible for the appearance of this report.

Sept. 13, 1914, at 2 p. m., eleven persons ate some stew made of mushrooms gathered that day in the woods.

J. L. became ill nine hours later with abdominal pain, diarrhea and vomiting. The next day, he noticed that he could not see objects at a distance, but was able to see things nearby. He says that his conjunctivae were yellow about the second day. The acute illness lasted three days. L. L., who ate sparingly of the stew, was taken sick eleven hours later. He had the acute symptoms described above, lasting only one and one-half days. J. P. was ill after nineteen hours, but was not under medical observation. Four children were, apparently, not very sick. Two young girls were sick about nineteen hours after eating the stew. They were said to have been jaundiced. One died on the fifth and the other on the seventh day.

Our patient (98150), A. L., was seized with abdominal pain, diarrhea and vomiting nine hours after eating the mushrooms. She was seen the next morning by Dr. McCormick. At this time she was complaining of violent burning pain in the epigastrium and intense thirst. Vomiting was continuous and unaccompanied with much retching. Diarrhea was marked—a fluid stool every five minutes. She was pale, respirations were shallow, pulse imperceptible at the wrist, extremities cold, and she was in collapse. The breath had a fetid odor. There was no perspiration or salivation, no anuria, oliguria, hematuria, hematemesis or melena. Rapid loss in weight occurred. On the second day, the pupils were seen to be tightly contracted, not responding to light. This lasted for about a week. The pupils were not contracted, however, until after opiates were administered. On the third day delirium developed—worse at night. Vomiting, diarrhea and intense thirst continued. On the fourth day and again on the eighth day she had a "weak spell" in which she was exhausted and pale, the pulse was imperceptible at the wrist, and the respirations were shallow. These attacks lasted between three and four hours. After this, she became constipated. Her tongue was noticed to be dry, glazed and red, and the mucous membrane peeled from the inside of her cheeks and gums. The mental symptoms and the vomiting persisted and were present on admission to the hospital two weeks after eating the mushrooms.

On admission, Sept. 28, 1914, the patient was irrational, confused, and at times delirious and violent. She vomited at frequent intervals and continually called for water. She was very restless in bed, and her chin, shoulders, elbows, hips and knees were excoriated. The pupils were normal. The lips and mouth were covered with brownish blood, which seemed to be oozing from the gums. The mucous membranes were bright and glazed. The breath was very foul. The reflexes were all somewhat exaggerated, with a positive Babinski and Oppenheim on both sides, for which no explanation could be found. The eyegrounds were normal.

* From the Medical Clinic of the Johns Hopkins Hospital, and the Pharmacological Department of the Johns Hopkins University.

Four days after admission she had another "weak spell" with marked delirium. The respirations were deep and sighing, extremities very cold, pulse of small volume, slow and irregular. Blood pressure was low. These "weak spells" were repeated daily for four or five days, and were relieved by hypodermoclysis.

During her first week in the hospital, she took scarcely any nourishment. After the first few days, the stools became rather frequent and involuntary. Urine was passed only at long intervals, but the voidings were large.

The bleeding from the gums persisted for about ten days, and then stopped spontaneously. At this time, however, the patient started to bleed from the rectum. At first, the blood was small in amount, bright pink, not clotted. On local examination of the rectum, nothing was found to account for this bleeding, which continued until death.

About a week before death, the skin became very dry, and the hands and nose began to peel. At the same time, the patient began to complain of pain in the lower abdomen, and voiding became more frequent and apparently painful. The urine showed numbers of pus cells, but no blood. *Bacillus coli* was grown in cultures from a catheterized specimen of urine.

Five days after admission, a hard, tender swelling was noted in the region of the right parotid. This gradually increased in size and showed evidences of suppuration in a week. At this time, pus was seen running from the right ear, apparently coming from the suppurating parotid. The following day, the abscess was incised and a moderate amount of pus obtained. Cultures showed *Staphylococcus aureus*.

Up to this time, the patient had been gradually improving, save for the cystitis and parotitis. She had become more rational and seemed to take more notice of things about her. Her appetite, which was, at first, very capricious, had returned, and she seemed to enjoy her food.

The blood picture on admission was as follows: red blood cells, 6,456,000; white blood cells, 16,720, hemoglobin (Sahli), 96 per cent. The leukocytosis was polymorphonuclear in type (91 per cent. polymorphonuclears and 9 per cent. mononuclears).

The Wassermann reaction was negative.

The urine on admission was yellow, clear, specific gravity 1.008, acid, no sugar, a heavy cloud of albumin (estimated at about 2 gm. per liter), many hyaline and granular casts, a few pus cells, no red blood cells. Guaiac, acetone, indican, and bile tests were negative. In subsequent examinations, the specific gravity remained between 1.006 and 1.014, and the reaction became less acid. The albumin dropped in a few days to 0.25 gm. per liter, and soon to only a faint trace. The casts diminished greatly in numbers. The pus cells increased enormously with the onset of the acute cystitis, but occult blood was not present until the day of death. On one examination, a week after admission, the sediment consisted almost entirely of whetstone shaped uric acid crystals.

Throughout the patient's stay in the hospital her blood pressure was low, falling to 80 mm. systolic and 60 mm. diastolic during her "weak spells."

The day following the operation on the parotid (two weeks after admission) she seemed just as usual until between 3 and 4 p. m., although the temperature, hitherto subnormal, from 96 to 97.5 F., had risen to 102. At this time, she suddenly went into a semiconscious state, and could not be roused. The temperature rose suddenly from 102 (where it had been for the last two days) to 107, the pulse increasing to 140. Within an hour, her respirations became rapid. Two hours later, she became rather rigid, and there was a tremor of both hands. There were no changes in physical signs or in the urine at this time. The patient died seven hours after the onset of these symptoms. Death occurred October 11, twenty-eight days after eating the mushrooms.

Owing to the resemblance that the pathologic picture in these cases is said to bear to that in phosphorus poisoning, we were led to investigate the functional

condition of the liver, but it became apparent immediately, from a blood urea determination, that the kidney rather than the liver was the seat of the most interesting functional changes. The functional investigation yielded the following results:

October 3 (five days after admission) the phenolsulphonephthalein test showed an excretion of only 3 per cent. for two hours; the blood showed a total non-protein-nitrogen content of 260 mg., urea nitrogen of 214 mg. and amino-acid nitrogen of 9.2 mg. per hundred c.c. The fibrinogen content amounted to 610 mg. per hundred c.c., and the lipolytic activity to an acid production of 0.20 c.c. tenth-normal. A specimen of urine from 6:30 a. m., to 1 p. m., amounting to 1,550 c.c., had a specific gravity of 1.012, and a urea content of 1.44 per cent.

October 4, Bauer's galactose test was applied; the patient did not tolerate 30 gm.

October 5, the phenolsulphonephthalein excretion was 2 per cent. for two hours, the blood urea nitrogen, 191 mg. per hundred c.c., and the freezing point of the serum, -0.64 degree. The diastatic activity of the urine showed $d_{30}^{38} = 0$. The twenty-four hour specimen of urine amounted to 2,190 c.c. The nitrogen was 19 gm., with a partition of 84 per cent. urea-nitrogen and 2.1 per cent. ammonia-nitrogen. Unfortunately, it was impossible to obtain another complete twenty-four-hour specimen of urine.

October 8, the blood urea-nitrogen had fallen to 176 mg.; October 10, the phenolsulphonephthalein test showed an excretion of 23 per cent. in two hours. At necropsy, October 12, the blood urea-nitrogen had further decreased to 168 mg.

The methods employed in the various determinations were those which we have previously used and described in studies on liver and kidney function.¹ A discussion of the normal limits and of the significance of the findings of the various tests will be found in that article.

The inability to excrete phenolsulphonephthalein, the very high total non-protein and urea-nitrogen of the blood, the lowered freezing point of the serum, and the absence of diastatic activity in the urine show conclusively that we are here dealing with extremely impaired renal function. The positive findings in the galactose test, and the high concentration of amino-acid in the blood would tend to show decreased function of the liver, while the lipase and fibrinogen findings are normal. It is rather striking to find the increased excretion of urine and the large excretion of nitrogen in association with cumulative phenomena in the blood. This combination, which was noted independently by Mosenthal² in uranium nephritis, we had previously encountered in phosphorus poisoning³ in dogs.

NECROPSY No. 4199 ABSTRACTED FROM DR. STEVENSON'S REPORT

"Liver weighs 1,190 gm.; is distinctly flabby; color is yellowish gray. The lobulation is distinct, the periphery of the lobules being a rather broad yellowish-gray band, the center being depressed. The prominence of the central portion varies; in some places it is very red and semiopaque, and in others it is pale red and more translucent. A very few minute gray, semitranslucent and translucent dots are seen scattered throughout the substance.

1. Rowntree, L. G.; Geraghty, J. T., and Marshall, E. K.: Comparative Value of Functional Tests in Surgical Diseases of Kidney Secondary to Obstruction in Lower Urinary Tract, Surg., Gynec. and Obst., 1914, xviii, 196. Chesney, A. M.; Marshall, E. K., Jr., and Rowntree, L. G.: Studies in Liver Functions, THE JOURNAL A. M. A., Oct. 31, 1914, p. 1533.

2. Mosenthal, H. O.: Nitrogen Metabolism and the Significance of the Non-Protein Nitrogen of the Blood in Experimental Uranium Nephritis, Arch. Int. Med., December, 1914, p. 844.

3. Marshall, E. K., Jr., and Rowntree, L. G.: Unpublished work.

"Kidneys weigh together 280 gm. The left measures 12 by 6 by 3.5 cm. Capsule strips readily. On section, the cortical striations stand out distinctly, but on closer examination, have a slightly interrupted appearance. The glomeruli stand out everywhere as bright reddish dots. The pelvis of the kidneys is slightly injected.

"Pelvic organs. The bladder shows some injection. In the region of the trigonum are several minute ecchymoses.

"Intestines. The upper part of the jejunum has a distinct flush and mucosa is definitely edematous. About 1 meter down from the Treitz ligament one encounters several large submucous hemorrhages. As one proceeds down, the flushing becomes more marked, and about the middle of the ileum becomes definitely hemorrhagic, which condition is increased in degree as one proceeds to the ileocecal valve. In the colon this condition is also prominent. No definite points of free hemorrhage were encountered."

MICROSCOPIC NOTES BY DR. WINTERITZ

Liver.—About two-thirds of the liver is unrecognizable as such. It appears as a homogeneous, stringy, pink staining mass around the hepatic vein. Scattered through this mass are vacuoles, which appear likewise in the more normal liver cells in the periportal region. Considerable lemon yellow pigment, frequently intracellular, is found in these necrotic areas. Occasional cells, chiefly red blood cells, or mononuclear cells, and rarely a polynuclear leukocyte, occur. In the outer third of the lobule, that is, in the periportal areas, the liver cells are recognizable, but they are much swollen and coarsely granular.

Kidney.—The cortex is free of scars. The tubules are dilated, their epithelium fusing indefinitely with a granular, pink staining mass found in the lumen. The epithelial cells show normal nuclei in most instances, but occasionally cross-sections of the entire tubules occur in which the cells are devoid of nuclei. More frequently, only one or two nuclei occur in the cells lining the cross-section of a tubule. Signs of activity of the nuclei occur, but no definite mitoses are found on hasty examination. The blood vessels are slightly congested, and frequently the same granular material found in the tubules may be found in the glomerular space.

Pancreas.—The connective tissue is not increased. The parenchymatous cells are swollen, but no necrosis is seen.

Lungs.—The vessels are congested. The alveoli contain serum, and occasionally a pus cell.

Spleen.—This shows a great engorgement of its pulp sinuses with blood.

Intestine.—Section of the intestine shows only a slight acute inflammatory reaction.

ANATOMICAL DIAGNOSIS

Mushroom poisoning. Central necrosis of liver; epithelial necrosis of kidney; acute enteritis and colitis; hemorrhagic bronchopneumonia; cloudy swelling of the viscera; hypostatic congestion of the lungs; decubitus ulcers.

BACTERIOLOGIC REPORT BY DR. BLOOMFIELD

Culture (the day before death) from parotid. *Staphylococcus aureus*. Cultures from heart's blood at necropsy yielded a pure culture of a staphylococcus (about 1,000 colonies per cubic centimeter). On the original mediums, this organism seemed to grow with a yellowish tinge, but subcultures on suitable mediums after two weeks remain white.

This organism is probably to be looked on, therefore, as an agonal invader, and not as the organism which was causing the parotitis.

A few mushrooms were collected for us by L. L., who had collected those causing the poisoning. These were identified by Dr. W. W. Ford on morphologic grounds as *Amanita phalloides*.

They were tested as follows:

A mushroom weighing 23 gm., in fresh condition, was macerated with 0.8 per cent. saline, diluted to 100 c.c., and

filtered. This extract in a dilution of 1:2,000 completely hemolyzed⁴ in one hour 1 c.c. of a 5 per cent. suspension of rabbit's blood. Two 5 c.c. portions of this extract, in one of which the hemolysin was destroyed by heating at 65 C. (149 F.), injected into guinea pigs, killed in less than twenty hours, with typical lesions of *Amanita phalloides* poisoning.

An attempt was made to reproduce these anatomic and functional changes in animals. Owing to the lateness of the season, it was impossible to secure a sufficient amount of amanita to carry out this investigation thoroughly. A further attempt to reproduce these findings will be made as soon as material can be obtained. However, the fungi collected were utilized with the following results:

Dog, weighing 6.2 kg., was given a small amanita by stomach, October 7, and another, October 9. Symptoms of severe acute poisoning developed during the night. Vomiting and diarrhea continued for two days after ingestion of last mushroom. Albumin appeared October 12, persisting until death. There was no hemoglobinuria. The phenolsulphonephthalein excretion was normal from October 12 to 16. The blood urea-nitrogen was normal, October 9-12, 14 and 16, varying from 12 to 16 mg. The dog was eating and drinking well. On the 19th, urea-nitrogen had risen to 62 mg. Unfortunately, no phenolsulphonephthalein was taken at this time. The urine contained bile. The dog was jaundiced and in coma for some hours prior to death. It died October 20. Its weight was 4.45 kg.

Guinea Pig, weighing 255 gm., was injected, November 2, with 5 gm. fungus to 100 c.c. 0.8 per cent. salt, 5 c.c. Only slight trace of hemolysin was present. The animal was losing weight rapidly. November 9, pig was found in convulsions. It was comatose. It was killed by bleeding. Blood urea-nitrogen was 130 mg. Phenolsulphonephthalein given one hour before death showed only trace in bladder urine at necropsy, although only a small amount of urine was present; 17 per cent. excreted through bile. The weight was 185 gm.

It has been possible to learn something concerning the condition of several patients surviving mushroom poisoning. The following functional renal findings in these cases are as follows:

J. L., poisoned September 13, on October 4 showed phenolsulphonephthalein excretion of 33 per cent. for two hours, and blood urea-nitrogen of 20 mg. per hundred c.c. Urine showed no sugar, albumin or casts. October 10, phenolsulphonephthalein was 64 per cent. and blood urea-nitrogen 13 mg. Patient, however, still complains of weakness, cramp-like sensations in the legs and arms and loss of appetite.

L. L., poisoned September 13, on October 4 showed phenolsulphonephthalein 63 per cent. Urine showed trace of albumin; no sugar and no casts.

K., poisoned September 16, on October 15 showed phenolsulphonephthalein, 46 per cent.; blood urea-nitrogen, 9 mg.

F. O., poisoned October 20, on October 23 showed phenolsulphonephthalein, 70 per cent.; blood urea-nitrogen, 16 mg.

The data here presented show that the nervous and mental symptoms, which were so pronounced in this case, and which are not infrequently present in this type of poisoning, accompanied renal insufficiency, and may well have been uremic in nature. Heretofore, the tendency has been to ascribe such symptoms to the influence of some peculiar "neurotoxin" of the fungus. Renal functional studies will probably prove these symptoms to be uremic in character.

4. The toxic bodies in this fungus are a hemolysin (Kobert: St. Petersburg. med. Wehnschr., 1891, xvi, 463) and a toxin (Abel and Ford: Jour. Biol. Chem., 1907, ii, 273; Schlesinger and Ford: Jour. Biol. Chem., 1907, iii, 279; Ford: Jour. Exper. Med., 1906, viii, 437), which does not give the reactions of a protein, alkaloid or glucosid.

MOTOR APHASIA

WITH FRACTURE OF THE BASE OF THE SKULL

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NEW HAVEN, CONN.

Instances of motor aphasia in its typical form are uncommon enough to add to the intrinsic interest of the condition itself an element of novelty. This is particularly true when opportunity is given to observe the onset, the development, and the disappearance of the aphasia, as was the case in a patient recently operated on in the New Haven Hospital.

It is impossible to say whether this was an instance of the cortical or the subcortical type of motor aphasia. The capacity to write, though absent in the early days, reappeared some time before any speech whatever was attempted; and it was quite impossible, on account of the youth of the patient, to apply the Proust-Lichtheim-Déjerine test. There is no question that there was a superficial cortical lesion, for this was seen at the operation; but it is not certain that this was responsible, or at least alone responsible, for the symptoms. This lesion was on the left side, and an interesting feature of the case was that the patient was left-handed, or was so regarded; he threw a ball with the left hand but wrote with the right.

History.—January 6, while playing on the streets, the patient, a boy of 9, was knocked down by an automobile and brought immediately to the hospital. When admitted he was almost unconscious. There were two large lacerations on the right parietes and left upper occiput, but no other injuries of trunk or extremities. Fresh hemorrhage was occurring from the left ear, there was a large extravasation of blood in the left eyelid and conjunctiva, and the vomitus was bloody. There was no paralysis of the extremities and the blood pressure was 120. The patient was put to bed for observation, and during the day presented the following features: There was frequent vomiting of bloody material. The pulse became slower, and unconsciousness deepened. Fresh hemorrhage appeared from the left ear, and the ecchymosis about the eye increased. Frequent convulsions of the right arm and leg were observed, and occasional convulsions on the left side. The blood pressure remained about the same (118).

Operation and After-History.—Ten hours after admission a left subtemporal decompression was done. When the skull was opened a bulging brain was encountered and beneath the dura there was a large amount of bloody fluid. The dura was widely opened and a superficial laceration of the underlying brain substance was plainly visible. This was thought to be in the precentral gyrus and the possibility of the development of an aphasia was suggested. Rubber-tissue drains were inserted and the usual closure done.

For the first few days after operation there was abundant drainage of clear cerebrospinal fluid, the amount in the first twenty-four hours being sufficient to soak the dressing and the pillow covers.

During these early days the patient slept a good deal; when awake he either tossed about in a state of extreme restlessness, or lay perfectly quiet, staring blindly into space. There was no true blindness; the eye-grounds were negative, save for a slight and rapidly disappearing edema on the left side, and the dilated pupils reacted slowly to light and accommodation. The child took no food, and rectal feeding was extremely unsatisfactory on account of restlessness. The patient showed no signs of intelligence, took no notice of what went on about him and his behavior suggested that of a decerebrated animal.

On the sixth day the child had frequent right-side convulsions, which began at the mouth and advanced to the neck and arm. These were rhythmic in character (about 90 to the minute) and continued through most of the day. The wound was examined; clear cerebrospinal fluid was still draining out, there were no signs of clot or infection, and the brain,

still under tension, was causing the skin to bulge markedly. By night the convulsions had ceased and they did not reappear. The eyes were at this time almost continually in the position of left conjugate deviation. Hippus was present, the left pupil was larger than the right, and both reacted well to light and accommodation. Both optic nerves were slightly pale; the left fundus showed slight edema. There had been up to this time very little advance mentally. The child swallowed milk, but with effort and very awkwardly.

During the next week there was slight but definite daily improvement in mental condition. The child began to lose his fixed stare, and to move his eyes about when people entered the room. His face brightened occasionally, and apparently he began to take in things that were said, though still making no response. By the third week the facial expression had become nearly normal, the eyes and face brightening now and then, and the child breaking into a smile when amused.

February 5: The clinical picture is now typical of Broca's cortical motor aphasia. There is no apraxia, pencils and other common objects being recognized and properly used. The child understands spoken words. He does not read, but understands when read to. He throws a ball accurately with the left hand, and catches well. He has almost no initiative, but does many things when told. When shown a cat and told to write the word he would not do so; but he writes slowly and not well from copy. To-day he begins to articulate words after they are pronounced for him. He speaks, when he does speak, always in a whisper, and his attempts to repeat spoken words (like "doctor" and "good morning") though fairly successful, are accompanied by great efforts of lips and forehead, that amount almost to contortions. Except for this repetition of words spoken for him he remains silent.

February 9: The wound has healed entirely and the brain, which for the first two weeks and a half bulged markedly, has now subsided so that the skin over it is level. The patient continues to write accurately from copy but refuses to write from dictation. Articulation is now pretty clear and he repeats what is said to him without the previous extreme facial distortion, though with a good deal more than normal effort.

A striking feature is the tendency to mimicry. For example, if one says "Say good morning, Paul," he repeats all four words. Or, when asked "What is your name, Paul?" he repeated the question; though when asked to write his last name he did it correctly.

When shown a ball and asked to write the word, he attempts to draw it. When asked to name a ball he says "pencil" or "box" or anything that occurs to him, though he understands the use of a ball perfectly. When asked to write the word "ball," he makes no effort; though if one says "Write b-a-l-l," he starts correctly but finishes incorrectly, putting down b-a, then (apparently from confusion with his own name) inserting a "u," and then, from fatigue, petering out entirely. This fatigue confusion has been noticeable throughout; his mind tires easily so that he often fails to finish writing a word, which he has begun correctly.

The facial expression, while inactive for a child, is otherwise normal: the eyes move about actively and the patient smiles when tickled or amused. The patient now usually names correctly common objects which are shown to him, though this is not always the case. For example, when shown a ball he called it a box though when told to say ball he repeated it correctly.

February 9: The patient sang the first verse of "Onward Christian Soldiers," correctly as to words but practically all on one note. This was quite spontaneous, showing memory connection with the days before the accident. It is impossible to say whether he possesses any sense for musical tone; but he is perfectly able to match color, as shown by crayon drawings made from copy.

February 11: The patient now occasionally speaks spontaneously. This morning when he saw the snow from the window he said, "I have a flexible flyer"; and later when asked "What kind of a sled have you?" he said, "A flexible

flyer," showing a correct association of ideas, even without the visible suggestion of the snow.

He writes from copy; and can now read and correctly pronounce from writing, and also from printing, simple words. Briefly, the chief defect at present is the inability to write the names of objects seen and the tendency on occasion to miscall objects, though their use is perfectly appreciated, and they are on other occasions correctly called. Examination of the field of vision is impossible, for the patient simply repeats the examiner's question. Nor are we able to test his sense of musical key; when he sings it is always on one note. That he voluntarily associates ideas, though not always correctly, is shown by his remark to the nurse yesterday. He saw her yawning and said "You are hungry," meaning, of course, "You are sleepy." He apparently appreciates what is read to him for he smiles when it is amusing; but he does not read to himself. This morning he placed numeral blocks in correct order up to 10, and alphabetic blocks in correct order, leaving spaces for B and E which were missing.

February 24: Since last note the patient has made definite but slow progress. His general condition has been excellent. The motor aphasia still persists in the form of inability promptly to name all objects correctly, though if time is given the commoner objects are usually correctly named. He now reads well, writes well, and speaks a good deal of his own accord. His general behavior is nearly normal, though his manner is quieter than it should be at his age, and occasionally his face assumes an inexpressive form of blind stare. There is a small amount of clear fluid under the epithelium which has closed over the operative wound.

The patient's gait has been quite unsteady since getting out of bed, February 10. It is now improving but there is still some tendency to fall backward and to the left. The examination of the fields of vision, while not accurate, shows certainly that there is no marked diminution.

The curious tendency to hiss the pronounced "S" and to roll the "R," which has been present throughout, is still to be noted, though it is disappearing. The patient can tell the time of day approximately from his watch, and this he seems to have learned to do while he has been in the hospital. He cannot name correctly the food which he has eaten at the last meal. This seems to be largely a matter of memory, for immediately after the meal he can give a correct list of what he had.

March 12: There has been steady progress since the last note, and the aphasia has now almost entirely disappeared. Occasionally he forgets or confuses a word, but responses to questions are prompt and usually correct. The gait is still a little unsteady and he sways when standing. The discharge from the left ear, which has been present since the injury, has now almost ceased. Hearing is very greatly impaired on this side.

July 1: The boy is now about as he was before the accident. There is no sign of aphasia. He is still slow mentally, but his school teacher says that he has never been very active, and that he is now quite himself. His mother says that he tires a little more readily than before the accident, but otherwise she regards him as normal.

Health Conditions in the Canal Zone.—The report of Lieut-Col. Charles F. Mason, chief health officer of the Canal Zone, for January shows that during that month there were on the rolls 35,618 employees. The total number of admissions to hospitals and quarters was 988, giving a rate of 332.87 per thousand as compared with 331.27 for December and 519.62 for corresponding month of last year. The total number of deaths from all causes was 17. Of this number 13, or 4.38 per thousand, died from disease, as compared with 3.64 for the preceding month and 4.87 for January, 1914. The constantly non-effective rate was 10.11 as compared with 10.57 for the preceding month and 15.19 for January, 1914. The total admission rate for malaria in hospitals and quarters was 56.94. There were no typhoid cases and no cases of yellow fever, smallpox or plague, either originating in or brought into the zone.

SEPARATION OF THE EPIPHYSIS OF THE
SMALL TROCHANTER OF
THE FEMUR

TWO NEW INSTANCES OF A RARE LESION

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During the past year I have twice seen separation and dislocation of the epiphysis of the small trochanter of the femur without other bone injury. It is a fair assumption, then, that this injury is not uncommon; if this be so, the injury must at times have escaped attention, for American literature is barren in reported cases, while abroad the literature of the past sixty years has yielded but fifteen, as follows:

REPORTS IN THE LITERATURE

Year	Author	Reference	Age of Patient
1854	Brunelle	Rev. méd.-chir. de Paris, 1854, xvi, 57	19
1879	Julliard	Progrès méd., 1879, vii, 825	82
1904	Bardenheuer	Ueber die Behandlung der Fractures, 1904	15
1908	Picquand and Douai	Bull. et mém. Soc. anat. de Paris, 1908, lxxxiii, 486	87
1909	Pochhammer	Arch. f. klin. Chir., 1909-10, xci, 719	15
1909	Hannemueller	Beitr. z. klin. Chir., 1910, lxx, 905	15
1909	Hoch	Ztschr. f. Chir., 1908-09, xcvi, 405	17
1909	Chaput	Bull. et mém. Soc. de chir. de Paris, 1909, xxxv, 207	52
1911	Binet and Hamant	Rev. de chir., 1911, xliii, 564	11
1911	Baehr	Deutsch. med. Wchnschr., 1911, xxxvii, 1942	16
1911	Grune	Ztschr. f. orthop. Chir., 1911, xxix, 80	14
1912	Naegeli	Beitr. z. klin. Chir., 1912, lxxvii, 242	14
1912	Peggar	Beitr. z. klin. Chir., 1912, lxxxi, 138	52
1912	Wagner	Deutsch. Ztschr. f. Chir., 1912, cxix, 557	14
1912	Gray	Jour. Roy. Army Med. Corps, London, 1912, xviii, 578	..

All of these cases occurred in men and boys. In adults, four, probably five, were definite fractures rather than separated epiphyses. The more recent diagnoses—and the majority—were made with the Roentgen ray. Yet without this aid the symptoms and signs may be sufficiently definite to warrant a tentative diagnosis. Thus in the second case that came under my observation, the roentgenogram served merely to confirm a diagnosis previously made.

Fracture or separation of the small trochanter complicating other injury has been, of course, frequently observed. Witness Ashhurst:¹

Last autumn one of our resident physicians at the Episcopal Hospital asked me whether fractures of the lesser trochanter of the femur were not excessively rare. I replied that isolated fractures of the lesser trochanter might be, as I did not recall having seen any; but that at the time we were speaking there were in Dr. Frazier's wards in the Episcopal Hospital no less than four fractures through the trochanters of the femur, involving separation of the lesser trochanter. . . . I include in the series of cases two patients from Dr. H. C. Deaver's service at the Episcopal Hospital. Thus there are six cases of fractures through the trochanters of the femur in one hospital in a period of six months.

My personal cases may be thus described:

CASE 1.—Feb. 18, 1914, a boy, aged 17, was playing goal in a hockey game. A bump from an opposing player caused his right limb to slip suddenly backward; he lost his balance and fell. His pain was so slight that he finished the game and walked to his room. In the evening there was more definite pain in the region of the small trochanter of the

1. Ashhurst: Ann. Surg., 1913, lviii, 494.

femur, extending into the right groin. Lying on his back with leg extended, he could flex the thigh not more than an inch. Passive flexion caused a sharp pain in the groin; but other movements, either active or passive, were scarcely painful. The boy could abduct the thigh but could not flex and adduct sufficiently to place the leg on the involved side across the leg on the normal side. Rotation at the hip joint was not impaired. With the hip joint held rigid, walking caused little discomfort. There was no eversion of the foot, nor was there ecchymosis or swelling at the site of injury.



Fig. 1.—Right thigh, Case 1, taken Feb. 22, 1914, four days after injury. Separation and upward dislocation of small trochanter. Periosteal attachment between lower end of fragment and upper end of its former base.

A roentgenogram (Fig. 1) showed separation and slight upward dislocation of the small trochanter of the femur without other injury. A plaster spica (applied with the thigh flexed) put an end to the boy's pain. This was removed in two weeks to serve as a model for a leather spica, and a second cast was applied. The leather spica was utilized after the third week, and it was found at this time that the boy could flex his thigh several inches without discomfort. At the beginning of the seventh week the patient was allowed to walk; at the beginning of the eighth week to take off the leather spica at night; at the beginning of the ninth to omit it entirely. Massage was not needed.

CASE 2.—Nov. 10, 1914, a boy, aged 16, running in a football game, wheeled quickly to the right to catch a forward pass. As he did so his left limb lagged behind in extension. In an instant he found himself in a heap on the ground. He had no sharp pain, and after being helped to his feet found that he could walk if he fixed his left hip, but could flex the left thigh only an inch or two. That night he suffered severe though intermittent pain over the left small trochanter and in the left groin. Nevertheless, he hobbled about until the following noon before reporting for treatment. The further history of the case is essentially the same as that of Case 1. The boy, who is still wearing a leather spica during the day, has apparently recovered complete function.

Trauma causing the lesion in question has varied. Thus, in Brunelle's case, the exciting cause was a blow on the foot; in Picquand and Douai's the patient was crushed by an automobile; Gray's patient fell from a bicycle, striking on his left hip. Ordinarily, the separation or fracture has apparently been due to unexpected and violent contraction of the iliopsoas muscle. This may occur while an individual is running (Case 2); it may occur when the thigh slips into

hyperextension (Case 1 and Pochhammer) in a sudden effort to reestablish equilibrium and avoid a prospective fall. Or again, we may accept the explanation (Binet and Hamant) that in case the body is semi-flexed at the hip joints with the iliopsoas muscle contracted and pulling perpendicularly, a sudden effort to stand upright will put an undue strain on the small trochanter.

In one instance (Pochhammer) the fragment of trochanter was broken into four bits. Otherwise the fragment has been intact but displaced upward 1 cm., 2 cm. or even more (Hannemueller). In two instances the fragment comprised not only the trochanter but also a small portion of the femoral shaft below.

From the reported cases and my own one may gather the following symptoms:

1. Pain. This was slight if the patient remained quiescent. Walking and attempts to flex the thigh intensified the pain. Other movements of the hip joint caused little objection. Pain persisted for several days about the site of injury. It radiated to the groin (Cases 1 and 2), to the hip joint or to the flank (Binet and Hamant). There was tenderness on pressure over the small trochanter.

2. Loss of function. This was either partial or complete. Several of the boys were able to walk, although stiff-hipped and with discomfort, after the accident. Brunelle's patient followed his occupation for a week before resorting to surgical treatment. According to Binet and Hamant, Ludloff's sign is characteristic, that is, a patient can lift his thigh—the rectus femoris coming into play—when lying on his back, but is unable to do so in a sitting position. Wagner and Naegeli have not, however, borne out this



Fig. 2.—Right thigh, Case 1, Jan. 23, 1915. Fragment firmly united with femur above its former site.

statement, while other observers have failed to determine the point. In my cases, each patient could lift the involved extremity (leg extended) an inch or two while lying on his back. Greater flexion than this was impossible. Hoch states that, in his experience, active motion was impossible. Adults showed much greater loss of function, as a rule, than did youths.

3. Deformity. Adults showed, too, greater deformity. Eversion, suggesting fracture of the femoral

neck, was common. In Julliard's case (age 82) this diagnosis was rectified only by necropsy. Picquand and Douai described a similar appearance (age 87). Chaput reported that the thigh was held not only in external rotation, but also in flexion and abduction (age 52). Gray also noted that the leg was strongly everted but could be rotated into normal position. Among juveniles, eversion was not in evidence; on the contrary, there was no deformity.



Fig. 3.—Left thigh, Case 2, taken Nov. 11, 1914, the day after injury. Separation and upward dislocation of small trochanter.

4. Localized swelling and ecchymosis have occurred. In the two old men, necropsy showed extensive extravasation of blood into the muscles. Pochhammer noticed a considerable hematoma. These signs were absent in both of my cases.

Lacking roentgenographic assistance, then, the positive diagnostic evidence in this lesion is:

1. Localized pain and tenderness.
2. Inability to flex the thigh or, if it be present, Ludloff's sign.
3. Localized swelling or ecchymosis in the upper part of Scarpa's triangle.

The lesion acts not unlike a contusion slow in healing, but in a simple contusion one should procure a history of a localized blow, earlier amelioration of pain and tenderness and generalized rather than special loss of function.

One has also, especially in adults, to exclude other bone injuries, for instance:

1. Fracture of the neck of the femur.
2. Fracture of the head of the femur.
3. Fracture of the large trochanter.
4. Separation of the epiphysis of the head of the femur.
5. Separation of the epiphysis of the large trochanter.

And here not only must one consider the positive evidence, but also one must remember, further, that a fracture or separation of the small trochanter shows no crepitus; neither shortening nor lengthening of the thigh (Brunelle found lengthening but this was presumably independent of trochanteric injury); no ascension of the great trochanter; no abnormal mobility, and that, in juveniles, there is no deformity.

Pochhammer notes that a roentgenogram may fail to show this lesion of the small trochanter if it is taken when the thigh is in external rotation and adduction.

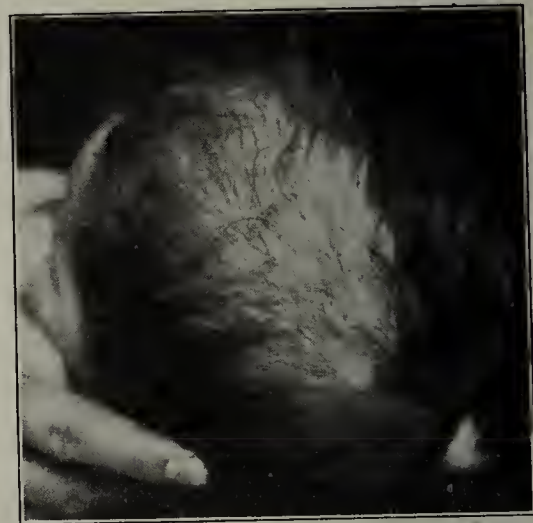
In old persons the prognosis may be quite as grave as it is in fracture of the femoral neck. The two oldest patients in this series died. Brunelle's boy died from tetanus (?) following infection of a complicating hematoma. Barring old age and infection, there are good prospects for complete recovery. Case 1 now shows (Fig. 2) bony union between the fragment, still displaced, and its femoral base, and such union presumably occurs whenever the fragment is closely approximated.

Complete recovery has been procured in both of my cases by immobilization, with the thigh flexed, as described briefly under Case 1. Operative interference is rarely or never indicated.

TRICHOTILLOMANIA

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The recent article on trichotillomania¹ drew my attention to the fact that I have had an example of this peculiar disorder under my care during the past year. The patient, C. L., American, is a boy, aged 4 years. There are three other children, all apparently normal in every way, and the family history discloses nothing of cutaneous or neurologic interest. The patient was raised on the breast, and is a well-nourished, sturdy little fellow, 3 feet and 4 inches tall, and weighs 40 pounds. Like his brother and sisters, he sucked his fingers up to the time he was 18 or 20 months old. He has never suffered from chorea or spasms of any kind. About one year ago his mother first noticed that he had acquired the habit of jerking hairs out of the left side of his scalp. The operation was performed with either hand, although the left was commonly employed. The habit has gradually grown worse instead of better, although it was slightly mitigated for a time by keeping the hair closely clipped. Arsenic, in the form of liquor potassii arsenitis, has appeared to benefit the condition a little, but it has never been pushed because of the tender age of the patient. I shall adopt the suggestion of shaving the scalp, as I believe that the habit can be overcome by that method.



3022 East Twenty-Third Street.

Loss of hair because of trichotillomania.

1. Sutton, R. L.: Trichotillomania, *THE JOURNAL A. M. A.*, Dec. 12, 1914, p. 2126.

The Human Element.—The human element in the case will always traverse the exactness and precision of pure science, and this factor may never be left out of account. The conception of clinical problems, and our dealings with them, necessitate an empirical element in our work if we be prudent physicians, and a large measure of that element will, as I believe, always remain to claim our careful attention and employment for the best interest of the patient. This matter relates strictly to the art of medicine, and it is our art that is now so much ignored and in danger of being lost. I have often remarked that a great physician is a great artist, and not a savant in the ordinary sense of that term.—Sir Dyce Duckworth, *Lancet*, London, Nov. 28, 1914.

A CASE OF DIAPHRAGMATIC HERNIA DIAGNOSED BY ROENTGEN RAY

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FORT WAYNE, IND.

The patient was brought to me, Nov. 5, 1914, by Dr. E. H. Underwood of Fort Wayne, who furnished the previous and subsequent history.



Fig. 1.—Roentgenogram showing stomach in the left chest, old fracture of right clavicle and two fractured ribs on the left side.

History.—J. A. C., man aged 73, American, carpenter, first came to the office Sept. 11, 1914. The family history was negative. The patient had had the diseases of childhood, pneumonia at 18 and typhoid at 24. He fell 40 feet when 33 years of age, falling on his shoulders and fracturing the right clavicle. He was in bed six weeks and disabled from work six months. There was no dyspnea at this time. Since then he has had several falls with slight injuries. Recovery from all these was complete. The present illness began April 26, 1914, when he fell 16 feet from a scaffold. He thinks he fell on the back of the head and shoulders. He was dazed but not rendered unconscious. He immediately said that something was wrong in the abdomen and chest, and he believed he was dying. He suffered greatly from dyspnea, and pain in the abdomen and left thorax. He complained of a crowding sensation about the heart which disturbed the heart action and produced an arrhythmia, palpitation and cough. The symptoms gradually improved for three or four weeks, when he was able to be about, but he could not work because of shortness of breath and weakness. The condition remained about the same until August, when he began to fail. During this time he was subject to attacks of dyspnea and palpitation. The appetite remained good. The patient did not vomit.

Physical Examination.—The patient was much emaciated; this condition had developed gradually from the time of injury. He complained of dyspnea and palpitation, which

were growing worse and were aggravated by taking food. Pain in the left chest was increased. The appetite was good, but the patient was afraid to take food. He was very constipated. There was much tenderness in the region of the gall-bladder and over the epigastrium.

Inspection showed an emphysematous chest. The chest walls were fixed in expansion. The percussion note was hyperresonant over the entire chest. Auscultation showed bronchial breathing and mucous râles over the right chest and upper left chest. There were no distinct sounds over the



Fig. 2.—Lateral view of chest.

lower left chest. The heart was displaced three finger-breadths to the right of the sternum. The cough grew worse, with mucopurulent expectoration. Ten days before death, the patient began having attacks of angina pectoris, which recurred from one to four or five times in twenty-four hours. After these attacks began, all food was refused. Because of anginal attacks, the patient was kept narcotized, dying, December 2, from exhaustion.

Roentgenoscopy.—Nov. 5, 1914, he was brought in for a Roentgen examination. The mixture of 3 ounces of barium sulphate and 12 ounces of buttermilk was given, and after a few minutes a large picture of the abdomen was taken to locate the stomach. Only a few flecks of barium were present. Then a roentgenogram of the chest was taken, and the stomach was found in the left chest (Fig. 1). This also showed the old fracture of the right clavicle, which occurred forty years before, and two fractured ribs on the left side. A lateral picture of the chest (Fig. 2) was taken to determine the height of the stomach. A marker was put on the left nipple with the patient lying on his side. This shows the stomach to be lying about 4 inches above the left nipple. Figure 3 shows



Fig. 3.—Stomach in area in which heart should be; fleck of bismuth in small bowel, going through hernial opening.

the stomach very plainly in the area where the heart should be, and a fleck of bismuth in the small bowel, going through the hernial opening. The percussion note over the lower left chest after the barium meal was dull as compared to the same note before the meal.

Necropsy.—The chest was rather barrel shaped and symmetrical. Opening of the chest revealed that the heart was displaced to the right, so that almost the entire organ was in the right chest cavity. In the left chest cavity was the enlarged stomach including the pylorus, which filled the upper two-thirds of the left pleural cavity, with the exception of a small space occupied by the collapsed lung. Beneath the stomach were about 15 feet of the small intestine, and below that were the spleen and a part of the splenic flexure of the colon.

Further examination revealed the opening through the diaphragm between the left lateral muscle and about 1 inch to the left of the esophageal opening. The stomach adhered to the upper third of the chest cavity with numerous adhesions. The small bowels were very red, and here and there were flecks of plastic exudate. The spleen was very dark, soft, a little enlarged and covered with a plastic exudate. The large bowel was attached to the spleen with the exudate.

Pathologic Findings.—1. Beginning gangrenous splenitis with plastic exudate over spleen, small and large bowel and parietal pleura.

2. Acute dilatation of the stomach.
3. Compression of the left lung.
4. Diaphragmatic hernia through the left lateral muscle.

A CASE OF FIBROMA OF THE PAROTID

F. C. YEN, M.D., D.T.M., CHANGSHA, CHINA

A Chinese man, aged 65, was admitted to the surgical service, Nov. 19, 1914, presenting a large tumor of the left parotid region. The patient was a farmer with no significant



Fibroma of parotid

history. The tumor was of three years' growth. It had at no time been painful, but was a serious mechanical impediment to speech and deglutition. The patient was under average stature, and not of robust physique, but otherwise was in good health.

On examination the tumor appeared nodular, with occasional areas of almost bony hardness, and others of apparently cystic degeneration. It seemed intimately connected with the parotid gland, was not tender or painful, and gave rise to no pressure symptoms except the mechanical impediments noted. Its size and location are shown in the illustration. The skin

was movable over the mass except in one spot on the lower posterior aspect, where it was adherent under an ulcer the size of a half dollar. A provisional diagnosis was made of a mixed parotid tumor with secondary degeneration.

At operation the mass was found to involve a considerable portion of the parotid gland from which it had grown. A long dissection was necessary to free the tumor from the facial nerve and artery. It was necessary to sacrifice all but the superior radicals of the facial nerve. The skin was united over the tumor area and healed by first intention, leaving some edema in the submaxillary region which cleared up in a few weeks, and a partial facial paralysis, which persisted.

Microscopic examination of the excised tumor showed a fibroma apparently originating in the parotid gland. Secondary cystic degeneration had occurred in the acini blocked off by the fibrosis.

Yale Hospital.

AVULSION OF THE SCALP

T. W. NUZUM, M.D., JANESVILLE, WIS.

Mrs. B. C., aged 28, farmer's wife, of German parentage, mother of two children, one of whom is living, was in a milk house, Sept. 1, 1914, where a milk separator operated by a gasoline engine was running, when a set screw in a shaft caught in her hair and tore off her entire scalp. The line of cleavage was the hair line on the back of the neck, forward close to the left ear and down the left cheek, leaving a flap



Fig. 1.—Two weeks after application of grafts.

3 inches wide hanging over the left side of the face, thence over the supra-orbital ridge, taking the entire eyebrow, and extending down to the tip of the nose, taking the skin from the top of the nose. The right ear was torn off and hanging. The right eyebrow was still attached by a small pedicle which was replaced, but sloughed, except for a small bit near the outer canthus of the eyes. The temporal and supra-orbital muscles were mostly torn away, and on three spots,

each an inch wide and from 1 to 3 inches long, the pericranium was torn away, leaving the naked bone exposed.

The patient did not faint, but ran into the house and looked into the glass. Seeing the "bone-white surface," she grabbed a dish cloth, which was in reach, and covered her head. She was not conscious of suffering extreme pain for a time, and the bleeding was insignificant for the amount of trauma.

A physician was summoned from the city, 7 miles distant, who applied sterile dressings and gave the patient a hypodermic of morphin, placed her in an automobile and drove 28 miles to the hospital. She sat up all the way and walked in on reaching the hospital. The husband had the severed scalp brought along, and desired that it should be replaced to see if it would not live. Accordingly, it was carefully sutured in place, the hanging ear was replaced, and the flap of cheek sutured back; the skin was drawn up from each side of the nose and met, and was sutured in the midline. On the fol-



Fig. 2.—Two months from the date of injury.

lowing morning the scalp was turning green and was removed, and hot boric alcohol dressings applied and the dressings kept continuously moistened. The wound was dressed daily until healthy granulations sprang up over all the bare surface, except where the bone was denuded of its pericranium. These patches looked gray and dead for a time. Later small red specks appeared scattered over the gray surface of denuded bone which spread, until at the end of

six weeks the surface was quite well covered with granulations.

September 15 we removed large Tiersch grafts from one thigh and covered the forehead and the right side of the head and dressed these with rubber tissue strips and dry gauze which were left on for one week. I carried one graft across an area of denuded bone to see if they would take on such a surface, as is asserted by some writers. The graft took finely at each end where it rested on granulation tissue, but died where it was in contact with denuded bone. The grafts took well, but the patient rolled her head on the pillow and crumpled some of the grafts on the side of the head, thus losing some of the surface that was covered at the first sitting; but the grafts lived.

September 28, we grafted the remainder of the head, dressed it as before, and kept the patient sitting up for fourteen days to prevent rubbing off the grafts. She sat in a low-backed chair, and when she slept she leaned her head on her arm, which rested on a table in front of her. As the grafts on the forehead were well taken, at the end of five days the dressings were changed and redressed with rubber strips, and normal salt solution was used to keep the dressings moist for five days more, after which sterile petrolatum was spread on gauze and applied to the grafted surface.

The latter dressing seemed ideal, as the grafts flourished and the surface cleared up with great rapidity, so that at the end of two months from the day of the injury, the patient returned home with a new scalp and in fair health.

Figure 1 was taken two weeks after the grafts were applied and shows some denuded spots still bare of grafts. Figure 2 was taken on the day the patient left for her home, just two months from the day of her injury.

Pure carbolic acid was swabbed over the raw surfaces followed immediately by alcohol, and a dusting powder of equal parts iodoform and boric acid was applied.

The laboratory report of cultures made from the necrotic mass and smears taken from the raw surface showed large numbers of pneumococci present, with a few streptococci. No spirilla were demonstrated.

The subsequent treatment of the case consisted of cleansing once daily, with a weak solution of hydrogen peroxid and the application of the iodoform and boric acid powder. The patient was kept in bed. The temperature, after the removal of the slough, dropped to normal, where it remained during convalescence. It was necessary to catheterize the patient every eight hours until October 16, after which date urine was voided normally.

Healing progressed steadily; at the end of the fourth week, almost the whole of the ulcerated area had filled in and healed over. There was a surprisingly small amount of scar tissue visible, the normal skin seemingly having covered the greater part of the denuded area, growing in from the edges.

The patient left the hospital November 10, the thirty-sixth day after her admission, entirely healed with the exception of a very narrow margin of granulation tissue about the



Ulcerated area showing extensive destruction of superficial tissues with exposure of perineal muscles and lower two inches of rectum.

vaginal opening. The parts presented a remarkably smooth and normal appearance in spite of the extensive destruction of tissue which had taken place. Her general condition also was greatly improved; weight had increased and color was good. Unfortunately she left the hospital before a photograph showing the healing of the parts was taken.

Dr. A. J. Markley of Denver has a photograph of a patient with identically the same lesions as shown in the illustration. This patient was seen by him in February, 1912, and his account of her condition coincides exactly with my case. Bacteriologic examinations of Dr. Markley's patient showed a pure culture of pneumococcus. No other growth was found; she made a complete recovery in about thirty days.

There are several interesting points to be noted in this case.

1. Its rarity; a brief search of the literature fails to find mention of a similar case.
2. The bacteriologic findings; pneumococci in large numbers, with a comparative absence of other organisms.
3. The rapidity of the destructive process.
4. The readiness with which healing took place, and the remarkably good cosmetic appearance, in spite of the extensive tissue destruction.

432 Metropolitan Building.

EXTENSIVE DESTRUCTION OF VULVA AND ADJACENT TISSUES PROBABLY DUE TO PNEUMOCOCCIC INFECTION

GUTHBERT POWELL, M.D., DENVER

Fellow of the American College of Surgeons

On October 5, last, a white woman, aged 48, was admitted to my service at the Denver City and County Hospital. Her history, briefly, is as follows:

Patient was married at 16 and has been a widow for twenty-seven years. She has never been pregnant. Menstruation every thirty days, a normal four-day flow. Her past health has been good; has had no illness of any kind during the past fifteen years. Family history not noteworthy.

Her present trouble began two weeks before admission to the hospital, when a vulva pad worn during her menstrual flow chafed and irritated the parts. A week ago she procured some medicine from a physician to be used locally as a wash. She is positive that the wash did not smell of carbolic acid. Two days before admission to the hospital, the labia became greatly swollen, painful and dark colored.

The patient on admission was thin, pale and emaciated. Temperature 100.2, pulse about 110, bowels constipated, appetite and digestion good. Urine contained a trace of albumin, a few hyaline and granular casts, some pus cells; sugar was absent. A Wassermann test was negative. There was no glandular involvement.

External examination of the genitals revealed an extensive foul smelling ulceration, partly covered with a black necrotic mass. The area involved extended from above the pubic promontory to below the anus, and, laterally, well outside of the labia majora on to the inner surface of the thighs.

Under ether anesthesia, an examination of the pelvic organs was made *per vaginam*. The bladder was found greatly distended, rising as high as the umbilicus and was emptied by catheter. The uterus, tubes and ovaries were apparently normal, as was also the vagina.

The necrotic mass was snipped off with scissors, showing an extensive destruction of the underlying fat and connective tissue, leaving the perineal muscles and lower 2 inches of rectum exposed as shown in the illustration.

TRAUMATIC INTERRUPTION OF SCIATIC NERVES

ANDREW H. WOODS, M.D., CANTON, CHINA
Neurologist, Canton Hospital

The patient whose photograph is shown herewith was a healthy youth (Canton Hospital No. 297, 1914) who fell from a tree a year before admission, landing in a half-sitting, half-lying posture, wounding the tissues overlying the ischial tuberosities. He was unable to walk for several months on account of weakness in the lower limbs. The large sloughing wounds healed very slowly; they would crust over and then slough away at the margins. On admission, unhealthy skin had formed over the ulcers, with superimposed crusts still present.

The patient hobbled into the hospital. Examination showed weakness of calves and hamstring muscles, which were fatty and bulged on attempted contraction. Trophic disturbance was noted in elephantine thickening of skin around the wounds, between the buttocks, in the popliteal spaces and behind the heels, extending up the tendons of Achilles. There was pigment deposit in the thickened skin, in places dark brown to black. Sweating was present on the external aspects of the heels and feet. These changes all occurred after the injury. Analgesia and anesthesia were well defined in the areas shown in the illustration: the back of the scrotum, the perineum, the intergluteal cleft, the inner and lower two-thirds of the gluteal areas down the backs of the thighs to



Scars of wounds. The anesthetic areas are marked on the skin as tested.

the midlevel of the calves, as shown. On the feet there were analgesia and anesthesia of the outer aspect of the heels, and hypesthesia of the outer thirds of the soles and the tips of the toes. On the right leg a strip running from the midcalf down and out to the external malleolus connected the upper and lower areas. There was no sphincter involvement and there is no pain now.

The wounds over the tuberosities, from their appearance and history, must have healed under trophic disadvantages. The skin in the anesthetic areas has had bad trophic innervation, resulting in pigmentation and thickening. The motor areas involved are those supplied by the sciatic nerve; the sensory involvement shows trouble chiefly in the lesser sciatic (posterior femoral cutaneous), including its long pudendal and gluteal, that is, clunial branches; the external saphenous (sural), throughout its whole extent in the right leg, but only in its calcaneal and lateral dorsal cutaneous branches in the left. The injury, therefore, affected both bundles of the great sciatic and the whole of the lesser sciatic from the level of the tuberosities of the ischial bones. The motor damage is rapidly healing. The sensory damage affects the lesser sciatic and the sural especially, but is improving. No operation was advised, owing to the length of time that intervened, the amount of scar tissue and the evidence of spontaneous regeneration of the axons.

Canton Christian College.

Special Article

PRACTICAL PHARMACOLOGY *

(Continued from page 1158)

XIV

ANTISEPTICS AND DISINFECTANTS

GENERAL DISINFECTANTS

Every one knows that sunlight and heat destroy all bacteria, but the limitations of these agents are not always appreciated. Direct bright sunlight shining immediately on bacteria destroys them rapidly, but when these are protected by even minute masses of dried organic matter, they may escape destruction; therefore care should be exercised when sunlight is employed as a disinfectant to see that no small masses are present with bacteria in them.

Flat surfaces of wood and cloth may be disinfected readily by exposure to direct sunlight.

Heat of sufficient intensity destroys all organisms, but small masses of organic matter may protect bacteria to such an extent that even boiling for a short time will fail to destroy the organisms thus protected. Tetanus spores are not destroyed immediately in boiling water, even when they are not protected.

Few organisms, even spores, resist steam under pressure for more than a few minutes. Boiling water destroys nearly all organisms within half an hour. Even moderately hot water injures the bacillus of typhoid fever, and it is destroyed almost instantly in boiling water, provided that it is not protected at such times by masses of feces or other matter. Care should be exercised to see that such masses have been dissolved or disintegrated completely before the disinfection is begun, or, at any rate, before it is completed.

HALOGENS AND THEIR COMBINATIONS

All of the halogens are actively disinfectant, but fluorin and bromin are too corrosive for general use. Chlorin is commonly used in the form of hypochlorites which yield chlorin. Iodin is used in the form of a solution or tincture, or in combination with an organic substance. Tincture of iodine is irritant, but is often applied locally for the disinfection of the skin. It is said that the skin should be thoroughly dried before the iodine is applied. Iodin is very commonly used to paint the skin at the site of a hypodermic injection, or small incision.

While there is no question of the disinfectant action of iodine in vitro, there is a good deal of uncertainty concerning the degree of its disinfectant activity after it comes in contact with the tissues with which it combines, for it then attacks bacteria less energetically.

Iodin is also destructive to larger parasites which infest the skin.

Among the combinations of iodine with organic substances are iodoform, iodothymol, or thymol iodid, which has been mentioned.

Iodoform is not actively disinfectant, but when applied to moist wounds, it decomposes slowly with the liberation of active iodine, partly free, and partly in unknown combinations. It is sometimes absorbed from open wounds, probably in the form of one of these unknown compounds, and gives rise to character-

* This is the fourteenth of a series of articles on useful drugs—on practical pharmacology for the general practitioner. As soon as completed, these articles, elaborated by additional subjects, will be published in book form.

istic symptoms of poisoning. The first symptoms consist in disturbances of the central nervous system; these are followed only after several days by excitement, restlessness, anesthesia and sometimes by unconsciousness. Stimulation may alternate with depression, or there may be pure narcosis.

These symptoms do not occur unless iodoform is used over large surfaces or for a considerable period of time. It is not necessary to discuss the actions of iodoform after internal administration, because there is no occasion to administer it internally.

Iodoform is applied in the form of an emulsion or as a dusting powder, especially in the surgical treatment of tuberculosis. It may be used as a suppository for the relief of painful hemorrhoids.

Chlorid of lime, so-called, which is a mixture containing hypochlorites mainly, which readily yield free chlorin, is one of the most commonly used of household disinfectants and bleaching agents. It is corrosive, attacking metals and destroying fabrics.

Chlorin is available in the form of other hypochlorites, which may be decomposed to yield free chlorin.

FORMALDEHYD

Formic aldehyd, or formaldehyd, is a very active antiseptic, but its germicidal powers vary widely with the organism and the conditions under which it is employed. It has been found that tubercle bacilli require forty-five minutes for their destruction in a 5 per cent. solution; with a higher temperature the solution is more active. The gaseous formaldehyd is not to be depended on as a germicide when the temperature is lower than 16 C. (60.8 F.).

Tightly closed rooms may be disinfected by wetting sheets with 150 c.c. (5 fluidounces) of the official formaldehyd solution for each thousand cubic feet of space, and allowing this to evaporate. The room is kept closed for twenty-four hours. The formaldehyd may be sprayed through a keyhole into the closed room, but this is inconvenient. Candles are now sold for fumigating rooms with formaldehyd, this being the most convenient method available. Rooms may be fumigated in the way indicated, but clothing and other fabrics must be hung up so that the gas will come in contact with every portion. The room should be heated if the fumigation is carried out in winter, and the atmosphere should be kept moist by the evaporation of water. The gas does not injure fabrics.

Formaldehyd has a wide field of usefulness as a disinfectant, and the solution may be used for fabrics which may be wetted by it without injury. The irritant vapor of formaldehyd persists in the atmosphere of a room for some time after the doors and windows are opened; this disadvantage may be overcome in part by spraying a little ammonia into the atmosphere, or more conveniently, by exposing it freely on plates.

Among the cheaper disinfectants used in cesspools, drains and other large spaces are copperas, or ferrous sulphate, sulphur as brimstone or roll sulphur, which is burned in an iron pot, or other suitable container; and lime, which is used either as milk of lime to dissolve organic matter and destroy the bacteria, or as a whitewash for application to flat surfaces.

Halsey states that sulphurous acid affords the only practical means of destroying the mosquito that carries the infection of yellow fever, and that it is commonly used in living-rooms. Burning sulphur is converted into the dioxid, and this into sulphurous acid when it comes in contact with moisture.

Copperas is an excellent deodorant for urinals, a handful of the crystals being thrown into the urinal and allowed to dissolve slowly. The fumes of burning sulphur, or sulphur dioxid, are extremely irritating and poisonous, and they corrode metals and fabrics; hence disinfection by this means is limited to large rooms and spaces where the corrosive action will not cause damage.

Polished metal fixtures and many other articles and substances may be protected against sulphurous acid and other corrosive fumes by coating them with paraffin.

The paraffin is melted, and while quite hot it is applied with an ordinary paint-brush. It solidifies instantly, forming a thin coating which may be removed later without difficulty.

Potassium permanganate in solution decomposes all organic matter with which it is brought in contact; it is useful as a deodorant, but not especially as a disinfectant, since it does not attack bacteria more readily than other organic matter. The solution stains the hands, and is disagreeable to use.

Mercuric chlorid is one of the most powerful disinfectants which we possess, but its action is greatly interfered with by organic matter. It attacks metals, and hence it cannot be used for the sterilization of surgical instruments. It may be used for sterilizing the water which has been used to bathe a patient suffering from an infectious disease, and to sterilize the urine, or even the feces, provided these are nearly liquid and small masses are disintegrated, but it is not so useful for the latter purpose as a strong mixture of lime and water. A solution containing one part of mercuric chlorid to ten thousand parts of water is rapidly fatal to many spores and all non-spore forms of bacteria. The intensity of the action is of course increased with higher temperatures.

The extraordinary toxicity of mercuric chlorid is one of the greatest disadvantages in its use.

HYDROGEN PEROXID

The official solution of hydrogen dioxid has been freely used and widely abused as a germicide and disinfectant. In the presence of pus or other organic matter it is decomposed with brisk evolution of oxygen. This effervescence is of advantage in its use as a detergent either in connection with open wounds or ulcers, exposed mucous surfaces or as a wash for the mouth and teeth. It is obviously unsuited for injection, into sinuses or subcutaneously, as the gas resulting from its decomposition tends to destroy tissues and spread infection. Hydrogen peroxid applied to bleeding wounds acts as a styptic by coagulating albumin, and has come to be a popular household remedy.

Many of the widely advertised antiseptics are wholly useless as disinfectants, and no one should depend on the directions which accompany these for preventing the spread of contagious diseases. The so-called chlorids, such as Platt's, may have some value as deodorants, but they cannot be used for disinfecting rooms and fabrics.

The difficulty of destroying micro-organisms in the body tissues is shown by the results obtained by Bechhold and Ehrlich in their experiments with a large number of agents, including numerous halogen combinations with benzene derivatives. Some of these compounds were extraordinarily active against certain organisms in the test-tube, but they were uniformly ineffective in much greater concentration when used

in the body. The fact cannot be reiterated too emphatically that test-tube demonstrations of disinfectants and antiseptics, however brilliant, afford no index of therapeutic value when the agents are used internally against infection in man.*

VOLATILE OILS

Spices and related aromatic substances have been used as preservatives from time immemorial, but it is only recently that any experiments have been made to determine the relative antiseptic and disinfectant activity of essential oils and their constituents.

Martindale⁶ found that a few of the essential oils compare well with thymol and other phenols in antiseptic activity, though most of them are much weaker.

Oil of turpentine has had an especial vogue as an antiseptic in surgery, but most of the volatile oils have come to occupy a subordinate place among the disinfectants and antiseptics, except for a few special indications, such as that of sandalwood oil in gonorrhea.

BORIC ACID AND BORAX

Boric acid is weakly antiseptic, but hardly at all destructive to the more common bacteria, though it destroys certain molds readily and it is especially useful for the destruction of *Oidium albicans*, the parasite which produces the condition known as thrush.

It is soothing when applied to inflamed mucous membranes in the form of solution or dusting-powder, but the continued use of even small amounts internally gives rise to gastro-intestinal irritation.

Daily doses of as much as 1 gm. (15 grains) increase the combustion of fats and interfere with their utilization as food, and loss of body weight has been observed after the use of boric acid for a few days.

Borax, or sodium borate, is even less actively antiseptic than boric acid; hence such large amounts are required when it is used as a food preservative that they are almost certain to cause some disturbance if taken continuously in the more commonly used foods, such as milk and butter, especially when the elimination—slow at all times—is interfered with as in nephritis, leading to accumulation of the poison in the body.

Even moderate amounts may induce nephritis, thus setting up a vicious circle of slow elimination and increasing nephritis. Very large doses (such, however, as would not be taken in the form of food preservative) cause gastro-enteritis, disturbances of vision, fatty degeneration of various organs and collapse.

Borax interferes with the coagulation of casein, thereby retarding its digestion; hence its use as a preservative of milk is to be especially condemned.

It is sometimes urged in favor of the use of borax as a food preservative that fish and other perishable foods decompose more readily without its use and give rise to ptomain poisoning. This, though undesirable, does not justify the use of a substance which is certain to cause injury at times. The only proper way to guard against ptomain poisoning is to avoid the use of spoiled food.

Boric acid is commonly used in from 2 to 4 per cent. solution for washing the bladder in cystitis, as a wash in conjunctivitis and in catarrhal conditions of other mucous membranes. It was formerly used freely for washing the rectum and other organs, and large amounts were frequently left in the organ to act as

an antiseptic; but severe, and even fatal, poisoning has resulted from this practice in a number of cases.

Boric acid is frequently used in a combination with starch, talcum or other diluent, as a dusting-powder on inflamed surfaces.

Solution of borax is used as a mild antiseptic and astringent eye-wash, and as a gargle and mouth-wash. It may be prescribed somewhat as follows as an eye-wash:

	gm. or c.c.	
R Sodii boratis	0 | 5	gr. viii
Aquae camphorae	10 | 0	flʒ iss
Aquae q. s. ad.....	30 | 0	flʒ i
M.		

A stronger solution may be used as a gargle, or as a wash in pruritus, in which case a small amount of glycerin may be added.

Boric acid has been used internally in cystitis, but with the introduction of better urinary antiseptics, such as hexamethylenamin, its use in that way has been discontinued. There are no clear indications for the internal administration of either boric acid or borax.

(To be continued)

Therapeutics

PREVENTION IS GREATER THAN CURE*

(Continued from page 1161)

XXVI

ACUTE ANTERIOR POLIOMYELITIS (INFANTILE PARALYSIS)

It was not definitely shown, until 1909, that this disease belonged to the infections and was contagious, although it had been long suspected. More or less isolated instances and some slight group attacks had occurred in America for many years, but we have had epidemics only since 1907, caused probably by importations of the germ from Europe, where it has been long endemic. In 1909, Landsteiner and Popper reported that they had caused infantile paralysis in monkeys by inoculating them with a spinal cord emulsion obtained from a child who died from this disease. Noguchi and Flexner later reported that they had been able to cultivate a causative organism of this disease. Recently, Flexner and his co-workers¹ have shown that the contagium is contained in the secretions of the nose, and that undoubtedly there are carriers of this disease. It seems to be demonstrated that the infection or poison reaches the nervous system through the lymph, but probably reaches its point of activity, namely, the spinal cord, by means of the cerebrospinal fluid. In previous experiments Flexner and Amoss² have shown that in all probability infection does not reach the individual from the bites of insects, as they were unable to infect monkeys by directly introducing the virus into the blood. This does not preclude the possibility of domestic animals like cats and dogs carrying the contagium and caus-

* This article completes the series on "Prevention is Greater Than Cure." It will be published in book form, entitled "The Prevention and Treatment of Infections," and will be ready about May 1, 1915, price seventy-five cents.

1. Flexner, Simon, and Amoss, Harold L.: Localization of the Virus and Pathogenesis of Epidemic Poliomyelitis, Jour. Exper. Med., Sept. 1, 1914, p. 249; abstr., THE JOURNAL A. M. A., Sept. 26, 1914, p. 1136.

2. Flexner, S., and Amoss, H. L.: Penetration of Virus of Poliomyelitis from Blood into Cerebrospinal Fluid, Jour. Exper. Med., April, 1914, p. 411; abstr., THE JOURNAL A. M. A., April 25, 1914, p. 1360.

* Owing to lack of space the materia medica of this group is omitted. It will appear when this series is published in book form.

6. Martindale: Perf. Ess. Oil Rec., 1910, i, 266.

ing infection by way of the nostrils and lymph channels. It has not been shown that flies transmit the contagium, nor that the association with stables has increased the liability of infection, as has been suggested. It does not seem frequent that more than one person in the same household is affected, although such cases occur. However, in epidemics the majority of patients are likely to come from the same general region.

Fraser³ of New York reports his observations on ninety cases of epidemic poliomyelitis. He found that the age varied from 9 months to 14 years. The majority of cases, especially when it is sporadic, has always occurred in young children under 5 years of age. The death rate is generally low, varying from 4 to 16 per cent., but the paralyses resulting are constant and frequent.

A review of the etiology, bacteriology and pathology of this disease is given by Sever⁴ of Boston. Flexner and Lewis' splendid work on this subject is reported in various numbers of *THE JOURNAL*.⁵ They state that the infecting agent in this disease belongs to the class of minute filterable viruses which cannot be demonstrated with certainty by means of the microscope. They also showed that spinal fluid withdrawn on the third day of the infection, before the appearance of paralysis, contains the virus which will cause infections of monkeys. Flexner, Noguchi and Amoss⁶ have recently again shown that the minute micro-organism isolated from poliomyelitic tissue is probably an etiologic factor, if not the cause, of epidemic poliomyelitis. Flexner and Lewis⁷ also showed that the disease can be transmitted from monkey to monkey. They further showed that the germ or virus resists freezing, and therefore the disease is not stopped by cold weather. They also believe that one attack confers immunity.

Lucas⁸ found that monkeys after inoculation showed a lymphocytosis during the acute stages, but a marked and constant leukopenia. The blood at this time also showed an eosinophilia. This disturbance in the white blood count disappeared when the acute stage was over.

PREVENTION

It is quite probable that the so-called "distemper" which at times attacks dogs and may attack horses, is really caused by this same infection. Hence, a dog affected with distemper should be isolated, and no child should be allowed to associate with it. While it has not been shown that flies will carry this disease, in all probability they may transmit the infection by their feet. Consequently, flies should be excluded by proper screens, if possible, from any animal that suffers from distemper, and certainly should be prevented from reaching an individual sick with poliomyelitis.

3. Fraser: *Am. Jour. Med. Sc.*, July, 1914, p. 1.

4. Sever: *Interstate Med. Jour.*, 1914, p. 705.

5. Flexner, Simon, and Lewis, Paul A.: *The Transmission of Acute Poliomyelitis to Monkeys*, *THE JOURNAL A. M. A.*, Nov. 13, 1909, p. 1639; *The Nature of the Virus of Epidemic Poliomyelitis*, *ibid.*, Dec. 18, 1909, p. 2095; *Experimental Epidemic Poliomyelitis in Monkeys*, *ibid.*, April 2, 1910, p. 1140; *Experimental Poliomyelitis in Monkeys*, *ibid.*, May 28, 1910, p. 1780.

6. Flexner, Simon; Noguchi, Hideyo, and Amoss, Harold L.: *Concerning Survival and Virulence of the Microorganism Cultivated from Poliomyelitis Tissues*, *Jour. Exper. Med.*, January, 1915, p. 91.

7. Flexner, Simon, and Lewis, Paul A.: *Epidemic Poliomyelitis in Monkeys*, *The Activity of the Virus*, *THE JOURNAL A. M. A.*, Jan. 1, 1910, p. 45.

8. Lucas: *Tr. Mass. Med. Soc.*, June, 1910; the subject is also discussed by Gay, Frederick P., and Lucas, William P.: *Anterior Poliomyelitis. Methods of Diagnosis from Spinal Fluid and Blood from Monkeys and in Human Beings*, *Arch. Int. Med.*, September, 1910, p. 330.

As early as Feb. 12, 1910, Flexner and Lewis⁹ showed that this disease was contagious by means of the secretions of the mucous membrane of the nose especially, and also of the throat, and therefore that every patient should be isolated, and that the disease should be made reportable to the boards of health.

The nurse and the family should understand that the same care must be exercised in destroying the contagium and preventing the contamination of articles and substances by the secretions of the nose and throat of a poliomyelitis patient as is so well understood must be taken in diphtheria.

As soon as a case is reported to the board of health, the school board should be informed (as such cases are frequently in children too young to go to school) that they may send home from school the other children of the family, and if there is an epidemic, perhaps the other children of that tenement. The incubation period is said to vary, and may be as long as ten days, but to be safe from causing infection in others, such children should remain out of school for two weeks.

EARLY SYMPTOMS

Although a patient who is old enough may complain of headache and pains, especially in the epidemic form of the disease, still, in this as well as in the sporadic form, the onset may be so rapid that a child well the night before may be found with high fever and even with paralysis in the morning. Pain is referred generally to the muscles of the back and legs, and later to the muscles of the arms. The temperature in serious cases may be high, but the ordinary range of rectal temperature was found by Fraser to be from 101 to 103. The pulse-rate is high, and is generally over 120. While pain may keep the little patient awake, and there may be a great amount of irritability and restlessness, drowsiness and heaviness was noted by Fraser in half of his cases, although there were often twitchings and jerkings during sleep. In two-thirds of his cases he found stiffness of the neck and back, which is so characteristic of cerebrospinal meningitis. The greatest tenderness is found generally in the extremities. Although this might last but one or two days, it sometimes persists for three or four weeks. The tendon reflexes are found generally absent.

Although, as just stated, paralysis may occur almost coincident with the illness in sporadic cases, in epidemic cases paralysis seems to develop most frequently on the third or fourth day. The acute illness lasts from one week to ten days. A large number of Fraser's cases showed some slight facial paralysis. If the respiratory muscles were affected, the prognosis was dire. There may be paralytic interference with urination, and defecation may be difficult from inability of the abdominal muscles to act.

It should be remembered that many abortive forms of this disease probably occur without any paralysis, and many times without a diagnosis, and such cases may doubtless spread infection. Koplik,¹⁰ in reviewing an epidemic of 1,200 cases, states that many atypical forms occur.

As to the extremities, one or both arms may be paralyzed, or one arm and one leg, or both legs, or there may be crossed arm and leg paralysis. The arm

9. Flexner, Simon, and Lewis, Paul A.: *Epidemic Poliomyelitis in Monkeys. A Mode of Spontaneous Infection*, *THE JOURNAL A. M. A.*, Feb. 12, 1910, p. 535.

10. Koplik, H.: *An Epidemic of Acute Poliomyelitis*, *Arch. Pediat.*, May, 1909, p. 321.

paralysis is not often complete, and the recovery is more rapid. Complete loss of response to faradism means a bad prognosis as to recovery, and atrophy will rapidly occur. If response to faradism is not completely lost, the outlook, with proper care and treatment, is good. The rapidity of recovery from paralysis, and the number that completely recover vary with the different epidemics; but the number that completely recover is lamentably small. More scientific treatment by nerve and orthopedic experts will doubtless make this percentage of complete recoveries much greater.

TREATMENT

A. The Acute Stage.—The same care in isolation, and of the secretions of the nose and throat, to prevent possible infection of others or contamination of articles, should be carried out as has been described for the other infectious diseases. Flies and all domestic animals must positively be excluded from the sick-room. As soon as the diagnosis is positive, the disease should be reported to the board of health, whether or not it is a reportable disease in the community.

Flexner¹¹ has shown that bedbugs may become infected with this disease. Whether or not they can transmit the disease to a human being by their bites has not been shown. Mosquitoes and lice have not yet been shown to be guilty of carrying the infection, but they, as well as bedbugs and fleas, are not needed in the treatment of this disease.

As Flexner states that the virus is eliminated by the intestines as well as by the nose and throat, all movements of the bowels during the course of the disease, and perhaps for some little time after the acute stage is over, should be as thoroughly disinfected as they are in typhoid fever. Lucas and Osgood¹² found the virus in the nasal secretions of a human being four months after the acute stage of an attack of poliomyelitis. They also found the virus in the nasopharynx of persons who were in attendance on a patient ill with the disease, and in the nasopharynx of a patient who had had the disease 204 days after the acute infection. Kling,¹³ however, thinks that the virus soon loses its virulence, and that quarantine need not be continued for more than two weeks. It cannot yet be decided just how long quarantine should be continued, but two weeks should be the under limit, and better, three weeks. That more of the attendants or associates of a patient sick with poliomyelitis do not contract the disease may be because they are insusceptible, or they may have become immune from some previous abortive attack.

There has not yet been produced an antiserum, although it is most sincerely hoped that Flexner and his co-workers will be able to add such a serum to the list of their splendid achievements. With our better knowledge of the action of hexamethylenamin, we cannot expect germicidal activity in the cerebrospinal fluid, which is alkaline. It has been shown that this drug has no germicidal activities, except in an acid medium, and, therefore, it is of special value only in infections of the pelvis of the kidney, ureters, bladder and urethra, and then only when the urine is acid. Hence, when the disease has started, there is

no known medical method of aborting it, although mild infections may abort without paralysis.

The treatment in this stage of the disease is to relieve cerebral and spinal congestion and remove all possible toxins that may be absorbed from the intestinal canal by free but gentle catharsis. Calomel, in one sufficient dose, associated with cascara, aloin or rhubarb, as deemed advisable, is always a good method of treatment. Castor oil is another, or at times a quickly acting saline cathartic may be advisable. Subsequently the bowels should be moved as frequently as the diet and the condition of the intestines seem to require. A child that is not taking much food for the first two or three days after the first cleaning out of the intestines need not necessarily be bothered with a laxative every day during this first stage of the disease. As soon as paralysis begins, it may be difficult to cause the bowels to move, and a simple glycerin suppository or a small enema may be needed.

The child must not be allowed to forget to urinate, as some loss of normal bladder irritability may allow urine to be retained and distention of the bladder to occur. Therefore, the child should be encouraged to urinate at about four-hour intervals. Of course, if the urine cannot be passed, it must be drawn.

Generally the fever is not high. If it is high, two or three small doses of acetanilid may be administered; or sponging the body with warm water is advisable. General cold sponging or general cold applications are inadvisable, as tending to cause increased congestion of the central nervous system. The value of an ice cap as a reducer of temperature is doubtful, and it is likely to cause the child to become more restless. The value of a spinal ice bag is also doubtful, as many times these cold applications cause an increase of pain.

Pain must be stopped in a child as well as in an adult; this fact is often forgotten. The physician allows a child to suffer because he dislikes to give strong narcotics, when an adult would demand something to stop his pain. If there is high fever and a few doses of acetanilid have been given, this may prevent some of the pain, but pain is most safely combated by small doses of morphin, codein, or opium in some form. Perhaps there is no better method of giving this narcotic drug to a child than by means of the deodorized tincture of opium. The dose may be, even to a young child, one drop every hour until the child is sleeping or is quiet. If the child is very young, of course the dose should be less, and for a child 10 years of age the dose should be larger. If the brain is so affected that the child is stupid, pain is not much felt, and narcotics will not be needed. Unless the child is excessively nervous, restless, sleepless, and twitching and jerking about the bed, such cerebrospinal depressants as chloral and bromid are not indicated, as one can but feel they might tend to increase the muscle debility and paralysis that must follow the acute stage of the disease. It seems safer and more rational to give for this condition opium or one of its alkaloids in a dose sufficient to cause quiet and rest.

In this disease, as in all forms of meningitis, the bedroom should be quiet and removed as far as possible from all noise and disturbance. The child should not be unnecessarily spoken to, and there should be frequent darkening of the room in order that the patient may get all the rest possible.

During the active stage food should not be pushed. Part of the diet should be milk, and the rest of it should be cereal gruels. The diet should not be

11. Flexner, Simon: The Mode of Infection in Epidemic Poliomyelitis, *THE JOURNAL A. M. A.*, Oct. 12, 1912, p. 1371.

12. Lucas, William P., and Osgood, Robert B.: Transmission Experiments with the Virus of Poliomyelitis, *THE JOURNAL A. M. A.*, May 24, 1913, p. 1611.

13. Kling, Carl: The Etiology of Epidemic Poliomyelitis, *Wien. klin. Wchnschr.*, Jan. 10, 1913, p. 41.

wholly milk, for in this as in all acute diseases the possibility of acidemic conditions occurring should not be forgotten, and starches should always be given in the form most acceptable to the patient. The first day or two the child will be thirsty, and should be allowed all the water it desires. As soon as the fever diminishes or ceases, nutrition should be pushed, and the child should be encouraged to eat so that the general strength may be recovered as rapidly as possible. If at this time the tongue is coated, the digestion poor and the appetite insufficient, it may be because gastric acidity is insufficient, and a few drops (not more than five) of dilute hydrochloric acid, in water, after meals, may aid in overcoming these conditions. Or perhaps still better is the tincture of iron chlorid in a dose of not more than three or four drops, in a little fresh lemonade or orangeade.

B. Local Treatment.—Fixation of the painful extremities and of the back, in the most restful position, with the aid of cushions and pillows, is important during the acute stage. As there is no special inflammation in any joint or muscle, cold or ice to a painful region is not indicated. Dry warmth may cause a lessening of the pain and is often of value. If the limbs affected become cold from disturbed circulation, they should be surrounded with cotton or covered with flannel. Restriction by bandages is inadvisable.

The pathologic lesions of the disease may be studied in an article by Flexner, Clark and Amoss.¹⁴ Several years ago Lovett and Lucas¹⁵ studied 635 cases of infantile paralysis, and came to the conclusion that paralysis of one leg was nearly four times more frequent than paralysis of both legs, and paralysis of an arm and leg of one side was more common than was a crossed paralysis. The internal muscles of an extremity were more frequently affected than the external, and the anterior than the posterior. The most common muscle to be affected in the leg they found to be the quadriceps; the next in frequency was the tibialis anticus and anterior muscles of the lower leg. If the hamstring muscles were affected it was more often the internal than the external, and the sartorius muscle they found frequently not to be affected even when the quadriceps was. They found the internal rotators of the thigh more frequently affected than the external rotators, and the adductors more frequently than the abductors. The short toe flexors they found the least likely to be affected. In the upper extremity, the arm is more frequently affected than the forearm, and the deltoid the muscle most affected, although the biceps, triceps and scapular muscles may also be affected.

During the first stages of the paralysis great care must be taken in watching the position of the limbs, especially the legs, to prevent contractions caused by the pulling of the unaffected muscles. Massage is soon valuable, but must be very gentle. Proper massage will not only increase the nutrition of the affected muscles, but cause relaxation of spasm of the unaffected muscles. It may be necessary to devise some apparatus to keep the leg or foot from becoming deformed. For this purpose various splints, or wooden or wire troughs properly padded with cotton may be used. Gibney and Wallace¹⁶ urge that the

legs should be kept straight or in slight flexion at the knees and in line with the body, while the feet should be kept at right angles with the legs.

The value of having the child, as early as possible, make slight voluntary efforts with the paralyzed muscles is excessively important. All neurologists and orthopedists now believe that one voluntary contraction of a muscle is of very much greater value than many passive activities of a muscle or contractions caused by electricity or other irritant.

Some writers believe that counterirritants applied to the spine, such as cautery treatments, are of value in hastening the stage of resolution of this disease. While they may be of value, consideration must always be given to the disturbance that it will cause the child who has suffered enough pain, and who already has difficulty in finding comfortable positions in bed.

C. Paralysis.—When the circulation is poor in an extremity, the local application of heat in any form, and perhaps by baking, is of value. As soon as it is believed that all active inflammation in the spinal cord has ceased, electricity should be begun, and Jones¹⁷ believes that electricity should not be used until from three to eight weeks from the beginning of the infection. Galvanism should then be used on the nerve trunks, gently and not too strong, while the muscles are caused to contract by faradism as long as they react to that current. If they do not react to the faradic current, the galvanic current should be used to cause contraction by making and breaking. The rapidity of the making and breaking galvanic current should not be too great, nor should any kind of muscle stimulation be continued too long at any one sitting; in fact, at first only a few contractions should be caused.

Voluntary training directed by a skilled orthopedist, and the application of any splints or apparatus that may be necessary to prevent deformities and atrophies should soon be inaugurated, as Taylor¹⁸ and many others believe that massage and electricity are very ineffective in causing recovery of muscles paralyzed by poliomyelitis. All physicians and surgeons urge that the greatest improvement is caused by plenty of rest in bed, graded exercise, warm baths, good food and fresh air. In other words, the better the nutrition the greater the improvement in the paralyzed muscles. Muscles may even recover after a year or more of paralysis when treated by a skilled orthopedist. It should be emphasized that rough, harsh massage and misdirected use of electricity may do serious harm to the paralyzed and contracted muscles. In a word, the general practitioner should as quickly seek the aid of the orthopedist in treating the paralysis of this disease as he would seek a skilled aurist in an internal or middle-ear inflammation.

Surgical repair of deformities that cannot be corrected by apparatus or muscle training has now reached a stage never equaled before, and tendon transplantation and other orthopedic operative measures cannot too soon be considered when improvement ceases to occur in a limb affected with paralysis from poliomyelitis. A recent discussion of this subject is presented by Moore¹⁹ of Philadelphia.

14. Flexner, S., Clark, P. F., and Amoss, L.: Epidemiology of Poliomyelitis, *Jour. Exper. Med.*, Feb. 1, 1914.

15. Lovett, Robert W., and Lucas, W. P.: Infantile Paralysis. A Study of 635 Cases with Especial Reference to Treatment, *THE JOURNAL A. M. A.*, Nov. 14, 1908, p. 1677.

16. Gibney, V. P., and Wallace, Charlton: The Recent Epidemic of Poliomyelitis, *THE JOURNAL A. M. A.*, Dec. 21, 1907, p. 2082.

17. Jones, R.: Infantile Paralysis (Acute Anterior Poliomyelitis). Its Early Treatment and Surgical Means for Alleviation of Deformities, *Brit. Med. Jour.*, May 30, 1914; abstr., *THE JOURNAL A. M. A.*, July 4, 1914, p. 63.

18. Taylor, H. L.: The Management of Poliomyelitis and Its Sequelae, *Med. Rec.*, New York, Oct. 15, 1910; abstr., *THE JOURNAL A. M. A.*, Oct. 29, 1910, p. 1590.

19. Moore, J. W.: The Surgical Treatment of Infantile Paralysis, *New York Med. Jour.*, Aug. 29, 1914, p. 404.

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SATURDAY, APRIL 10, 1915

THE SCHICK TEST FOR IMMUNITY TO DIPHTHERIA

When it was learned that the injection of small quantities of antidiphtheric serum would protect against diphtheria for a few weeks, physicians, urged by health officers, proceeded to protect in this way practically all persons known to have been exposed to infection. At first the prophylactic injections of serum were regarded as wholly harmless, but occasionally they were followed by disagreeable results. As it became apparent that many persons do not contract diphtheria even from what must be regarded as abundant exposure, many physicians abandoned prophylactic injections of serum, choosing rather to watch persons subjected to exposure in order to begin curative treatment at the earliest moment of actual infection. It seemed preferable to proceed in this way rather than to subject immune persons to the annoyance and possible complications of serum disease.

At this juncture the introduction by Schick of a simple, intracutaneous test for immunity to diphtheria appears to provide a welcome and highly reliable means of determining whether a person is immune to diphtheria and hence in no danger from exposure. Reports from various sources are now at hand,¹ all of which agree in essentials and accept the test as reliable and practicable. The outstanding result of the work so far reported is that the Schick test should be applied to all persons who have been exposed to diphtheria, and only those who react positively should be given prophylactic injections of serum. It is evident that in institutions and in public health work the power to determine in this way who are naturally immune to diphtheria at a given time should result in much saving in antitoxic serum and also, which is more important, in the avoidance of sensitizing persons to horse serum when no advantage follows.

1. Bundesen, Herman N.: Schick Reaction, with a Report of Eight Hundred Tests, *THE JOURNAL A. M. A.*, this issue, p. 1203. Graef, Charles, and Ginsberg, George: Some Observations of the Schick Test, *ibid.*, p. 1205. Moody, Ellsworth E.: The Intradermic Diphtheria Toxin Test, *ibid.*, p. 1206. Park, Zingher and Serota: *Arch. Pediat.*, 1914, xiii, 481. Kolmer, John A., and Moshage, Emily L.: The Schick Toxin Reaction for Immunity in Diphtheria, *Am. Jour. Dis. Child.*, March, 1915, p. 189. Weaver, G. H., and Maher, L. K.: The Diagnostic Value of Intracutaneous Injection of Diphtheria Toxin (Schick Reaction), *Jour. Infect. Dis.*, 1915, xvi, 342.

The technic of the test is simple and the negative result, which indicates immunity to diphtheria, is always easy to determine. Some experience is needed, however, to distinguish the positive result from certain atypical, paradoxical and so-called false reactions, especially at the end of the first twenty-four hours. The paradoxical reaction occurs sometimes in highly immune persons, and the explanation of this is not yet clear. The important factor in the test is a reliable, accurately standardized toxin solution. This should be furnished by the public health laboratories which have adequate facilities for standardization.

Particular attention may be called to one or two special instances of the usefulness of the Schick test. Weaver and Maher find the test of real value in the determination of immunity to diphtheria in interns and nurses entering service in a hospital for contagious diseases. In every case in which a positive result developed, the serum contained less than one twenty-fifth unit of antitoxin per cubic centimeter. These workers also urge the value of the test for diagnostic purposes in cases of rhinitis and angina occurring in persons immune to diphtheria. Heretofore the growth of diphtheria bacilli from the throat or nose, when the seat of inflammation, has led generally to the diagnosis of diphtheria, although it is evident that nondiphtheric rhinitis and tonsillitis developing in diphtheria bacillus carriers would not be distinguished by this method. The Schick test, however, will enable one to make this distinction, since carriers practically always have antitoxin in the blood, while persons with genuine diphtheria have none. In other words, the Schick test, combined with bacteriologic examination, will separate the carrier from the true case of diphtheria. Naturally, in cases of typical diphtheria, particularly when severe, it would be unwise to delay antitoxin injection until the results of the Schick test become apparent.

THE OVARIAN FACTOR IN THE MENSTRUAL CYCLE

No longer can there be any question that the menstrual cycle in woman, like the estrous cycle in animals, is dependent in some way on the presence of the ovaries. Ovariectomy performed subsequently to puberty in women produces less marked results than when carried out in early life. The most notable effect, however, always is the cessation of menstruation; and this is sometimes accompanied by an atrophy of the breasts and a tendency toward obesity. At one time the dependence of the phenomena of heat and menstruation on the presence of the ovaries was denied, because of alleged cases of the persistence of these functions after surgical ovariectomy. It seems probable, from investigation of specific cases, that the exceptional findings are in reality to be explained on the supposition that the extirpation of ovarian substance was not complete, and that the tissue which

remained underwent hypertrophy subsequent to the operation. Indeed, it has been shown that the ovary possesses considerable capacity for regenerating tissue after partial removal, and also that if one ovary is extirpated, the remaining one may undergo an apparent increase in size, as the expression of a compensatory hypertrophy.

The precise nature of the influence which is exerted by the ovary on metabolism and particularly on the recurrence of the estrous cycle has been the occasion of much speculation. Half a century ago the physiologist Pflüger¹ advanced the theory that menstruation is brought about by a nervous reflex, owing its origin to the pressure of the growing graafian follicles on nerve endings in the ovary. Without presenting the evidence in detail here,² the view that the functional correlation between the ovaries and uterus is nervous in character may be dismissed as incorrect. There are facts which indicate that menstruation is not caused by a nervous reflex set up by ovulation or by the pressure of the growing follicles, and the results of transplantation experiments likewise speak against it. Successful transplantation of the ovaries to abnormal positions such as the ventral peritoneum or the tissues of the kidneys, obviously involving a break in the usual nervous connections, does not inhibit the recurrence of the estrous cycle; for the uterus in such cases retains its normal functional activity instead of undergoing atrophic changes.

In contrast with these older views, it has become probable in recent years that the periodic cyclic changes associated with the female sexual functions are brought about by some chemical substance—hormones or products of internal secretion, in terms of the latest hypotheses—which are elaborated by the ovaries and act either directly or indirectly on the tissues of the uterus and mammary glands. The elucidation of the problem as to what part of the ovary is responsible, or mainly responsible, for the recurrence of the proestrus and estrus has been undertaken by Marshall and Runciman³ at the Field Laboratories in Cambridge, England. The experiments show that the occurrence of "heat" (proestrus and estrus) in dogs does not depend on the presence of mature (or nearly mature) graafian follicles in the ovaries. It is equally evident that it is not dependent on corpora lutea. It must be supposed, therefore, that the ovarian factor in the recurrence of "heat" resides in some other ovarian element or combination of elements. The ovarian interstitial cells are possibly concerned in the process, but cyclical changes in the condition of these cells have not so far been observed in the dog's ovaries.

Marshall and Runciman conclude that the view which has generally been maintained, that the ripening of the graafian follicles and the onset of menstruation or heat stand to one another in the relation of cause to effect, must be finally abandoned. It is probable that both series of changes are effects of some more deep-seated ovarian phenomenon.

IS THE PHYSICIAN AN "EASY MARK"?

Regularly there drift into the office of THE JOURNAL the sad complaints of physicians who have trusted their fellow men, not wisely but too well. At least every third or fourth issue carries the old familiar heading "A Warning" and a detailed description of the latest species of the genus "fraud." The types of impostors are varied, at times, even amusing. A late specimen, leaping here and there over the country, offered to physicians, for the small sum of three dollars, a year's subscription to any of the best magazines and a set of the complete works of any of the most prolific authors. A moment of thought would have shown the willing victims that the material offered could not possibly be sold for ten times the sum. Another engaging young man packed a sample case with the latest models of medical apparatus, offered to accept orders, at half the usual price, and allowed a special discount of 10 per cent. for cash with the order. The latter saving appealed so greatly to the economical physician that the suave gentleman used up his order book before he left the town. Strange to relate, neither the syringes, hypodermics and thermometers nor the money advanced were ever seen again.

Perhaps the physician who reads this sad commentary on the perspicacity of his fellow practitioners has somewhere stored away some pamphlets on "New America and the Far East." This proposition was—and no doubt is—offered to physicians as "A Series of Scientific Lectures on Ethnology and Anthropology, Recommended by the American Medical Association." The lectures are delivered weekly at the rate of 25 cents per lecture, and the genial individual who introduces them claims that he is interested in research and the proceeds are to aid him in his monumental work. In due time the "lectures" begin to arrive at the rate of six or seven at a time. One must see these pamphlets to learn their true value—or rather lack of value. If the doctor refuses to accept them, and hesitatingly suggests that he would like to back out, the promoters try to compromise by offering something else, for example, cheap medical books, or obsolete editions of new books.

A recent scheme is a so-called medical index association. The authors of this peculiar swindle engage offices, located in high-class medical office buildings, which are equipped with new furniture and a host of

1. Pflüger, E. W. F.: Ueber die Bedeutung und Ursache der Menstruation, Berlin, 1865.

2. For details see Marshall, F. H. A.: Physiology of Reproduction, London, 1910.

3. Marshall, F. H. A., and Runciman, J. G.: On the Ovarian Factor Concerned in the Recurrence of the Oestrous Cycle, Jour. Physiol., 1914, xlix, 17.

stenographers and solicitors. The offer is to send to subscribers, at the rate of five or ten dollars a year, a reprint of any article appearing in any scientific journal published in the United States or England, together with a complete monthly index of medical literature—an impossible proposition. After securing a good haul of subscriptions, the gentlemen quietly depart, leaving stenographers and solicitors jobless and penniless and the subscribing physicians innocently waiting for the fruits of their investments—which never come.

It is hardly necessary to mention the various stock-jobbing propositions which are offered to physicians as too willing victims. Putting aside the mention of worthless mining and agricultural stocks, there is the more vicious type which makes the physician a partner to a scheme for manufacturing worthless proprietary medicines and patent health foods. No physician can ethically connect himself with such schemes; from the business standpoint they are never profitable investments. We repeat—Never.

Is the doctor really an "easy mark?" He is not. The doctor is no "easier" than the preacher or—let us whisper it—even the lawyer. The professional man is not in business; he is not a "trader"; he cannot judge when a bargain is truly a bargain. Here lies the whole trouble; he is not suspicious—not on his guard. His attitude is one of sympathy with, not suspicion of, his fellow man.

IS FATTY INFILTRATION A PATHOLOGIC PROCESS?

It is not always easy to draw a sharp distinction between what is physiologic and what is pathologic in some of the processes encountered in the organism. Unusual accumulations of fat are sometimes found in the liver, the myocardium and the pancreas, and less frequently in the kidney, spleen and muscles. As a rule, such occurrences have been looked on as pathologic manifestations, ever since Virchow published his classic discussion of the forms of fatty changes which may be found under abnormal conditions and which he designated as either infiltration or degeneration. Thus, it has been contended that in certain organs fatty degeneration means an infiltration of fat from outside into cells which have been degenerated by the action of poisons or other influences; whereas, in other cases, the increase of fat seldom occurs from these causes, but the cells may show a marked fatty metamorphosis through the setting free of the invisible intracellular fat by autolytic change.

It must be recognized, however, that although in many cases the appearance of fat in cells is associated with such evidences of abnormality as a marked disintegration of both nucleus and cytoplasm, there are conditions in which cells may take up great quantities of

fat without suffering any appreciable degenerative changes. Fat infiltrations of the liver are usually regarded as being pathologic and not physiologic. They accompany many pathologic states of the body; for example, diabetes, pernicious diarrhea, alcohol and chloroform poisoning, cyclic vomiting and, typically, intoxications with phosphorus and arsenic.

Rosenfeld of Breslau, to whom we owe much of our current facts regarding fatty infiltration, and who has given a new bent to the hypotheses on this subject, has denied the contention that all of the cases of the phenomena just cited are essentially of a pathologic import. If the cell is attacked by a noxious agent, according to Rosenfeld's point of view, it mobilizes energy by oxidation of all the carbohydrate at its command. For this reason the liver, for example, is often found to be glycogen-free under such circumstances. If the carbohydrate supply is inadequate to supply all the forces needed for the emergency, the cell seeks to attract fats as a sort of additional reserve. Infiltration of fat now takes place, and victory against the attack may follow. If it does not, degeneration occurs despite the fatty infiltration.¹ It has been pointed out by Coope and Mottram² that, according to Rosenfeld, in these fatty infiltrations, the liver is calling up the last reserves of the body to meet an emergency, presumably in its own tissue, and so may be functioning normally. They also note that Leathes suggests that the fat is being mobilized in the liver, there to be desaturated and passed on to the tissues for consumption wherever metabolism is active. Both Leathes and Rosenfeld regard the increased amount of fat in the liver as a sign that the liver is functioning normally.

It has been known for some time that starvation of quite short duration may produce a fat infiltration of the liver in certain animals,³ yet brief hunger is scarcely to be classed as a morbid state. Coope and Mottram² of the University of Liverpool have now observed further that, in some individuals, late pregnancy and early lactation may be accompanied by a decided increase in the fat of the liver. Even when the animals were specially dieted, this augmentation was found to occur at or about the time of parturition. Apparently the excess of fatty material is correlated with the metabolic disturbances that attend gestation. This is substantiated, whether one depends on histologic pictures or on chemical estimations. The English investigators see in these findings, under conditions which are presumably not pathologic in the usual sense, a confirmation of the theories of Leathes and of Rosenfeld that a fatty infiltration of the liver is to be looked on as a physiologic and not a pathologic process.

1. Rosenfeld, G.: *Ergebn. d. Physiol.*, 1903, ii (1), p. 84.

2. Coope, R., and Mottram, V. H.: *Fatty Acid Metabolism in the Liver, III, Fatty Acid Infiltration During Pregnancy and Lactation*, *Jour. Physiol.*, 1914, xlix, 23.

3. Mottram, V. H.: *Jour. Physiol.*, 1909, xxxviii, 28.

THE INCIDENCE OF CERTAIN INTESTINAL
PARASITES

The greater attention which is being paid in recent years to the prevalence of intestinal parasites in man and to the statistics of their distribution will make it possible to decide to what extent certain general conclusions formed in respect to the zooparasitic diseases are tenable. Thus it is admitted that animal parasitism increases as we go from temperate to tropical climates; that all intestinal and some hepatic parasites appear to decrease hand in hand with the increased care devoted to the problem of latrines and sewers; that certain parasites are likely to be more common among persons who eat raw or rare meats, and that the incidence tends to be greater among persons of careless personal habits than among those exhibiting careful modes of life.

Some time ago we presented data¹ regarding the percentage of persons, among the inhabitants of the Philippine Islands, infected with intestinal parasites. These earlier reports were at best imperfect and, though suggestive, could not give a very accurate picture of the average prevalence of intestinal parasitism in the archipelago. A better opportunity for examining persons from all parts of the Philippine Islands, of different ages and occupations, and of all races has been offered by the material available at the Bilibid Prison at Manila, an institution which has already served in other instances as a center for conducting scientific investigations of medical interest. Dr. David G. Willets² of the Bureau of Science at Manila has superintended examinations of nearly eight thousand adult males on admission to the prison. Among these were 6,400 Filipinos and 1,400 Chinese, so that it is possible to consider the relative frequency of helminthiasis among these two races.

In Garrison's earlier summary of the condition among over four thousand Bilibid prisoners,³ the findings showed a prevalence of the commoner forms as follows: *Trichuris* (whipworm) 59 per cent.; hookworm 52 per cent.; *Ascaris* (eelworm) 26 per cent. These figures dealt with cases, the majority of which were already in the institution where the sanitary conditions at the time had been deplorable; and therefore they really represent endemic conditions. When the improved hygienic conditions were introduced by the Bureau of Health, a reexamination of nearly a thousand prisoners in 1910 showed a marked lowering of the incidence of intestinal helminthiasis in correspondence with the more enlightened sanitary conditions.

Willets' summary of the infections of persons at admission shows the prevalence of *Trichuris*, 47 per cent.; *Ascaris*, 41 per cent.; hookworm, 22 per cent. Among the parasites of minor frequency were *Strongyloides*, 0.8 per cent.; the seat worm, *Oxyuris*, 0.7 per cent.; the tapeworm, *Taenia*, 0.7 per cent. In actual cases the latter represent fifty-seven each, out of 7,843 individuals.

A study of the geographic distribution of these infections with the several species of parasites found in the Filipinos of this series shows that it is extremely irregular. Adjacent northern and adjacent southern provinces gave in some instances very different results, as was predicted from former investigations. The striking outcome of the inquiry, however, was the remarkably low percentage of Chinese infected in general and with each common species of parasite. From the point of view of race distribution the incidence of intestinal parasitism is only one-third as great among the Chinese as among the Filipinos living in the same communities. The explanation of this striking outcome offered by Willets is that the Chinese are less exposed than the Filipinos to the sources of infection with intestinal helminthic parasites. It should be noted that the Chinese use chopsticks when eating, whereas lower class Filipinos use their fingers. The Chinese drink a great deal of tea, that is, they consume their water in a boiled state, whereas the Filipinos do not. The Chinese also eat less uncooked food than the Philippine natives. Finally, many of the Chinese prisoners were of somewhat better class, being shopkeepers or clerks; whereas the Filipinos were laborers and consequently more liable to soil infection than the former. Surely these statistics afford a lesson regarding the importance of habits of cleanliness.

PITUITARY STANDARDIZATION

The growing use of biologic products in the domain of practical therapy has brought with it certain difficulties of dosage even more annoying than the admitted uncertainty in the pharmacologic potency of some of the galenical preparations of the modern pharmacy. The alkaloid strength of some of the extracts and tinctures still in use by physicians can be determined with suitable accuracy in some cases. In others, however, the active principle on which the therapeutic value of the pharmaceutical preparation really depends cannot be appropriately estimated. Digitalis, for example, has long furnished a difficult problem for the pharmacologic assay laboratory. The best that can be done in certain instances is to subject a definite weight of some crude plant product to extraction in a prescribed way with a selected solvent and trust to good manipulation and chance to produce a solution approaching the hoped for activity.

1. Some Statistics Concerning Intestinal Parasites, editorial, THE JOURNAL A. M. A., March 21, 1914, p. 936.

2. Willets, D. G.: Intestinal Helminthiasis in the Philippine Islands as Indicated by Examinations of Prisoners on Admission to Bilibid Prison, Manila, P. I., Philippine Jour. Sc., (B), 1914, ix, 233.

3. Garrison, P. E.: The Prevalence and Distribution of the Animal Parasites of Man in the Philippine Islands. Philippine Jour. Sc., (B), 1908, iii, 1911.

This was essentially the scheme followed for a long time in connection with so-called organic extracts or gland preparations. The product offered for sale was represented as being equivalent to a given weight of some organ or to a certain portion of some glandular structure. Thyroid and suprarenal substance were long dispensed on this basis. The correlation of the physiologic activity of such products with specific components of the tissue—with iodine and epinephrin, respectively, in these instances—pointed the way to a better standardization of the marketed products. How desirable this has become is apparent not only because of the obvious uncertainty that must attach to the potency of a crude animal product, but further in view of the actual seasonal variations which have been shown to arise in such material as thyroid glands.¹

Exact standardization is similarly called for in the case of commercial pituitary preparations which represent more recent accessions to the therapeutic armamentarium of the physician. It has wisely been remarked that the breadth of the field of usefulness of such a therapeutic material depends not only on a better knowledge of its physiologic action, but partly on a careful use of active preparations of known strength. It not infrequently happens that a demand is created for a promising product long before the question of dosage has been settled or the production of an active and stable preparation has been assured. The difficulty, not to say danger, becomes unduly accentuated when the mode of introduction involves parenteral paths such as by hypodermic, intramuscular or intravenous injections, in which small variations in dosage or slight contaminations exert their unexpected action far more readily than similar products may do when administered by the more uncertain oral channel.

Realizing that there exists at present an ever-increasing demand for pituitary products, especially those made from the posterior lobe, without there being a generally accepted and accurate method of determining their activity, the Hygienic Laboratory of the United States Public Health Service has taken up the problem of pituitary standardization.² At present it is necessary to rely on physiologic methods for this purpose. Comparisons of products can be made by the blood-pressure method and likewise by comparative observation of the effects produced on the musculature of the isolated uterus. A uniform standard available at all times in the case of the latter reaction is furnished by the pure chemical substance beta-iminazolyethylamin hydrochlorid (histamin). This substance, isolated from ergot by Barger and Dale,³ owes its origin to the bacterial decomposition of histidin. Pharmacologically it is, like the pituitary

extracts, a marked uterine stimulant, though the pure compound is much more potent.

At the outset it may be noted that in a general way the claims of the manufacturers are at present misleading, since the statement "physiologically standardized," with which many of them label their market products, means practically nothing. The variations in physiologic potency may be very great, and some manufacturers merely express the activity of their preparation in terms of fresh posterior lobe substance. Inasmuch as the pituitary preparations are reputed to be obtained from various species of animals: cattle, sheep and horses, this fact might be assumed to account for the great variations found if it were not for the fact that the greatest diversity was found even among products from cattle alone.

The wide range of physiologic activity found in samples of commercial pituitary preparations from six prominent manufacturers is shown by the ratio of variability between the strongest and weakest. By the blood-pressure method it was 15:1, by the intact uterus method about 10:1, by the isolated uterus method about 7:1. No positive reason can at present be assigned for such marked differences in activity; but the need for uniformity in the strength of commercial pituitary products has thereby been made the more apparent.

Current Comment

EFFECTS OF THE HARRISON LAW

When the Harrison law became effective, March 1, it was widely predicted that the result would be a besieging of hospitals by crazed drug addicts, a crime wave of national scope and a trail of suicide and death across the country. A month has passed, and while the results have not been as terrible as the early hysteria painted them, have not even approximated the glaring headline predictions of the yellow press, they have nevertheless been apparent to physicians and to others who come in daily contact with drug traffic. In this issue, two reports¹ appear which are evidence of this fact. In the Philadelphia General Hospital—and this is true of practically every hospital in the country in which drug addictions are treated—the number of admissions has greatly increased. Without doubt the law has forced numerous habitués, who otherwise might have been satisfied to continue as such, to apply to physicians and institutions for treatment. Further, there is no doubt that the large majority of these unfortunates will be freed of their habit. The increased admissions to these hospitals do not represent an increase in drug addictions; they are simply an objective manifestation of the operation of the Harrison law. The communication from the Cook County coroner's office presents the opposite side of the picture. It points to the suicide who anticipates

1. Seasonal Variation in Composition of Thyroid Gland, editorial, *THE JOURNAL A. M. A.*, Jan. 9, 1915, p. 155.

2. Roth, G. B.: Pituitary Standardization: A Comparison of the Physiological Activity of Some Commercial Pituitary Preparations, *Hyg. Lab. Bull.* 100, U. S. P. H. S., 1914, p. 5.

3. Barger, G., and Dale, H. H.: *Proc. Chem. Soc.*, London, 1910, xxvi, 128.

1. Society Proceedings, *THE JOURNAL A. M. A.*, this issue, p. 1270; Correspondence, p. 1264.

his suffering as his supply of drugs ceases; it indicates the ever-hopeful victims who seek surcease of pain in deadly nostrums, and it hints at the deaths from secondary causes in weakened and collapsed bodies. It should again be emphasized that these reports are not evidence of the existence of enormous numbers of drug habitués; rather they represent the toll of a new law and the throwing of light on a hidden evil.

THE VIRGINIA HEALTH ALMANAC

The family almanac, that indispensable feature of family life, has until recently been abandoned entirely to the "patent medicine" vender and the medical faker. Four years ago, the health commissioner of Virginia, recognizing the educational value of this old family standby, decided that the best way to abolish the "patent medicine" almanac was to substitute for it a public health almanac. The *Virginia Health Almanac* was the result. This example has since been followed by the boards of health in Kansas, North Carolina, Mississippi, Texas and New York. This year for the fourth time, the *Virginia Health Almanac* has been prepared and 35,000 copies distributed. It contains information regarding phases of the moon, the time of the rising and setting of the sun and other astronomical facts found in other calendars, but instead of the testimonials and advertisements of harmful or worthless nostrums, it contains good advice on hygiene and sanitation. Instead of worthless weather predictions, it gives important facts for the prevention of disease. Each month has a page of seasonable advice. Under January, we read:

"This is the coldest month of the year in Virginia, with a mean temperature of 38 degrees. For this reason, it is a month when thousands of homes in Virginia are sealed tightly to keep out the cold and is in consequence a month of bad colds, of grippe, of pneumonia and of consumption."

"An open window is better than an open grave."

"A stitch in the underwear may save a stitch in the side."

"Disease seldom comes in a window that is open for air."

Under February appears more advice regarding consumption, influenza and similar diseases with the following epigrammatic injunction at the bottom of the page:

"A heavy overcoat is lighter to carry than a heavy cold."

March is devoted to a discussion of pure water, April to the sanitary disposal of waste, May to pure milk and infant feeding, June to typhoid fever, July to hookworm, August to mosquitoes, September to diphtheria, October to school hygiene, school lunches and vaccination, November to smallpox and December to children's diseases, whooping cough, scarlet fever and measles.

Supplementary chapters on the first aid to the injured, care of infants, directions for nursing typhoid fever cases, instructions for preparing disinfectants and drugs and diagrams for building fly traps complete the almanac. It possesses all the characteristics of the old family almanac, even the yellow string in the upper left hand corner, by which it can be hung up on the nail behind the kitchen door or beside the

fireplace. If every family in Virginia will secure a copy, keep it throughout the year and read it carefully, the results will many times repay the cost of preparation and distribution.

THE LIMIT IN "TWILIGHT SLEEP" SENSATIONALISM

Scopolamin-morphin anesthesia, or, as the public now knows it, "twilight sleep" in obstetrics, has gone to such an extent that even the motion picture has been called on to promote it. The motion pictures are reported to contrast the supposed agonies of a woman in labor under normal conditions with the quiet somnolence which is supposed to characterize the parturient woman under scopolamin-morphin anesthesia. The exponent advertised to accompany the pictures with a "solo" on the pains of childbirth is one Dr. Kurt E. Schlossingk, announced as a disciple of Freiburg who has come as the Messiah of pregnant women promised by *McClure's*, *Ladies' World*, *Metropolitan* and various newspapers. When Dr. Schlossingk, whose medical history is short, arrived in this country, he joined the staff of a New York hospital which has been pushing the method, and was soon lionized by enthusiastic ladies and a few physicians who seemed anxious to pose in the limelight of this late acquisition. Dr. Schlossingk was invited to be the guest of honor at a symposium on scopolamin-morphin anesthesia before the Chicago Medical Society and the evening was given over to high praises of the method and its exponents by a few local adherents. This was the occasion of Dr. Schlossingk's first visit to Chicago. A week ago advertisements in Chicago newspapers announced the second coming of Dr. Schlossingk, this time in his rôle of "headliner" with the motion pictures. Chicago is possessed of a municipal censor board. Just previous to the first matinee, the newspapers announced that this board had ruled that the exhibition could not be given as it was "unscientific and detrimental to the public." The verdict, according to the general newspaper accounts, was based on the unanimous opinion of three Chicago physicians. There is no better place to hit schemes of this nature than in the pocketbook. A week's advertising paid for and the exhibition could not take place! An appeal was taken to the mayor—who refused to dignify the exhibit even by looking at it.

THE PERSISTENCE OF INFECTIVITY IN PLAGUE

In view of the important part played by fleas in the epidemiology of plague, it has become desirable to ascertain details regarding the viability of the *Bacillus pestis* and likewise the conditions under which the infecting insects can survive and retain their capacity to transmit the disease. It has been found that infected fleas which were fed regularly might live for fifty days at from 10 to 15 C. (50 to 60 F.) and twenty-three days at 27 C. (80.6 F.), and remain infected at death.¹

1. Bacot and Martin: Observations on the Mechanism of the Transmission of Plague by Fleas, *Jour. Hyg., Plague Supplement III*, Jan. 14, 1914, p. 429.

The Commission for the Investigation of the Plague in India² noted that infection conveyed by fleas might take place three weeks after the flea population had had any opportunity of imbibing infected blood. The entomologist of the Lister Institute in London, Dr. A. W. Bacot,³ has lately observed that fleas (*Ceratophyllus fasciatus*) are able to carry the bacillus of plague for periods up to forty-seven days in the absence of any host, and subsequently infect a mouse. He concludes that there is no reason to suppose that the positive results here recorded from a few experimental trials represent the limit of time after which infection may still take place. The indications thus are that plague infection may persist in fleas for one or two months in cool weather, and subsequently give rise to an epizootic.⁴ In this connection it is not without interest to recall that animals have been infected by the bites of bugs (*Cimex lectularius*) which had previously been allowed to feed on animals that were dying of plague.⁵ According to new observations by Bacot⁶ for a percentage of bugs and probably all newly hatched ones, a meal of septicemic blood from a mouse dying of plague is fatal. Bugs which are not killed, however, by the infecting meal are capable of carrying *Bacillus pestis* and reinfesting mice after a period of forty-eight days' starvation.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

State Association Meeting.—The annual meeting of the Medical Association of the State of Alabama will be held in Birmingham, April 20-23, under the presidency of Dr. Benjamin B. Simms, Talladega. Dr. Wellington P. McAdory, Birmingham, is chairman of the committee of arrangements.

Personal.—Dr. William G. Floyd, Roanoke, was thrown from his buggy, March 24, and dislocated his left shoulder. —Dr. Eugene D. Bondurant, dean of the Medical College of the University of Alabama, Mobile, is reported to be critically ill at the Inge-Bondurant Sanatorium, Mobile. —Dr. W. Earle Drennen, Birmingham, for several months chief of the American Ambulance, Paris, has returned from abroad. —Dr. Milton P. James, Birmingham, has been appointed deputy collector under the Harrison antidrug act. —Dr. Richard L. Penn, Florence, has purchased the Thrasher Building on Tuscaloosa Street and has remodeled it as a hospital. —Dr. Henry P. Hirshfield, Mobile, coroner of Mobile County, who was operated on at St. Agnes' Hospital, Baltimore, recently is reported to be doing well.

Hospital Notes.—More than \$1,000 was collected for the benefit of a free clinic at St. Vincent's Hospital, Birmingham, on Flag Day, March 17. —Dr. Ira W. Ballard, Opelika, is in charge of the construction and equipment of a hospital for that city. —The Williamson-Faulk Infirmary, Tusca-

loosa, has been sold to a syndicate of ten physicians who will improve the equipment and will operate the institution through a board of control. The syndicate is composed of Drs. James L. Williamson, William M. Faulk, Joseph E. Shirley, John H. Ward, Daniel W. Ward, Artemus D. Killian, George H. Searcy, Harvey B. Searcy and James H. Somerville, Tuscaloosa, and Dr. Charles P. Bell, Northport. The new institution will be known as the Druid City Infirmary. —Work is soon to be commenced on the free dispensary to be erected on a site adjoining the Hillman Hospital, Birmingham.

CALIFORNIA

Medical Library Association Incorporated.—The San Diego Medical Library Association has filed articles of incorporation. The directors for the the first year are Drs. Fred R. Burnham, Andrew J. Thornton, Henry Parker Newman, Robert Pollock, William P. Williamson, John E. Jennison, Charles M. Hosmer, Frances M. Allen, Elwyn S. Coburn, National City, David Gochenauer, Harry C. Loos and H. T. Woodward.

Vaccination Law Upheld.—The compulsory vaccination law of 1911 was upheld by Attorney-General Webb in an opinion answering an inquiry from San Diego as to whether there were any exceptions to the law. It was held that an exception existed in the case of pupils of the schools whose parents furnished certificates setting forth conscientious scruples against the practice of vaccination. This is qualified, however, by the state law which requires dismissal from the schools of all unvaccinated pupils whenever a case of smallpox is reported in a school. The law was also formally upheld in the case of a student excluded from the state university because he refused to be vaccinated.

Personal.—Dr. Earl H. Coleman, San Jose, has been placed in charge of the government hospital and sanitation camps at Yosemite. —Dr. George M. Converse has been appointed chief sanitary inspector of the San Francisco Board of Health, succeeding Dr. William C. Hassler, who has been made health officer. —Nathan G. Hale, Sacramento, has been appointed assistant secretary of the State Board of Health. —Dr. Richard G. Brodrick, health officer of San Francisco, has been appointed medical superintendent of the new City Hospital. —Dr. Luther M. Powers has been reappointed health commissioner of Los Angeles. —Dr. John A. Randolph, Willow, is reported to be critically ill. —At the annual meeting of the Alameda County Society for the Study and Prevention of Tuberculosis the following physicians were elected directors: Drs. Philip F. Abbott, Florence M. Sylvester and Hayward G. Thomas, Oakland; Drs. John N. Force, Allen F. Gillihan and Clarence W. Page, Berkeley; Dr. Arthur Hieronymus, Alameda, and Dr. Charles H. Miller, San Leandro. Drs. Frederick W. Browning, Hayward, and Alexander S. Kelly and Edward von Adelung, Oakland, were elected members of the executive committee.

GEORGIA

Personal.—Dr. A. Nathan Dykes, Calhoun, has sailed for Europe, March 27, for service with the American Red Cross in England. —Dr. William C. Lyle, Augusta, is serving as temporary manager of the new University Hospital, Augusta, which will, it is expected, be opened this month.

University Takes Over Medical School.—The trustees of Emory University, Atlanta, which is being developed under the auspices of the Methodist-Episcopal Church, have agreed to take over the Atlanta Medical College as its medical department. For this department it is proposed that \$250,000 be set aside as an endowment. The trustees have also agreed to erect a new teachers' hospital near the medical school, to cost from \$300,000 to \$350,000.

Hospital Items.—The Manchester Sanitarium was destroyed by fire, March 18. The patients were rescued without casualty. —The Cordele Sanitarium was destroyed by fire, March 16, with a loss of \$5,000 without casualty to the patients or nurses. —It has been suggested by County Commissioner Girard that on the completion of the Columbus City Hospital, the old hospital be used for housing and caring for patients with pellagra, tuberculosis and kindred contagious diseases.

ILLINOIS

Eugenics Bill Introduced.—The first eugenics bill of the session was introduced in the senate by Dr. James A. Womack, Equality. The bill requires that health certificates,

2. Reports on Plague Investigations in India, Jour. Hyg., 1906, vi, 435.

3. Bacot, A. W.: Observations on the Length of Time that Fleas (*Ceratophyllus fasciatus*) Carrying *Bacillus Pestis* in Their Alimentary Canals Are Able to Survive and Retain the Power to Reinfect with Plague, Jour. Hyg., Plague Supplement IV, 1915, 770.

4. Climate and the Distribution of Plague, editorial, THE JOURNAL A. M. A., April 3, 1915, p. 1162.

5. Verjbitzki: The Part Played by Insects in the Transmission of Plague, Jour. Hyg., 1904, viii, 185.

6. Bacot, A. W.: Notes on the Development of *Bacillus Pestis* in Bugs (*Cimex Lectularius*) and Their Power to Convey Infection, Jour. Hyg., Plague Supplement IV, 1915, p. 779.

signed by physicians, shall be presented by the man and the woman prior to the issuance of a marriage license and that no county clerk shall issue a license to any person suffering from a transmissible disease.

Bill to Minimize Blindness.—A bill designed to minimize blindness was introduced in the House, April 1, by Representative William G. Thon of Chicago. The bill is said to have the support of the State Board of Health and of medical organizations. It provides that a report must be made to the State Board of Health of all cases of infants born blind or with sore eyes, within six hours after the physician has discovered that this condition exists. Provision is also made for the free distribution of nitrate of silver for the treatment of these cases.

Aid to Feeble-Minded.—The Illinois State Charities Commission has appointed a committee consisting of Mr. Sherman C. Kingsley, chairman; Drs. Anna Dwyer, Chicago; Thomas H. Leonard, Lincoln, and Clara Harrison Town; Messrs. Albert Huber and Peter Reinberg, Hon. Harry Olson, Prof. Henry Schofield, Miss Minnie F. Loe and Mrs. A. E. Walker, to draft bills to regulate the admission of feeble-minded persons to state institutions, and to make suitable provision for the care of feeble-minded women. This bill, which has been drafted by Professor Schofield, secures to the state the power to detain permanently its feeble-minded charges, provides that the state care for feeble-minded adults as well as children, gives to the state the power to care for feeble-minded delinquents and creates an institution for the care of feeble-minded women adults.

Chicago

Chicago Welcomes Spivak.—The Chicago friends of the Denver Consumptives Relief Society entertained Dr. Charles Spivak, executive secretary and founder of the Denver Hospital, on March 24, 25 and 27. Dr. Spivak spoke also at the Ashland Club, at the Chicago Hebrew Institute and before the Young Men's Associated Jewish Charities.

Prophylactic Silver Solution.—The Bulletin of the Chicago School of Sanitary Instruction announces that the State Board of Health has furnished a supply of silver nitrate solution for prophylaxis in ophthalmia neonatorum which will be distributed free to those entitled to attend births. The only requirements are to give the name and address of the person receiving the solution and to report all births according to law. The Department of Health in the city hall is one of the stations from which the solution will be supplied.

Personal.—Dr. I. Clark Gary was injured in a collision between automobiles, April 4.—Dr. George L. Perusse, for two years superintendent of the Michael Reese Hospital, has resigned.—The charges against Dr. Andre L. Stapler, which he went to New York to meet, were dismissed, March 25, and Dr. Stapler was exonerated.—Dr. Edward Luehr, accused of an attack on a girl in South Chicago, was exonerated at the trial, March 25, the judge stating that he did not believe that there was a word of truth in the statement of the plaintiff and apologized for having dragged a reputable professional man into so disagreeable publicity.

Presentation of Willard Gibbs Medal.—The Chicago Section of the American Chemical Society announces that a reception and dinner, April 16, at the Hotel Sherman, will be given at the presentation of the fifth Willard Gibbs medal founded by William A. Converse to Arthur Amos Noyes, Ph.D., LL.D., ScD., director of the Research Laboratory of Physical Chemistry in the Massachusetts Institute of Technology, Boston. The program includes an address on the Willard Gibbs Medal by Otto Eisenschiml, chairman of the Chicago section; the presentation of the medal to Dr. Noyes by Prof. Julius Stieglitz, director of the university laboratories, University of Chicago, and the Willard Gibbs address on "A System of the Qualitative Analysis Including Nearly All the Metallic Elements," by Dr. Noyes.

MARYLAND

Correction.—Dr. Flora Pollack, Baltimore, writes that the item on night clinics on page 1005 of the March 20 issue is incorrect in that she is not at present on the Johns Hopkins Medical School staff and that she is not establishing a recreation center, but is one of a number of women interested in this work.

Hospital Would Enlarge Plant.—The Maryland General Hospital will launch on April 12, a campaign to raise \$200,000 for the building of new wards and private rooms and for remodeling the institution. The campaign will be state-wide and will be conducted by the Methodist churches and Epworth League organizations of the state.

Health Conference for Negroes.—The first health conference of the Maryland Colored Health Association was held in Baltimore under the auspices of the Medical and Surgical Faculty of Maryland, March 25. The meeting was presided over by Dr. Emil Novak and among the speakers were Dr. William H. Welch and Rev. Booker T. Washington. The conference proposes to meet the problem of colored sanitation by strict enforcement of the rules of sanitation and by the education of the colored population to the white standard.

Personal.—Drs. Veader N. Leonard and Henry N. Shaw, Baltimore, who have been on duty for six months in British base hospitals, have returned to Baltimore.—Drs. William H. Welch and Howard A. Kelly, Baltimore, have agreed to serve on the special emergency committee to devise plans to combat the epidemic of typhus fever in Serbia.—Dr. Winton M. Nihiser, Hagerstown, while attending a family suffering from the effects of carbon monoxid gas, was partially overcome by the gas.

Antifly Campaign.—A campaign to annihilate the fly has recently been inaugurated in Baltimore by Dr. Nathan R. Gorter, health commissioner. The campaign was opened by a lecture given all the health wardens, sanitary officers and other employees of the department by Dr. William R. Stokes, bacteriologist for the city and state. Dr. Stokes showed and explained pictures of the domestic fly and pointed out its capacity for carrying disease, particularly typhoid fever and summer complaints fatal to infants. Dr. Gorter will make an aggressive fly campaign, backed up by a city ordinance regulating stables and with the cooperation of the householders.

MASSACHUSETTS

New Officials in Office April 1.—The eleven medical inspectors of health of Boston terminated their services on March 31, and were replaced by eight district health officers, who began their duties on the next morning.

Cutter Lectures.—The Cutter lectures on preventive medicine and hygiene for 1915 will be delivered by Dr. Victor C. Vaughan, Ann Arbor, dean of the School of Medicine and Surgery of the University of Michigan, on April 14, 15 and 16, at the Harvard Medical School Amphitheater Building, from 5 to 6 p. m., on "The Phenomena of Infection."

Personal.—Dr. Edward W. Barrett has been appointed city physician of Medford.—Dr. Frank H. Holt, assistant superintendent of the Boston City Hospital for eighteen years, has been elected superintendent of the Michael Reese Hospital, Chicago.—Dr. Philip Castleman, Boston, assistant director in the bacteriologic laboratory of the Boston Board of Health, has been appointed director of the laboratory, succeeding Dr. James J. Scannell, deceased.

Quarantine Under Federal Control.—The Boston city council committee on ordinances, March 24, reported favorably on the proposition to transfer the control of the port quarantine station to the federal government. It is proposed that the federal government shall be required to lease the present station on Gallop's Island until an agreement is reached in regard to the price to be paid by the government for the property. A similar proposition in regard to federal control of quarantine in the port of New York has been under consideration in the latter city.

MISSOURI

Personal.—Dr. Herbert S. Hill is reported to be ill at his home in Springfield.—Dr. Frederick Hagler, St. Louis, has sailed from New York for work with the Red Cross units in Serbia.—Dr. Paul Paquin, formerly secretary of the State Board of Health of Missouri, has been placed in charge of the plan of reorganization of the Health Department of Kansas City.—Dr. William L. Gist, Kansas City, has been appointed acting health commissioner.—Dr. Walter S. Wheeler, health commissioner of Kansas City, resigned, to take effect April 1. The position of assistant health commissioner, held by Dr. Hasbrouck De Lamater, was abolished April 1.

St. Louis

Memorial to Dr. Steer.—The Alumni Association of Washington University Medical School is erecting a memorial to

the late Dr. Justin Steer, St. Louis. Those of his students who desire are asked to contribute \$1 to the fund for that purpose. This donation may be mailed to Dr. Louis H. Hempelmann or Dr. William T. Coughlin, Metropolitan Building, or to Dr. Andrew C. Henske, Sarah and Easton Avenues.

NEW JERSEY

New Hospital for Atlantic City.—The freeholders of Atlantic County are preparing to build a model tuberculosis hospital among the pines on the mainland. The structure will cost about \$30,000.

Smallpox in Millville.—The discovery of about seventy-six cases of smallpox at Millville, with extension of the disease from Millville to Camden, has led to vigorous measures on the part of the local authorities of those cities and the state health authorities to stamp out the disease. The state board promptly issued an advisory notice regarding the vaccination of all inhabitants of Millville and the surrounding villages who had been exposed, and vaccination was carried out.

NEW YORK

Scarlet Fever in Hobart College.—Owing to an outbreak of scarlet fever Hobart College closed for its Easter vacation three days in advance of the scheduled time.

More County Tuberculosis Hospitals.—Definite sums of money ranging from \$10,000 to \$50,000 have been appropriated for the establishment of tuberculosis hospitals in Lewis, Chenango, Suffolk and Nassau counties.

Site Donated for Hospital.—Elbert C. Livingston has offered a hospital site for the Southside Hospital, Babylon, subject to the erection of a building to cost not less than \$25,000, on or before Jan. 1, 1920. The site is estimated to be worth about \$5,000.

Bills Killed in Committee.—The Assembly Public Health Committee has killed the bill aiming to legalize chiropractic, also one designed to permit the use of the words "trained nurse" only in connection with graduates of certain schools, one providing for the appointment of a state dental supervisor and the general bill defining unprofessional conduct of physicians.

Bloch Drug Bill Passes Assembly.—This measure which aims to close the channels of sale of habit-forming drugs and makes the sale of such drugs to persons under 16 years of age a felony instead of a misdemeanor has passed the Assembly. The bill in this form was opposed by several lawyers on the ground that it was too difficult to secure a felony conviction before a jury.

Compulsory Vaccination Bill Approved.—Governor Whitman has signed the Tallett bill which makes vaccination compulsory in cities of the first and second class in both public and parochial schools. Hitherto vaccination was compulsory only in the public schools. The bill also provides that whenever there is an outbreak of smallpox in third class cities and rural communities the school authorities shall be directed to bar all unvaccinated pupils.

Coroners Abolition Bill Passed.—The Stoddard bill abolishing the office of Coroner in New York City passed the Assembly on April 1st by a vote of 86 to 28. The bill carries an amendment providing that present coroners may be retained in office until the expiration of their terms of office Jan. 1, 1917, when they will be replaced by a Chief Medical Examiner and assistants to be appointed by the mayor.

Would Have Health Commissioner Whole-Time Employee.—A bill has been introduced into the legislature by assemblyman Hinman, which makes it incumbent on the state health commissioner to devote his entire time to the duties of his office, and furthermore, that each director of the division of the State Health Department must give his whole time to the duties of his position. Under the present law, the state health commissioner is forbidden to engage in any occupation which will conflict with his official duties.

New York City

Personal.—Dr. John Winters Brannan, president of the medical board of the Willard Parker and Riverside hospitals for many years, has resigned. Dr. John H. Huddleston has been elected to fill the vacancy caused by Dr. Brannan's retirement.

Bio-Chemical Association Dines.—The fourth annual dinner of the Columbia University Bio-Chemical Association was given at Reisenweber's on March 27, when Dr. Samuel

J. Meltzer was the guest of honor and delivered an address on "Some Phases of the Relations of Bio-Chemical Research to Medicine."

Will Await Selection of Successor.—Dr. Sigismund S. Goldwater has withheld his request to be relieved as health commissioner of New York City until the mayor shall have selected his successor. When this selection has been made, Dr. Goldwater will resume his duties as superintendent of Mt. Sinai Hospital.

Another Typhoid Outbreak Traced to "Typhoid Mary."—The source of the typhoid epidemic which occurred in Sloane Maternity during January has at last been discovered in a typhoid carrier, Mary Mallon. An investigation of her history in 1906 showed that in a number of families in which she had been employed as a cook members of the household came down with typhoid fever. She was then kept virtually a prisoner on North Brother Island for three years, when her liberty was granted on the condition that she would not hire out as a cook. Officials of the Health Department now find that she has worked as a cook under five different aliases under one of which she secured the place at Sloane Maternity. Here she was responsible for twenty-five cases of typhoid fever, two of which resulted fatally. At the time the employees of the institution were examined she showed a slight trace of the disease and disappeared and the health authorities have just succeeded in locating her. Dr. Egan of the Health Department states that she carries bacilli of a high degree of infectiousness.

NORTH CAROLINA

Personal.—Dr. Lucius N. Glenn, Gastonia, has been appointed assistant local surgeon of the Southern Railroad. —Dr. M. T. Edger, Fremont, has been appointed whole-time health officer of Pitt County. —Dr. Thomas O. Coppedge, Raleigh, has resigned as assistant physician at the State Hospital.

Prevention of Malaria.—In 1914, 6½ miles of streams and pools near Roanoke Rapids were oiled, at a cost of \$300, for the purpose of preventing mosquito propagation. More than 3,000 gallons of oil were used. So successful was this measure in its effect on the incidence of malaria among the mill workers of Roanoke Rapids that the mill owners will repeat the procedure during the coming season.

Good Work of the State Board of Health.—The New York Tribune devoted a page of its Sunday issue, February 28, to the thoroughness and effectiveness of the work of the State Board of Health. Especial praise is given to the secretary of the board, Dr. Watson S. Rankin, Raleigh, who is in charge of the publicity work of the board and is carrying on so effectively the campaign against nostrums and patent medicine fakers, and to Mr. Warren H. Booker, chief of the bureau of engineering and education of the board, who is in charge of the publicity and public education work. The enthusiastic support of Dr. J. Howell Way, Waynesville, president of the board, has been continually given to the work.

OHIO

Medical Board Appointments.—The governor has reappointed Dr. Sylvester M. Sherman, Columbus, a member of the State Medical Board and has appointed Dr. John K. Scudder, Cincinnati, to succeed Dr. Silas Schiller, Youngstown.

Building for Physicians.—A building exclusively for physicians is to be erected in Toledo. For this purpose the Park View Company has been incorporated by Drs. Louis A. Levison, Julius H. Jacobson, Burt G. Chollette and Fred M. Douglass. The building will be two stories and a basement in height, the equipments will include laboratories, operating rooms, rest rooms, gymnasium, etc.

Personal.—Dr. Hugh H. Dorr, Batesville, has been appointed assistant medical examiner in the State Industrial Commission. —Dr. Frank I. Shroyer, Troy, who was operated on recently at Rochester, Minn., has recovered and is continuing his postgraduate work at the Mayo Clinics. —Dr. T. Addison McCann, Dayton, was attacked by an enraged bull on his farm south of Dayton, and seriously injured.

Hospital Intern Service.—At a recent meeting the Ohio State Medical Board took action to permit students to serve as interns in the hospitals of Ohio without first securing a license, which has heretofore been required. Such students must have completed satisfactorily a four-year course in a recognized medical college. They are not permitted to sign

death certificates nor to receive compensation for professional service rendered.

PENNSYLVANIA

Personal.—Dr. J. William Schultz, Tremont, is reported to be in a critical condition as the result of an explosion of gasoline while filling the tank of his automobile, March 27. —Dr. William J. Bailey, Connellsville, who was operated on recently for frontal sinusitis, is reported to be improving.

Wassermann Tests Free.—On April 2 the state commissioner of health, Dr. Samuel G. Dixon, notified the physicians of Pennsylvania that the State Department of Health laboratories would make the Wassermann test on request. Special containers have been prepared for the collection of the blood specimens and will be furnished physicians without charge on application.

Philadelphia

Physicians Sign Petition for Local Option.—Philadelphia's physicians headed by Dr. E. E. Montgomery, president of the county medical society, will send a petition to the legislature asking for the passage of Governor Brumbaugh's county option law in the interest of the health, morals and the protection of the present and future citizens of the commonwealth.

Personal.—Dr. J. Louis Borsch, Jr., at present in charge of the Eye Department of the Military Hospital of Paris, was thanked for his work among the French wounded by Surgeon-General Fevrier, April 2, at the formal opening of that department. —Dr. Clarence P. Franklin has been elected ophthalmologist to Stetson Hospital. —Dr. Harold P. Goldberg has been elected ophthalmologist to the Episcopal Hospital vice Dr. John L. Broomley, deceased.

TEXAS

Hospital Incorporated.—The Bay City Hospital has been incorporated at Bay City, Matagorda County, with a capital stock of \$3,500.

Doctors Club Formed.—The physicians, dentists and druggists of Dallas have organized the Doctors' Club, the first meeting of which was held in the Oriental Hotel, March 27.

Surgeons Organize Society.—The Texas Surgical Society was organized in Houston, March 6, with Dr. James E. Thompson, Galveston, president; Dr. W. Burton Thorning, Houston, secretary, and a charter membership of twenty-one.

Texan Made Editor of Pharmaceutical Journal.—Dr. E. G. Eberle, Dallas, editor of the *Texas Pharmaceutical Journal*, has been unanimously elected editor of the *American Pharmaceutical Journal*, the official publication of the American Pharmaceutical Association.

District Society Changes Name.—At the meeting of the Fifty-Sixth District Medical Society held in San Antonio, March 16, it was decided to change the name of the society to the Southwest Texas Medical Society. The next meeting of the society will be held in Corpus Christi in September.

Personal.—Dr. Joseph H. Reuss, Cuero, has been elected president of the Cuero Commercial Club. —Drs. Rupes F. Minnock, Shirley C. Gage, Robert J. Alexander, Waco, are the medical members of the board of control for nurses, selected by the city commission of Waco. —Dr. Hatch W. Cummings has been elected president of the Chamber of Commerce of Hearne. —Dr. Allen Hutchinson, formerly of Houston and now in charge of the Presbyterian Hospital at Kashing, China, is visiting in Houston.

Quarantine Proclamation.—The annual quarantine established on the gulf coast and Rio Grande border was proclaimed by the governor, March 23, to become effective April 1. The quarantine applies to all vessels, railway trains, persons or things coming from places infected with yellow fever, smallpox, bubonic plague or cholera, and all places south of 25 degrees north latitude will be considered infected unless proof to the contrary is submitted to the state health officer and special exemption granted. Rules of coast quarantine are set forth in the proclamation at length. There are also other provisions regarding communicable diseases liable to be transmitted within or without the state, and directing the state health officer to make provision for their isolation and to establish the necessary regulations.

WYOMING

State Board Election.—At the annual meeting of the State Board of Health, held in Cheyenne, March 23, Dr. Anna G.

Hurd, Sheridan, was elected president and Dr. William A. Wyman, Cheyenne, was reelected secretary and executive officer.

CANADA

Ryerson Off for the War.—Col. George A. Sterling Ryerson, M.D., Toronto, president of the Canadian Red Cross Society, sailed from New York, April 3, on the *Lusitania*. He will make a tour of inspection of the hospitals and Red Cross work at the seat of war. This inspection will include hospitals in England and France. He will return to Toronto in June.

Canadian Soldiers Must be Vaccinated.—Orders were sent out March 26 to officers commanding the various units of the fourth division, calling attention of the recruiting officers to the fact that all recruits must be revaccinated against smallpox, if the medical examiners consider this necessary. If a recruit refuses to be vaccinated, he will not be accepted for service.

Canadian Medical Association Meeting Cancelled.—The annual meeting of the Canadian Medical Association which was to have been held this year in Vancouver, B. C., July 7 to 10, has been cancelled, owing to the absence of members at the front or preparing to leave for the front with the McGill and Toronto base hospitals. Among the number are members of the finance committee, the executive council and the secretary-treasurer, Dr. William W. Francis of Montreal.

Canadian Medical Men Wanted by War Office.—The British war office has forwarded a request for Canadian medical practitioners. Any Canadian physician volunteering will be given the rank of lieutenant and will receive \$6 per day, \$150 for equipment and \$300 on conclusion of a year's service providing that service has been satisfactory. In Toronto Col. John T. Fotheringham reports that already seventy practitioners have volunteered. They must join the service through the Canadian army medical corps, must be British subjects, be recommended by the commanding officer of the division or district, under 45 years of age, and practitioners registered under Dominion or Provincial license. To provide for the Canadians practicing in Great Britain, the provinces have to arrange for immediate reciprocity. In the case of Ontario, the legislature has passed a bill authorizing this and Dr. Edmund E. King of the Ontario Medical Council, has cabled to the General Medical Council that Ontario is ready to reciprocate.

Hospital News.—Montreal is to erect a tuberculosis hospital to cost \$125,000. The medical officer of health of Montreal, Dr. Seraphin Boucher, says that if a start is to be made, a hospital for at least 100 patients is required, and that more work must be done among the poor of the city. At the present time only advanced cases can be treated extensively. In connection with the new hospital three dispensaries will be established in the outlying districts of that city. —Hamilton, Ont., is commencing the construction of the first unit of its new hospital, which will be a four-story building to cost \$150,000. This building will accommodate 65 semi-private patients. —Fire destroyed the Bracebridge, Ontario, Isolation Hospital in January. —The Quebec Civic Hospital will be completed by the middle of April. It will be conducted by the Sisters of Charity. —A military hospital is to be established in Winnipeg. —Melville, Sask., will commence the erection of a new hospital in May. The building will be four stories in height and will have accommodation for 150 patients. —Patients owe the Royal Columbia Hospital, New Westminster, B. C., \$24,000. The hospital is badly in need of funds and an effort is to be made to collect this money, or sue the municipalities which supplied the patients.

Personals.—Dr. Malloch, son of Dr. Archibald E. Malloch, Hamilton, Ont., is in charge of the La Panne Hospital in which the queen of the Belgians is interested. A request from this hospital has come to Canada for twenty nurses. A citizen of Cornwall, Ont., has contributed \$500 toward sending one nurse to that hospital, through the Red Cross of Glengarry, and another \$500 through the Daughters of the Empire at Cornwall, toward sending another nurse to the same hospital. —Lieut.-Col. James A. Roberts, M.D., Toronto, and Capt. John A. Amyot, M.D., Toronto, have resigned from the administrative branch of the service in Toronto. Dr. Roberts will be in command of the University of Toronto General Hospital, and Dr. Amyot is to be sanitary officer. Lieut.-Col. Frederick W. Marlow, M.D., Toronto, will be appointed successor to Dr. Roberts, and Dr. John W. S. McCullough, Toronto, chief health officer of

Ontario, will take up Dr. Amyot's duties in the Toronto District Administration of the Army Services.—Dr. George Elliott has been elected president of the Irish Protestant Benevolent Society, Toronto.—Dr. James W. Good, Winnipeg, Man., has started for the east to join the second Canadian contingent for service in Europe.—Dr. Theophilus V. Hutchinson, medical officer of health of London, has resigned.—Dr. Harold E. Connelly, Ottawa, has been appointed medical officer of troops garrisoned in West Indies, and has started for his new post.

GENERAL

The Plague Work in New Orleans.—One suspicious human case of plague was examined in the week ending April 3, but no human plague case was found. The last case of human plague was reported on Oct. 4, 1914, and the last case of rodent plague on March 9, 1915. The total number of rodents captured was 307,203, of which 230,009 were examined. Up to date, 236 rodent cases have been found, 4 in *mus musculus*, 16 in *mus rattus*, 207 in *mus norvegicus* and 9 in *mus alexandrinus*.

Federal and State Laws Regarding Narcotics.—Martin I. Wilbert in *Public Health Reports*, March 26, 1915, gives a history of efforts to curb the misuse of narcotic drugs, with a comparative analysis of the federal and state laws designed to restrict or to regulate the distribution and use of opium, cocaine and other narcotic or habit-forming drugs. It is said that drug addiction has reached great proportions in the United States and its possibilities for harm constitute a great menace. In view of the enforced attention to this subject brought about by the passage of the Harrison law, this review of antinarcotic legislation in the various states is of extreme interest. A synopsis of the laws relating to narcotics in each state is given.

Rockefeller Fund for Medical Mission.—A letter has been sent by Mr. John D. Rockefeller, Jr., to all American missionary societies, announcing the formation of the China medical board through which the Rockefeller Foundation will give financial support to medical work in China. The foundation makes the following offers to the society: (1) to assist with more grants their medical school and hospitals, making no condition save that the foundation assure itself of the professional qualifications of those in charge; (2) to help reorganize and expand medical schools with their hospitals; (3) to establish new hospitals and medical colleges where the societies have not been able to, but to do so in a missionary spirit and motive.

Testimonial Banquet to Dr. Jacobi.—A testimonial banquet will be tendered Dr. Abraham Jacobi by the medical profession, his friends and admirers, under the auspices of the Bronx Hospital and Dispensary, May 6, at the Hotel Astor, on the occasion of the eighty-fifth anniversary of his birthday. To give the younger members of the profession an opportunity to participate in the celebration, and to come in contact with the venerable Nestor of American medicine, the price per plate has been fixed at \$3. Communications should be addressed to Dr. William J. Robinson, 12 Mount Morris Park West. Reservations for seats should be sent to Abraham L. Goldwater, M.D., treasurer, 141 West One Hundred and Twenty-First Street.

San Francisco Child Labor Conference.—The Eleventh Annual Conference on Child Labor, to be held in San Francisco the last week in May, will be the first national conference on child labor held west of the Mississippi River. An effort will be made at this conference to further the plan suggested at the Washington meeting in January of the National Child Labor Committee for a national children's charter which will be the basis of all child welfare legislation and will unify the work of all child welfare societies. Among other subjects to be discussed at the conference are child labor in the west, industrial education, and federal legislation. The Palmer-Owen federal child labor bill which passed the House but was killed in the federal senate will form the basis for a new bill to be introduced into the next congress, and plans for pushing it will be discussed at the San Francisco meeting.

Bequests and Donations.—The following bequests and donations have recently been announced:

The United Hebrew Charities, Mt. Sinai Hospital, Montefiore Home for Chronic Invalids, New York City, each \$1,000, by the will of Sarah Frank.

Columbia University, for the Sloane Maternity Hospital, \$50,000; Presbyterian Hospital, \$22,500; St. Luke's Hospital, \$75,000, by the will of William Douglas Sloane, New York City.

Children's Hospital, Columbus, \$1,000 as a share of the sales in a department store of Columbus, March 20.

Carney Hospital, Boston, \$5,000, by the will of Dr. Hasket Dirby, formerly of Boston, who died at Eden, Me.

Chestnut Hill Hospital, Philadelphia, \$5,000; Children's Hospital, Philadelphia, \$1,000, by the will of Edward Toland.

University of Pennsylvania Hospital, \$10,000, to endow beds in memory of his daughter Mabel and sister-in-law Miss Johnson; Easton (Pa.) Hospital, to endow a bed in memory of Joannah Drennan, by the will of the late Rear Admiral Michael C. Drennan, U. S. Navy.

Framingham (Mass.) Hospital, \$2,000; Home for Aged Men and Women, \$1,000, by the will of Mrs. Mary Lewis, Framingham.

Henrietta Hospital, East St. Louis, \$10,000, donation from Mrs. Lucy Beekin.

Presbyterian Hospital, Chicago, Easter collection in all Presbyterian churches in Chicago, about \$10,000.

Medical Reserve Corps Camps of Instruction.—The Surgeon-General has issued a circular under date of March 29, to members of the Medical Reserve Corps, U. S. Army, on the inactive list, regarding camps of instruction to be held during the coming summer. These camps are to be located as follows: Fort D. A. Russell, Wyoming, May 30 to June 5; Fort Sam Houston, Texas, from June 7 to 12; Fort Oglethorpe, Georgia, June 7 to 12; Presidio of Monterey, California, June 7 to 12; Tobyhanna, Pennsylvania, June 28 to July 3, and Sparta, Wisconsin, July 12 to 17. At these camps it is proposed to provide a complete field hospital, ambulance company, regimental infirmary and such other equipments as may be necessary to officers for a thorough and practical course of instruction in the duties of medical officers in the field. As no funds are available for defraying their expenses in connection with these camps, officers who attend must do so at their own expense, which will include the cost of transportation to and from the camps, and in addition the cost of subsistence, which latter will be about \$1 a day. Officers of the Medical Reserve Corps desiring to accompany these organizations should notify the Surgeon-General's office at once. Officers should state whether or not they desire to furnish their own mounts. If mounts cannot be furnished, ambulance transportation can be furnished to a limited number of officers.

FOREIGN

Winternitz' Eightieth Birthday.—The father of scientific hydrotherapy, as he is called, Prof. W. Winternitz of Vienna, received many greetings on his eightieth birthday, March 1.

The Langenbeck-Virchow Building at Berlin.—This new home for the medical and surgical societies of Berlin is just on the point of completion. The library is already being moved into the new quarters. By combining several scattered medical libraries, it starts with 113,000 volumes.

Prize Goes to Fibiger.—The M. Salomonsen prize of about \$200 is awarded every fifth year at Copenhagen for some notable progress in the medical sciences. This year the prize was awarded to J. Fibiger for his work, "Animal-Parasite Cancer in Rat Stomach." A summary of it was published in *THE JOURNAL*, Oct. 17, 1914, p. 1432.

Appropriations for Scientific Research at Vienna.—The Academy of Sciences at Vienna has allowed 800 kronen (about \$200) to Prof. H. Dextler of Prague to aid in continuing his studies on stimulation of the brain cortex in the horse. The sum of 600 kronen (\$150) was awarded also to Dr. E. Pernkopf of Vienna to aid in his study of the development of the intestines and omentum.

Houses for the Physicians in the Earthquake Zone of Italy.—The Italian Red Cross has decided to construct a two-story permanent house for the commune physician (*medici condotti*) in the regions devastated by the earthquake. The Red Cross has appropriated about \$24,000 for the purpose and is working with the Comitato Pro Casè Abruzzo which is putting up small houses for the quake refugees.

Appropriations for Cancer Research in Germany.—The Prussian department of education has petitioned the legislature for a continuance of the appropriation of 25,000 marks (about \$6,250), which for six years has been granted for cancer research, on condition that private subscriptions would double the amount. This has always been done, and the private subscriptions are already assured for 1915. The appropriation is devoted mainly to the cancer research work being done under Ehrlich's supervision.

Deaths in the Profession Abroad.—A. Birnbacher, professor of ophthalmology at the University of Graz, aged 66, an authority on glaucoma in particular, but best known, perhaps, by his operation for ptosis and for cataract and his method of illumination of the eye.—J. D. Pinero, professor of anatomy at the University of Buenos Aires and chief of the sanitary inspection service of the port and of the vaccine service, member of the national board of health and physician in chief at the hospital for men.—J. G. Rueda, presi-

dent of the board of health for the province of Cordoba, Argentina, governor, and member of the national senate, aged 53.—G. Resinelli, professor of obstetrics at the University of Florence, aged 50. He founded at Florence the Istituto di maternita per madri illegittime.—H. Apolant, a co-worker with Ehrlich at Frankfurt, aged 48.—Kreisarzt Filgenträger, of typhus contracted at the Langensalza camp of prisoners.—Otto Markus, assistant at the Würzburg medical clinic, was killed by a shell during the Argonne fighting. He leaves unfinished an important work on the histology of the ganglion cells of the vegetative nervous system. He had already published a number of works on neurology and psychiatry.

WAR NOTES

Austrian and Turkish Governments Ask for Medical Help.—The *Ugeskrift for Læger* announces that it has received an appeal from the Austrian Society for Combating Epidemics asking for laboratory workers, physicians and orderlies with special experience in fighting epidemics. The appeal states further that the Ottoman government is asking for a trained laboratory worker.

Restrictions as to Bread Making in Italy.—The *Policlinico* gives the official decree regulating the bakeries, to prevent waste of wheat flour. Only one kind of bread can be made for sale from wheat flour. It corresponds to the type of bread supplied to the army, *pane di munizione*. The loaf must not weigh over 500 gm. (not quite 16 ounces), and there must not be over 35 per cent. moisture within twelve hours of the baking.

Restrictions with Regard to Bread Making in Hungary.—The *Klinisch-therap. Wochenschrift* states that bakeries must add 50 per cent. cornmeal to wheat and rye flour used in making bread for sale. Where the supply of cornmeal is known to be inadequate, the minister of the interior may grant permission to use, instead, 25 per cent. potato flour with wheat or rye flour. The only exception is in baking what are known as "water rolls," *Wassersemmeln*, but these can be baked only once a day. Failure to comply with these regulations entails a penalty of imprisonment up to two months or a fine up to \$150.

Aid for Belgian Physicians.—The report of the treasurer of the committee of American physicians for the aid of the Belgian profession, for the week ending April 3, 1915, lists the following contributions:

Dr. John Lewis Stevens, Mansfield, Ohio.....	\$ 5.00
Hoquiam Surgical Club, Hoquiam, Wash.....	10.00
Dr. J. D. Griffith, Kansas City, Mo.....	5.00
Dr. Philip F. Williams, Philadelphia, Pa.....	5.00
Visiting Nurse Association of Chicago, Chicago, Ill.....	12.00
Dr. Burnley Lankford, Norfolk, Va.....	5.00
Dr. Irene M. Morse, Clinton, Mass.....	3.00
The Homochitto Valley Medical Society, Natchez, Miss.....	14.25
Dr. T. L. Macdonald, Washington, D. C.....	10.00
The Yankton District Medical Society, Yankton, S. Dak.....	50.00
Dr. James D. Voorhees, New York, N. Y.....	25.00

Receipts for week ending April 3.....	\$ 144.25
Previously reported receipts.....	5,752.25

Total receipts\$ 5,896.50

Previously reported disbursements:

1,625 standard boxes of food @ \$2.20.....\$3,575.00

945 standard boxes of food @ 2.30.....2,173.50

Disbursements for the week ending April 3:

64 standard boxes of food @ \$2.30.....\$ 147.20

Total disbursements\$ 5,895.70

Balance\$.80

F. F. SIMPSON, M.D., Treasurer,
5 Jenkins Arcade Bldg., Pittsburgh, Pa.

Austria and Hungary Forbid the Offering of Liquor to Soldiers on the Way to or from the Front.—The authorities have issued a decree forbidding the sale or gift of alcohol to troops on trains. The officer in command of the troops must see to it that within five hours of entraining no alcohol shall reach them. Alcoholic drinks shall be given to the sick or exhausted on the trains only when the medical officer regards it as indispensable. The eating houses and restaurants at the stations must have ready for the troops, besides mineral waters and other non-alcoholic drinks, soups, hot and cold boiled milk, tea, coffee and lemonade. Circulars have been given to all the soldiers urging abstention from alcohol, "as it makes men sluggish and incapable of marching, interferes with good shooting and renders one more susceptible to infectious diseases." The Austrian authorities have also ordered that no more barley shall be made into malt, and all supplies of barley on hand at the breweries must be declared. Permission is also given local authorities to utilize the drying facilities of the breweries to hasten the

drying of new corn so that it can be ground before the usual time.

LONDON LETTER

LONDON, March 12, 1915.

The War

THE OUTBREAK OF CEREBROSPINAL FEVER

The outbreaks of cerebrospinal fever both among the civil population and the military are causing some anxiety. The health authorities have issued a circular to physicians offering to make a bacteriologic diagnosis in suspected cases. The cerebrospinal fluid will be examined for the organism, and the services of a medical officer will be available, if requested, for obtaining the fluid by lumbar puncture. Dr. Arthur Newsholme, chief health officer to the Local Government Board, in a memorandum issued to the health officers, recommends that "in the presence of cerebrospinal fever, the nearest approach to open-air life should be aimed at for all contacts." He adds: "In view of the known association of cerebrospinal fever with overcrowding, insufficient ventilation and uncleanness, the avoidance of these conditions becomes a matter of prime importance. This is especially true where large numbers of persons are brought together under one roof."

MEDICAL SOCIETY WORK AND THE WAR

A great number of the consultants of the country are engaged in military work both in the hospitals at home and in France. As the work of the medical societies is almost entirely done by this class, there is a great shortage in the proceedings. Great difficulty is experienced in obtaining papers and cases for the meetings. At the largest of all the societies, the Royal Society of Medicine, some of the sections have been unable to hold meetings in consequence of lack of material. The result is evident in the shrunken form in which the proceedings are published.

"BACK TO LISTER"

At the Royal Institution, Sir Rickman J. Godlee (Lister's nephew) delivered a lecture on "Back to Lister." He said that Lister's followers had feared that the war would bring out in relief the weak points of those who had departed from his methods and adopted the so-called "aseptic" method. At the outset of hostilities the reports from the front of almost universal sepsis made them fear that their prognostications were true and that the abandonment of antiseptics was at least in part accountable. It appeared, however, that antiseptics were very largely employed, though so far with most disappointing results. The fact must not be overlooked that military surgery was exceptional, and that this war in particular was being fought under most unusual circumstances, the trenches being dug and monster shells exploding in highly cultivated soil. Were they to hold up their hands in despair and say it was useless to attempt to disinfect any wounds to which the organisms of tetanus and gas gangrene might have gained access? By no means; all Lister's work cried out against such a conclusion. He still thought Lister's original method of purification by means of undiluted phenol (carbolic acid) was the one most likely to be useful in the rough-and-tumble practice of the battlefield. Although this treatment caused a certain amount of superficial sloughing, Lister obtained strikingly good results. Sir Rickman Godlee considered that the comparison made between aseptic and antiseptic treatment was misleading, because most of the advocates of aseptic surgery use chemical antiseptics for one purpose and another, while all employed heat, the most powerful antiseptic. The great difference between the aseptic and the antiseptic surgeon is that the former requires an amount of paraphernalia which puts his procedures almost beyond the reach of any except hospital surgeons and quite beyond that of surgeons with the fighting army. He read a letter from Sir Anthony Bowlby (consulting surgeon to the forces) showing that aseptic practice will often be useless: "In this trench warfare, if a man is hit, he often falls into filthy mud and water, which may be 3 feet deep or more. The trench is only 2½ feet wide. It is night, you can only grope about in the dark and can do no dressing of any kind, for you can't even get any clothes off in the dark, and in so cramped a space, and you must try to get the man away to a 'dressing station' half a mile distant, and thence to a field ambulance. If it is daylight, you can't get the man out of the trench at all, and he may have to be kept there for many hours, because he would certainly be killed if he was got out of the trench. And the water in the trenches is hopelessly polluted and soaks his clothes and his wound. Large lacerated wounds, and

especially bad bone smashes, are so contaminated that it can never be possible to render them aseptic." Sir Rickman Godlee concluded by saying, "The only way to stop sepsis in war is to stop war altogether."

PARIS LETTER

PARIS, March 18, 1915.

The War

IMPROVEMENTS IN THE MILITARY MEDICAL SERVICE

In a previous letter (*THE JOURNAL*, Feb. 6, 1915, p. 524) it was stated that the minister of war had appointed a commission to recommend improvements in the military medical service in the national territory and in the armies. This commission, of which Professor Landouzy, dean of the Faculté de médecine de Paris, Dr. Roux, director of the Pasteur Institute, Dr. Vaillard, medical inspector-general of the military medical service and Dr. Hartmann, professor of clinical surgery at the Faculté de médecine de Paris, among others, are members, has just finished its labors. Among its most important recommendations may be mentioned the following: increase in the number of automobiles for the transportation of the wounded up to the number of sixty for each army corps; creation in each army of surgical sanitary formations for the front, one for each army corps as a minimum for the urgent operative treatment of those seriously wounded, the placing of the formations to be determined according to need by the commanders at the suggestion of the army physicians; removal of the wounded within the army zone in normal times by daily collecting trains and during intensive activity by sanitary trains sent to the front and by daily supply trains. The latter trains, which are to be employed only to aid an intensive evacuation in the army zone, should always be accompanied by a medical and nursing staff and kept under definite hygienic conditions. The physicians and surgeons of the reserve and of the territorial army are to be allotted to military posts in accordance with their professional competence and scientific attainments, the different specialties being placed in the formations where they are necessary.

The commission recommends the creation or adoption, in each army corps region, of surgical formations reserved for those seriously wounded in the zone of the territory of the large centers of specialties, with competent physicians and surgeons at the head and the commissioning of consulting surgeons in each army corps region to inspect the sanitary formations.

Other recommendations are: that a surgeon dentist be detailed to each regiment and a dental automobile service organized in an army corps; that the instructions with regard to compulsory antityphoid vaccination be strictly applied; that special hospital accommodations be provided for typhus patients; that medicaments and dressings be regularly supplied; that the administrative working of the sanitary formations be simplified; that the wearing of the uniform of Red Cross nurses be regulated, etc.

TREATMENT OF FROZEN FEET

The treatment of frozen feet, so frequent during the present campaign, continues to occupy the attention of surgeons. The majority believe that it is better to wait before operating. Notwithstanding, Dr. Quénu, professor of clinical surgery at the Faculté de médecine de Paris, advises against awaiting spontaneous sloughing of the dead part in cases of freezing with mortification. When the line of demarcation has appeared amputation may be made 1 cm. above and the wound sewed up. This avoids final neuritis. On the other hand, Dr. Walther, surgeon of the hospitals of Paris and agrégé at the Faculté de médecine, believes that it is often the most economical method to delay operation until cicatrization has accomplished as much repair as it can, thus necessitating only a slight trimming of the edges whereas an early operation would have required the sacrifice of a whole limb or segment of a limb. This is likewise the opinion of Dr. P. Thiéry, surgeon of the hospitals and agrégé at the Faculté de médecine de Paris and Dr. Arrou, surgeon of the hospitals of Paris, who declared that operation should not be performed too soon. A toe may regain its color and heat if one waits. A gangrenous spot may contract and slough off, leaving a very shallow excavation. A limb believed to be compromised or even lost may resume heat and life at the end of several days. Operation, therefore, should be performed only very late and perhaps not at all. As an excellent therapeutic and prophylactic measure, Thiéry recommends the use of footbaths with a cold aqueous 12 per cent. solution of picric acid.

Dr. J. Glover, physician of the hospitals of Paris, has called the attention of the Académie de médecine to the fact that in all cases of freezing, vasomotor troubles are observed in various degrees not only in the feet but also in the hands and at the level of the face, and these are accompanied by oliguria, hypothermia and a slight retardation of metabolism. These phenomena may be much alleviated if, during the local treatment, each day from two to four or five drops of 0.1 per cent. solution of crystallized digitalin are administered as soon as possible. The skin of the extremities is then better irrigated by a more normal capillary circulation and the tissues are more easily repaired.

INDIVIDUAL IODIN DRESSING

Dr. Jeanbrau, agrégé professor of surgery at the Faculté de médecine de Montpellier, showed at the Société de chirurgie de Paris an individual dressing devised by Fonze-Diacon and Astruc of Montpellier. It consists of two little tampon compresses, one for the orifice of entry, the other for the orifice of exit of the wound, formed of cotton wrapped in a gauze compress. The piece of cotton has been soaked in a solution of potassium iodate and potassium iodid in excess and the gauze which covers it has been impregnated with a feebly acid solution. On contact with the blood issuing from the wounds, iodine is set free and it remains dissolved, in the excess of potassium iodid. Jeanbrau has tried the new dressing on about twenty men who have been wounded and operated on. None of them presented any erythema or experienced the least disagreeable sensation at the level of the wound.

URINARY INCONTINENCE IN COMBATANTS

At a recent session of the Académie de médecine, Dr. F. Legueu, clinical professor of diseases of the urinary passages at the Faculté de médecine de Paris, read an interesting paper on this subject. Several varieties of incontinence must be distinguished: 1. There are incontinenes produced by an organic lesion of the urinary organs, most frequently by a stricture of the urethra aggravated in the course of the campaign. 2. The greater number of incontinenes are functional and result from psychic trouble. The nervous disturbance contracted during war in some cases produces paralysis or excitation of the bladder and both of these troubles manifest themselves by incontinence. When there is retention following emotion or a wound near to but not directly affecting the urinary organs, incontinence is caused by engorgement. When there is excitation polakiuria results with incontinence during the night. Legueu has seen soldiers slightly affected with these troubles discharged from the army. He believes that soldiers of this class ought to be kept in the service and can even be sent to the front.

NEW AUTOMOBILES FOR THE TRANSPORTATION OF THE WOUNDED

The minister of war has just passed in review the first automobile column of Russian ambulances built for service at the front and offered to the French army by a Russian committee under the patronage of the Empress of Russia. These new automobiles, which can carry four wounded men each in a recumbent position and eight seated, present several important advantages over those at present in use. The carriages are light, admirably hung, the chassis high from the ground so that the automobiles can pass across fields or along rutted roads without the frames or axles striking. They can also easily descend steep slopes. They are inexpensive; chassis and ambulance body together cost about 3,800 francs (\$740). Similar columns of automobile ambulances offered by Russia to France will soon be placed at the disposition of the minister of war. Great Britain has also recently presented France with thirty-five automobile ambulances. Thus progressively the transportation of the wounded, which originally was made only by vehicles drawn by horses, is more and more done by automobiles in conformity with the desire of the commission of the health service.

PERSONAL

The minister of war has awarded a gold medal of honor (that of epidemics) to Mrs. Clara Muriel Kipling, nurse at the American hospital at Paris installed at the lycée Pasteur at Neuilly-sur-Seine.

The Problem of Absinthe

At a recent session of the Société de thérapeutique, Dr. Chevalier of Paris advocated an original measure intended to settle definitely the question of the disposal of the stocks of absinthe while completely taking care of all the financial

complications of the question. Chevalier proposes that the government buy and have distilled for its own use the stock of manufactured absinthe. In view of the deficits in the present manufacture of alcohol, the need for procuring it and the high price of the product, the transformation of absinthe to 90 degrees alcohol, so far from being a loss to the government, would reimburse the distillers while definitely removing the absinthe from the field of difficulties.

BERLIN LETTER

Berlin, March 9, 1915.

The War

ATTENDANCE AT THE UNIVERSITIES

That we shall have no lack of human material in the near future is indicated by the record of attendance at the German university. At the twenty-two universities of the empire, there were 52,500 students enrolled as compared with 61,200 last summer and 59,600 in the winter semester of the previous year. Of the students, 48,500 were men and 4,000 women. From these figures we must subtract those students who are enrolled at the universities but are on leave of absence for military reasons. These amount to 30,000 men and 300 women. To these must be added the students who entered military service in the course of the winter whose number may amount to about 8,000 so that altogether from 36,000 to 37,000 German students are in the field in military training or in the military medical service. Of the students of the technical high schools, about 9,000 or from 75 to 80 per cent., have been drawn into the service of the empire.

INFLUENCE OF THE WAR ON THE BIRTH RATE

Fehlinger, the political economist, lately published some interesting discussions. It is well known that after war the birth rate declines but rises again in the following years above the position which it occupied before the war. The frequency of birth, according to Fehlinger, has been considered as an expression of the adaptation of the human race to the chronological and local conditions of life. As a rule, in thickly populated districts the birth rate is lower than in thinly populated, and where the danger to life is great, the frequency of birth is also great. As war was formerly with most peoples the most serious danger to life, there was always among its results a tendency to a high birth rate. This tendency is particularly required by the fact that many families with a low natural fertility and correspondingly small number of children are brought to extinction by war. But in families fruitful in children, the prospect that all the male progeny will be killed in war is very slight, for there prevail among the sons marked difference in age, and therefore all are not liable to service, so that a considerable number of the progeny from families with natural fertility is preserved. A selection goes hand in hand with war by which the preservation of fruitful families is favored, and therefore there is naturally an increase of the birth rate, as numerous families poor in children are extinguished by nature. The great fertility of the races of man among whom war and strife are almost continuous is referred to such a selection. An example is shown by the marked fertility which the negroes who were imported into North America showed in the first few generations. Also high fertility prevailed in early times among the Indians in the southwest of the United States, who were formerly very warlike.

Another factor which aids in the increase of the birth rate after war is the weakening of competition through the removal of the competing elements. A victorious war causes the economic advance of a people by which also its fertility is increased. Frequently also, as the result of the increased price of food and the deterioration of nutrition resulting from a war, there occurs a selection such that the weak members of a community are subjected to a much greater mortality than the strong. As a result there remains chiefly people fitted to live who are also fitted for reproduction to a greater degree. As unfavorable conditions for the birth rate after a war, the following should be considered: An increase in the excess of females by which a greater percentage of marriageable females remain unmarried. Also the circumstance that the weaker men physically are preserved in full numbers or slightly reduced, while a large part of the stronger men perish. Opposed to this, however, should be noted that it is still very doubtful whether a powerful physical constitution and a great capability of reproduction are associated. In connection with these considerations, Fehlinger stated that the year 1914 in Berlin had closed with a birth rate which was 3,500 less than that of the preceding year. The five

years from 1909 to 1913 produced 45,960, 44,188, 43,201, 42,581, 40,832 living births. The year 1914, on the other hand, showed only about 37,300. The figures for 1914 are a temporary estimate, but it might be increased at the most, on account of delayed reports, by a few dozen. The mortality increased in 1914 by about 1,600. For 1914 a current estimate gives 29,650 births without stillbirths. The excess births over deaths for the years 1909-1913 amounted to 14,116, 14,036, 10,894, 12,600 and 12,767, but for 1914 only about 7,650. In 1914, the excess of births was about 5,100 less than for 1913, that is, about 40 per cent.

THE EXCHANGE OF GERMAN AND FRENCH INVALID PRISONERS OF WAR

The exchange of prisoners of war, who are no longer fit for military service on account of their severe wounds, has been carried out both with the English and the French. As is well known, the pope has expressly favored this exchange, but as I am authentically informed, already before his announcement, the Prussian war department had taken up this subject and made proposals to the governments of our enemy. For exchange with France, 800 German and 1,800 French severely wounded have been provided for. The small number of Germans corresponds to the smaller number of German prisoners in general. It is strange that the French government to date has not been willing to exchange wounded officers and noncommissioned officers. The medical supervision of the wounded who are exchanged rests, on our side, in the hands of Professor Goldscheider who, in the army, has the rank of *Generalarzt*, and of the superior staff surgeons, Professors Rumpel and Schwiening.

REDUCTION OF THE FLOUR RATION

In order to make the supplies of grain, under all circumstances, last until the next harvest, the daily ration of flour has now been reduced from 225 to 200 gm. per capita of the population. That such an average amount of flour is sufficient, needs no special evidence from the medical standpoint. A smaller ration is provided for infants and other small children. The well-to-do classes of the population depend less on the use of bread and can provide themselves with dearer foods, so it is assumed that they will not use the full amount of flour and bread ration supplied to them, but will return a part of it to the authorities that it may be used for the poorer classes.

Naturally, in the early period, much complaint was made against the army bread inasmuch as the more thorough grinding of the grains caused a greater percentage of bran in the flour, and the wheat flour must be mixed with a considerable amount of rye, and the rye bread must contain potatoes in substance or as potato flour. How far these complaints are justified has been tested by a meeting of competent specialists called by Professor Schwalbe, including hospital physicians and other internists. In a thorough debate, in which the physiologists Zuntz and Flügge and the internists Ewald, Rosenheim, G. Klemperer, Adolf Schmidt, Boas and others took part, it was established that there are certain patients who are unable to tolerate the war bread, but that their number is relatively small. Chiefly this concerns patients with pathologic conditions of secretion of the gastric juice. The majority of the persons who complain come from the class of neurasthenics.

It is very important for the bread to be well baked and to be carefully chewed. For the necessary exceptions to the official regulations, the stations for distributing flour will supply pure wheat flour for baking purposes on a physician's prescription. These experiences are also of general interest for the use of wheat and rye bread in the diet of the sick.

Vaccination Against Typhoid

With reference to the importance of the reactions which occur after prophylactic typhoid inoculation, Dr. Müller of Berlin made a report to a meeting of army surgeons of the garrison of Ingolstadt. Altogether 3,010 typhoid vaccinations have been made in that hospital; 1,183 were first inoculations; 1,121, second, and 706, third. Thirty in the first group were kept under close supervision for a period of three weeks, including twelve physicians, nurses and members of the ambulance corps, who made thorough reports of the subjective symptoms. In some of them the number of leukocytes was counted every morning before breakfast. This gave the following results:

	Average of 9 Cases: Leukocytes in 1 c.c.	Average of 4 Cases
Before vaccination.....	4,260	5,000
First day after inoculation.....	6,170	6,150
Second day after inoculation.....	4,780	3,910

A temporary leukocytosis is thus produced by the injection of the typhoid vaccine. This might be utilized as a differential diagnostic point against a genuine typhoid infection. In 873 cases a very careful study of the local and general reaction occurring after the vaccination was undertaken. Redness at the point of injection on the second day of the size of a 3 to 5 mark piece (approximately the size of a silver dollar) was regarded as a mild local reaction; redness the size of the palm of the hand, as a severe one. Hemorrhagic effusion or inflamed lymphatics running to the other side of the chest or swelling of the local lymph glands were never observed.

The local reactions disappeared at the latest on the fourth day with the exception of a slight tenderness at the point of injection. As slight general reactions are included headache, lassitude, disturbed sleep and loss of appetite for the first day or two. As severe general reactions, rise of temperature to 38 C., or 100.4 F. (only in one case the temperature reached, the first evening, 38.9 C. [102 F.] but six hours after the injection it had fallen to 38.3 C. [100.9 F.], and on the next morning was normal), suddenly appearing diarrhea with severe pain (one case) and a chill occurring about two hours after the injection (thirteen cases). The general symptoms had regularly disappeared on the third day.

	Number of Vaccinations	Local Reaction		General Reaction	
		Slight	Severe	Slight	Severe
1. Vaccination	409	10	9	2	0.8
2. Vaccination	331	6	14	0.6	3.5
3. Vaccination	132	0	25	4.5	0.7

None of the cases which were generally observed for weeks and sometimes for months showed any later symptoms. In particular it was worth noticing that very frequently in the first few days after the injection, pains occurred in cicatrized wounds or callus, in thickenings in the pleural cavity, and at the site of contusions or other injury. In pulmonary tuberculosis suspects, the general condition was relatively severely disturbed during the first two days, as a rule. In one such case pain developed suddenly after the injection, appearing at the seat of a left-sided apical affection which occurred a year before and in which pain had not been previously observed. The indication appears clear to exclude from the inoculation all patients showing an increased temperature until the acute pathologic process has ceased.

The antityphoid vaccination resulted in a noticeable disturbance of the general condition in the first two days only in 5 per cent. of the cases; delayed reactions did not occur. Typhoid prophylactic inoculation is to be regarded as a procedure that has no disturbing effect on the health, and in this respect is distinctly superior to vaccination against smallpox. No objection can be urged against compulsory protective inoculation in case of a threatened epidemic of typhoid.

Marriages

GEORGE THOMAS TOOTELL, M.D., Changteh, China, formerly of Chicago, to Miss Anna Eleanore Kidder of Chenchow, China, formerly of Knoxville, Tenn., at Canton, China, January 13.

ALFRED M. ELWELL, M.D., Camden, N. J., to Miss Helen Robbins Whitaker of Bridgeton, N. J., March 20.

ARCHIBALD DUNCAN McALPINE, M.D., Detroit, to Miss Lucile Cornell of Lansing, Mich., March 25.

THOMAS S. LORTON, M.D., Pana, Ill., to Miss Mary Oughton of Belleville, Ill., at Hillsboro, Mo., Jan. 12.

HENRY WALDO COE, M.D., Portland, Ore., to Miss Elsie Ara Waggoner of Los Angeles, March 25.

EMIL HENRY BURGHER, M.D., St. Louis, to Mrs. Daphne Sharp, at Edwardsville, Ill., March 19.

CHARLES ROGER ABBOTT, M.D., to Miss Gladys I. Jeffery, both of Clinton, Mass., March 24.

WILLIAM RILEY BROWN, M.D., to Miss Thora Williams, both of Ogden, Utah, March 24.

GEORGE FLORIAN BOYER, M.D., Toronto, Ont., to Miss Janet Anderson of Chicago, April 5.

NOEL C. WOMACK, M.D., to Miss Mary Lane, both of Jackson, Miss., March 24.

Deaths

Edward Sprague Peck, M.D. University of Vermont, Burlington, 1868; a member of the Medical Society of the State of New York and New York Academy of Medicine; consulting oculist to the New York City Hospital; oculist to St. Elizabeth's Hospital and ophthalmologist to the Montefiore Home and Hospital and the Post-Graduate Hospital; formerly a major in the Serbian army with service during the war with Turkey; for more than twenty years a member of the editorial staff of the *Medical Record* and a well-known writer on the subjects connected with his specialty; died at his home in New York City, March 22, aged 67.

Claus J. Siemens, M.D. University of Goettingen, Germany, 1853; said to have been the oldest practitioner of St. Joseph, Mo.; assistant surgeon of the Sixty-Ninth and Ninth, and surgeon of the Fiftieth Pennsylvania Volunteer Infantry during the Civil War; one of the organizers of the St. Joseph Medical Society and an honorary member of the St. Joseph-Buchanan-Andrew County Medical Society; president and treasurer for a time for the German-English School Board of St. Joseph; died at the home of his son-in-law in that city, March 22, aged 86.

George H. Stover, M.D. Denver College of Medicine, 1893; of Denver, Colo.; a Fellow of the American Medical Association; formerly lecturer on electrotherapeutics and radiology in the Denver and Gross College of Medicine, and later professor of roentgenology in the University of Colorado, Boulder; died March 25 in a hotel in Baltimore, where he had been under treatment for burns due to the Roentgen rays, aged 44.

Philip Michael Wood, M.D. Bellevue Hospital Medical College, 1876; a member of the Medical Society of the State of New York; visiting surgeon to and for many years president of St. Mary's Hospital, Jamaica, N. Y.; president of the board of sewer commissioners of Jamaica; one of the organizers of the Bank of Long Island and Jamaica Savings Bank; died at his home in Jamaica, March 27, from nephritis, aged 59.

John Alsdorf, M.D. College of Physicians and Surgeons in the City of New York, 1880; formerly consulting physician to the Women's Infirmary and Metropolitan Dispensary, New York City, and medical director of the Guarantee Medical Attendance Association; district physician for the New York Lying-In Asylum; died at his home in New York City, March 25, from pneumonia, aged 72.

Alexander Hamilton Scott, M.D. University of Michigan, Ann Arbor, 1867; a Fellow of the American Medical Association; of St. Joseph, Mich.; a veteran of the Civil War in which he served as hospital steward; trustee of the village of St. Joseph for three terms and mayor of the city in 1890 and 1891; died in Brunswick, Ga., March 19, from heart disease, aged 74.

R. Sydney Cauthen, M.D. Baltimore (Md.) Medical College, 1902; a Fellow of the American Medical Association; a specialist on diseases of the eye, ear, nose and throat of Charlotte, N. C.; died at his home in Charlotte, March 24, from heart disease, aged 43. In honor of Dr. Cauthen, the Mecklenberg County Medical Society attended the funeral in a body.

Oliver Cotton Smith, M.D. Long Island College Hospital, Brooklyn, 1883; a Fellow of the American Medical Association and president of the Connecticut Medical Society; a member of the Association of Military Surgeons of the United States and surgeon-general of Connecticut in 1905; died at his home in Hartford, recently, aged 55.

Thaddeus O. Bannister, M.D. New York University, New York City, 1856; acting assistant surgeon in the Army during the Civil War; for thirty years a member of the school board and for fifteen years president or a member of the board of trustees of the village of Odell, Ill.; died at his home in that place, January 18, aged 81.

Amos Paterson Webber, M.D. Bellevue Hospital Medical College, 1883; formerly a Fellow of the American Medical Association; a member of the Massachusetts Medical Society; a member of the staff of St. Luke's Hospital, New Bedford, Mass.; died at his home in New Bedford, Mass., March 20, aged 55.

Enoch A. Emerson, M.D. Detroit College of Medicine and Surgery, 1886; of Spring Arbor, Mich.; a member of the Michigan State Medical Society; was found dead in his

home, March 25, from the effects of a gunshot wound of the breast, believed to have been self-inflicted with suicidal intent, aged 56.

Henry Jerome Ruyle, M.D. Kentucky School of Medicine, Louisville, 1893; consulting physician to the Frisco System at Springfield, Mo.; died in St. John's Hospital, Springfield, March 22, from the effects of carbolic acid, self-administered, it is believed, with suicidal intent, while of unsound mind, aged 44.

Stephen Benjamin Munn, M.D. Georgia College of Eclectic Medicine and Surgery, Atlanta, 1882; Bennett Medical College, Chicago, 1888; a practitioner of Waterbury, Conn., since 1865, and health officer in 1881 and 1882; died at his home in that city, March 21, from cerebral hemorrhage, aged 87.

Angus A. McLellan, M.D. McGill University, Montreal, 1889; of Summerside, P. E. I.; health officer of that town and one of the founders of the Summerside Hospital; fell from a car in Montreal, March 17, fracturing his skull and died in the Western Hospital, Montreal, March 20, aged 54.

Henry Walbank Jones, M.D. Rush Medical College, 1876; of Houghton, Mich.; a member of the first board of control of the state hospital. Newberry, Mich.; for many years moderator of the Houghton school district; died at the home of his daughter in Short Hills, N. J., March 18, aged 51.

Z. T. Knight, M.D. Keokuk Medical College, College of Physicians and Surgeons, Keokuk, Ia., 1907; a member of the Missouri State Medical Association and a member of the staff of the Fulton (Mo.) State Hospital; died at Fulton, March 21, after an operation for appendicitis, aged 34.

Alva Richards, M.D. Cincinnati College of Medicine and Surgery, 1862; for more than fifty years a practitioner of New Lexington, Ohio; assistant surgeon of volunteers during the Civil War; died at his home in New Lexington, March 24, from cerebral hemorrhage, aged 72.

William B. Officer, M.D. St. Louis College of Physicians and Surgeons, 1893; a Fellow of the American Medical Association; and a well-known practitioner of Dallas and Falls City, Ore.; died at his home in Falls City, March 15, from pneumonia.

Edmund Charles Dollard, M.D. Jefferson Medical College, 1899; a Fellow of the American Medical Association; of Neenah and Menasha, Wis.; died in a hospital in Neenah, March 26, four days after an operation for appendicitis, aged 41.

J. Aldo Rink, M.D. Denver and Gross College of Medicine, Denver, 1904; a Fellow of the American Medical Association and a member of the staff of the St. Anthony's Hospital, Denver; died at his home in that city, March 19, aged 40.

Theodore T. Tate, M.D. Pennsylvania Medical College, Gettysburg, 1855; assistant surgeon of the Third and Seventeenth Pennsylvania Volunteer Cavalry during the Civil War; died at this home in Gettysburg, Pa., March 20, aged 84.

George S. Chalmers, M.D. Physio-Medical Institute, Cincinnati, 1878; formerly a member of the Illinois State Medical Society and for twenty years coroner of Knox County, Ill.; died at his home in Galesburg, March 18, aged 70.

Alexander Anthony Dame, M.D. Queen's University, Kingston, Ont., 1886; of Toronto; a specialist on diseases of the eye, ear, nose and throat; died suddenly in Toronto, March 23, from cerebral hemorrhage, aged 68.

J. J. Elmes, L.R.C.P. and L.R.C.S., Edinburgh, 1892; L.F.P.S., Glasgow, 1892; surgeon on the Donaldson Line between Glasgow and the United States; died on board the steamer *Athenia*, March 4, from heart disease.

Edwin Crocker, M.D. Albany (N. Y.) Medical College, 1863; a member of the Medical Society of the State of New York; and a practitioner and druggist of Narrowsburg, N. Y.; died at his home, March 26, aged 75.

William H. Aikin, M.D. Pulte Medical College, Cincinnati, 1884; for thirty-one years a practitioner of Felicity, Ohio, and for two terms auditor of Clermont County; died at his home in Felicity, March 21, aged 59.

William Julius Pasmore, M.D. University of Toronto, Ont., 1865; for the last fourteen years a practitioner and druggist of Deseronto, Ont.; died in Wellesley Hospital, Toronto, March 15, from angina pectoris.

Charles Otto Straub, M.D. Rush Medical College, 1895; died at his home in North Minneapolis, Minn., March 21, from pneumonia, aged 40.

Erastus M. Eisenbeiss, M.D. Medical College of Indiana, Indianapolis, 1888; of Indianapolis; a specialist in roentgenology and radiotherapy; died in Indianapolis, March 30, from the effects of Roentgen-ray burns.

John Milton Pilsbury, M.D. Jefferson Medical College, 1865; surgeon of U. S. Volunteers during the Civil War and for forty years a practitioner of Chicago; died at his home in that city, March 30, aged 77.

Frank H. Honberger, M.D. Hahnemann Medical College, Chicago, 1890; of Chicago; professor of obstetrics in his alma mater; died in Hahnemann Hospital, Chicago, March 29, from heart block, aged 58.

Francis M. Robinson, M.D. Willamette University, Salem, Ore., 1885; formerly a member of the Oregon State Medical Association; died at his home in Beaverton, Ore., March 22, from heart disease, aged 67.

William Ralph Bell, M.D. University of Vermont, Burlington, 1869; University of Bishop's College, Montreal, 1882; for more than half a century a resident of Ottawa, Ont.; died at his home, March 23.

W. J. Heacker (license, Tennessee, 1889), a practitioner since 1864; surgeon in the Confederate service during the Civil War; died at his home in Tate, Tenn., March 19, aged 82.

Robert Lee Swanson, M.D. Atlanta (Ga.) Medical College, 1914; formerly an intern at the Grady Hospital, Atlanta; died at the home of his mother in Fairburn, Ga., March 16, aged 25.

William Bower Gillespie, M.D. Medical College of Indiana, Indianapolis, 1881; a veteran of the Civil War; died at his home in Indianapolis, March 24, from pneumonia, aged 78.

Thomas Sawyer Turner, M.D. New York Homeopathic Medical College, New York City, 1879; died at his home in Binghamton, N. Y., March 19, from septic meningitis, aged 66.

Frank H. Lawrence, M.D. Eclectic Medical Institute, Cincinnati, 1880; of Kanona, N. Y.; for four years postmaster of that place; died in the Willard State Hospital, March 23, aged 56.

Henderson F. Hornaday, M.D. Central College of Physicians and Surgeons, Indianapolis, 1883; of Indianapolis; died in the Methodist Hospital in that city, recently, aged 66.

John R. Huss, M.D. Pulte Medical College, Cincinnati, 1879; of Dodge City, Kan.; died at St. Luke's Hospital, Denver, March 19, after a surgical operation, aged 60.

Roy A. Vaughan, M.D. Medical College of Virginia, Richmond, 1909; of Henderson, N. C.; died at the home of his father in Durham, N. C., January 22, aged 27.

John A. Sapp, M.D. Cleveland University of Medicine and Surgery, 1869; a veteran of the Civil War; died at his home in Salineville, Ohio, March 18, aged 70.

Erwin P. Howard, M.D. Bennett Medical College, Chicago, 1881; a practitioner of Richland, Ore.; died in Portland, Ore., about March 18, aged 62.

Walter L. Lamaster, M.D. University of Louisville, Ky., 1883; died at his home in Ashland, Mo., March 23, from pneumonia, aged 56.

Caroline Morrosco Von Langau, M.D. California Eclectic Medical College, Los Angeles, 1888; died at her home in Chicago, March 17.

Charles John Rattray, M.D. McGill University, Montreal, 1871; of North Lansingburg, Troy, N. Y.; died in Troy, March 18, aged 68.

Wilson Mellor Sprague, M.D. Starling Medical College, Columbus, Ohio, 1898; died at his home in Byesville, Ohio, March 15, aged 39.

Daniel Joseph O'Shea (license, Massachusetts, 1899); died at his home in East Boston, Mass., March 23, from pneumonia, aged 38.

John Maxwell True, M.D. Sioux City (Iowa) College of Medicine, 1897; died at his home in Oskaloosa, Ia., March 16, aged 69.

Tristram Rogers, M.D. Worcester (Mass.) Medical College, 1855; died at his home in Plymouth, N. H., about March 19, aged 81.

Samuel S. Knight, M.D. Atlanta (Ga.) Medical College, 1858; died at his home in Fountain Inn, S. C., March 23, aged 77.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

ARTICLES REFUSED RECOGNITION

Reports of the Council on Pharmacy and Chemistry

Below appear abstracts of the Council's action on articles refused recognition which were not deemed of sufficient importance to require a lengthy report. Previous instalments of abstracts appeared in THE JOURNAL, Nov. 14 and 21, Dec. 12, 1914, Jan. 2 and 30, Feb. 20 and March 20, 1915.

Hagee's Cordial of the Extract of Cod Liver Oil Compound

This is one of the "oilless" cod liver cordials. Like other manufacturers of such extracts, the Katharmon Chemical Company, St. Louis, which owns Hagee's Cordial, attempts to trade on the reputation long enjoyed by cod liver oil as a promoter of growth and nutrition. The following is the statement of composition furnished by the company:

"Each fluid ounce of Hagee's Cordial of the extract of Cod Liver Oil Compound represents the extract obtainable from $\frac{1}{3}$ fluid ounce of Cod Liver Oil (the fatty portion being eliminated), 6 grs. Calcium Hypophosphite, 3 grs. Sodium Hypophosphite, $\frac{1}{2}$ gr. Salicylic Acid (made from Oil Wintergreen), with Glycerin and Aromatics."

And here are some of the therapeutic claims:

"Tonic, Stimulant, Alterative, Reconstructive, Nutritive and Digestive."

"Useful in phthisis pulmonalis, scrofula and all chronic pectoral complaints, coughs, colds, brain exhaustion, nervous debility, palsy, chronic cutaneous eruptions and impaired digestion."

Of course, these absurd claims hark back to the time of the prevalence of the now discarded theory that the valuable properties of cod liver oil reside, not in the fat, but in certain nitrogenous, alkaloid-like constituents present in infinitesimal amounts. Further "playing up" this theory:

"The prescriber may know that in our preparation he is getting, in easily assimilable and palatable form, the very properties that make cod liver oil the best of reconstructives."

"When you prescribe cod liver oil you are after the active principles—why not give the active principles themselves."

Proprietary manufacturers usually ignore scientific investigations which establish facts adverse to proprietary claims; but the same proprietary manufacturers are quick to seize on any theory that can be twisted into support of their interests. Thus, recent investigations have shown that cod liver oil, like butter and egg yolk, possesses certain growth-promoting properties not found in some other fats, the promoters of Hagee's Cordial claim these properties of cod liver oil for their extract. They assert:

"Recent Chemical Investigations of Cod Liver Oil show that the active principles contain the nutritive qualities attributed to the whole oil."

The Council has previously expressed the opinion¹ that the preponderance of evidence indicates that whatever therapeutic value cod liver oil may have depends chiefly, if not entirely, on its fat (oil). There never was any evidence or scientific authority for the theory that the therapeutic value of cod liver oil was independent of its fat content. The fact

that the fat is the growth-promoting element has already been shown, and J. P. Street, chemist for the Connecticut Agricultural Experiment Station (THE JOURNAL A. M. A., Feb. 20, 1915, p. 638), in a series of experiments on a number of the so-called extracts of cod liver or cod liver oil (including Hagee's Cordial) has conclusively demonstrated that the growth-promoting properties of the oil are not to be found in the extracts. Street placed rats on a ration not sufficient to maintain normal nutrition and growth for an extended period. After the rats had been on this ration for some time and a failure to maintain weight was indicated, an amount of dealcoholized Hagee's Cordial was substituted for a portion of the lard contained in the ration. Later Hagee's Cordial was replaced by cod liver oil.

Street says:

"None of the four rats did well on Hagee's Cordial; in fact, they lost 1.2 to 15.4 gm. during feeding periods of from seven to fourteen days."

"The rats failed so quickly when put on Hagee's Cordial that in two cases the animals did not recover even when put on the full cod liver oil ration."

"... the four rats during the Hagee period, instead of gaining the normal 24 gm., actually lost 36.2 gm., while during the cod liver oil period instead of gaining 114 gm., they gained 156.4 gm."

"The inferiority of Hagee's Cordial as a reconstructive and a nutrient compared with ordinary cod liver oil is apparent."

Hagee's Cordial of the Extract of Cod Liver Oil Compound has neither the nutritive qualities nor the reconstructive efficacy of cod liver oil. This mixture is worthless for the conditions for which it is advertised, and is marketed under misleading and unwarranted claims. It is recommended that Hagee's Cordial be held ineligible for New and Nonofficial Remedies.

Wampole's Perfected and Tasteless Preparation of an Extract of Cod Liver

Wampole's Preparation is another of the oil-free "extracts" of cod liver. The following formula (which, be it observed, is non-quantitative and therefore practically worthless) is published by the owners, Henry K. Wampole & Co., Inc.:

"Contains a solution of an extractive obtainable from fresh cod livers, the oily or fatty portion being afterward eliminated. This extractive is combined with Liquid Extract of Malt, Fluid Extract of Wild Cherry and Compound Syrup of Hypophosphites (containing Calcium, Sodium, Potassium, Iron, Manganese, Quinin and Strychnin)."

An alcohol content of 17 per cent. is declared on the label. The following claims are typical of those made for the preparation:

"This grease, or oil, is not present in Wampole's Preparation of the Extract, which is palatable and, at the same time, very efficient as a stimulant to the centers of nutrition and assimilation. It is unsurpassed as a reconstructive tonic . . ."

"[Cases] with a marked tendency to pulmonary troubles, . . . if a timely impulse be given them will easily shake off the impending evil. Wampole's Preparation gives that timely impulse . . ."

In the Council's opinion, as previously expressed,¹ such therapeutic value as there may be in cod liver oil is chiefly, if not altogether, due to the fat (oil). Lately, the investigations of J. P. Street of the Connecticut Agricultural Experiment Station have definitely disproved the claims made for the Wampole's and similar preparations. In Street's experiments, rats were placed on a ration insufficient for normal nutrition and growth. After the rats had been on the ration for a time long enough for inability to maintain weight to become evident, dealcoholized Wampole preparation was substituted for a portion of the lard contained in the ration. Later the Wampole preparation was replaced by cod liver oil. From these experiments it appears that, although the Wampole preparation is said to contain malt extract and sugar, it does not show the advantage over ordinary cod liver

Little Chats about the Drug Business

Number Four
of a Series

EVERY year millions of dollars are spent by the American public for useless—and often harmful—medicines.

So many people who would never imagine themselves capable of repairing an intricate piece of machinery will undertake to repair the most intricate machine of all—the human body

When you're ill—even though your illness may seem slight—see your doctor. Don't buy a supply of pills or powders with the idea that they'll cure you.

Your doctor can find the cause of your illness and treat that.

When you see him, if you need medicine, he'll give you a prescription.

In that case, take the prescription to a drug store of the highest standards—to a drug store that would rather forego profits than take them on the sale of harmful preparations.

NOTE—Visitors are always welcome. You may see our prescription department—the department to which, in most drug stores, the public is not invited.

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Hynson, Westcott & Co.

TWO CONVENIENT LOCATIONS
Charles & Franklin North Ave. & Linden

A CREDITABLE ADVERTISEMENT.—This is a reduced reproduction of one of a series of advertisements that Hynson, Westcott & Co., Baltimore, pharmacists, are running in the local newspapers. Intelligent laymen and physicians alike must agree that they are a wholesome and refreshing change from the average drug-store advertisement. The concern that puts them out is alive to the dignity and importance of the profession of pharmacy.

1. THE JOURNAL A. M. A., Oct. 9, 1909, p. 1201.

oil as a source of nutriment which is claimed for it by the manufacturers. Street emphasizes that the Wampole preparation does not possess to any marked degree the reconstructive properties of cod liver oil, butter fat and egg yolk, on which foods rats gain weight rapidly and steadily after having been on a deficient diet. Street calls attention to the fact that the amount of alcohol consumed daily by the user of the Wampole preparation (the equivalent of 0.7 fluid-ounces of whiskey) explains to a considerable extent the asserted tonic virtues of the preparation.

Though offered as an efficient substitute for cod liver oil, Wampole's "Perfected and Tasteless Preparation of an Extract of Cod Liver" lacks both the nutritive and the reconstructive properties and is marketed under an indefinite name and unwarranted and untrue claims. It is recommended that Wampole's Preparation be held ineligible for New and Nonofficial Remedies.

THE ELECTRO-CHEMICAL RING

The Post-Office Puts a Silly Fraud Out of Business

Is it possible to devise a scheme so silly, a fake so flagrant, a swindle so self-evident that the public will have none of it? The history of the "Electro-Chemical Ring" seems to answer this question in the negative. Of all utterly futile pieces of charlatanry it is doubtful if any ever surpassed the Electro-Chemical Ring fraud.

This device was put on the market by the Electro-Chemical Ring Company of Toledo, Ohio, a concern owned by one W. G. Brownson and conducted by him since 1892. The Electro-Chemical Ring was a simple ring made of iron of commercial quality. The claim was made that the ring "Cures Diseases Caused by Acid in the Blood." According to Brownson, some of the diseases thus caused are:

Bright's Disease	Nose-bleed	Asthma
Diabetes	Adenoids	Headache
Chorea	Goiter	Obesity
Painful Monthly Periods	Cataract	Appendicitis
Uremia	Rheumatism	Cancer
Epilepsy	Gout	Stone in the Bladder
Varicose Veins	Lumbago	Psoriasis

These are but a few of the various diseased conditions that, according to Brownson, are "Caused by Acid in the Blood" and would be cured by wearing his iron ring. Here are a few of the claims made in detail by Brownson for his silly fraud:

"Gravel is like brick-dust, and calculi is about the size of the head of a pin. The ring will stop that accumulation at-once, and it is unusual for a person to have an attack of either, after the ring commences to work.

"Gall-stone requires more time. The ring will stop the accumulation at once, but sometimes it will be six weeks or more before the loose stones will become small enough and smooth enough to come out."

"Bright's disease and diabetes cases should show a very decided change for the better, in from twelve hours to four days, after the ring commences to work, and you can tell by the color, quantity, odor and deposit."

"Varicose veins of the scrotum, the same as a person may have in the leg, and is as easily cured."

"Diabetes with children—wetting the bed—often leads to St. Vitus's dance; and other diseases. The Electro-Chemical Ring stops the cause and cures both."

"Epileptic fits and monthly spasms are caused by an excess of acid, and the ring has cured cases that have been given up as incurable. Hospitals, asylums, and sanitariums are over-crowded by such cases, and it is an awful outrage to leave them there, when nearly all can be cured by using this ring."

Of course the only evidence submitted of the virtue of the ring were testimonials. Brownson was perfectly willing to sell agencies for his ring and advertised that he had agents in all lines of business except jewelers and druggists. His reason for refusing to give an agency to a jeweler, was:

"Jewelers have sold so many fake rings; they have injured the business and we cannot afford to put the ring in that trade."

And as for druggists:

"Druggists cannot afford to sell the Electro-Chemical Ring; it cures too many diseases for which they have medicine to sell."

However, Brownson still had a large list of agents to draw from. Thus, according to his report, he had granted agencies to bank presidents and train baggagemen; presiding elders and commercial travelers; cigar dealers and ministers; ladies, postmasters, and veterinary surgeons. These, and many others, are said to have eked out their income by accepting the agency for the Electro-Chemical Ring—price \$2.00.

THE GOVERNMENT'S REPORT

But let us quote from the memorandum for the Postmaster General recommending the issuance of a fraud-order against this grotesque fake:

"The inspectors who conducted the investigation of this concern wrote a number of test letters under assumed names representing that the writers in the several instances had 'cataract—almost blind,' 'asthma,' 'cancer,' 'loss of use of arm,' 'pellagra,' 'bad case of varicose' and 'epileptic fits' and asked if the ring would cure the ailment. In each instance the respondent replied representing that the ring would cure the particular disease and offered to refund the money if a cure should not be effected. The reply to the alleged 'cataract' case test letter is typical and reads as follows:

"Yours 18th. Will inclose book. See what we guarantee the ring for page 2. As you will see we sell the ring on the guarantee to cure Cataract. It never fails and the cataract will not grow after the person commences to wear the ring. You should certainly try the ring. If it does not help within three weeks you will get your money, if you return the ring."

"One of the rings received in these test cases was referred to the Department of Agriculture, Bureau of Chemistry, for analysis, with the result shown in a letter from that Bureau dated July 16, 1914, reading:

"Replying to your favor of July 14th relative to 'an electro-chemical ring' (106768c). You are advised that an analysis of the ring in this Bureau shows that it is composed of a commercial grade of iron. You do not state whether or not you desire an expression of opinion as to the value, if any, of the article in the conditions mentioned in your letter, namely, 'diseases caused by acid in the blood,' but for your information it may

be said that in the opinion of the Bureau the wearing of the ring would have no efficacy in this connection.

"W. O. EMERY, Acting Chief, Drug Division."

"One of the rings was also submitted to the Department of Commerce, Bureau of Standards, for examination, and its report reads as follows:

"When this ring is worn as an ordinary finger ring, there can be no *electrochemical* action between the ring and any acid in the blood.

"While there would be a *chemical* action between the ring and the natural perspiration on the finger, this is a *chemical* action in exactly the same sense as it is chemical action when an iron nail, for example, or such a ring as this one, is dissolved in an acid in a beaker.

"As the word 'electrochemical' is ordinarily used by both technical and non-technical writers, an electrochemical action requires two electrodes, usually metals, immersed in, or in contact with, an electrolyte, and the metals must also be in contact or joined by a conductor."

"In view of the numerous representations made throughout the booklet that a deposit would appear on the ring if the wearer were afflicted with a disease which the ring could cure, the inspectors conducted several experiments. One of



the rings was placed on a tightly-rolled piece of blotting paper slightly dampened and was allowed to remain for one hour and forty-five minutes, with the result that a deposit of rust was left on the paper. The second experiment was made on a piece of sterilized muslin still damp from sterilization. After two hours and fifty minutes a similar deposit of rust was found. This deposit of rust is evidently what the literature of the respondent fraudulently represents to be an 'electro-chemical deposit' and regarding which it is subtly suggested 'if there should be an unusual deposit in hot weather, it is caused by what you eat and drink.'

"No evidence was produced by respondent tending to justify in any degree the representations as to the curative properties of the ring, with the exception of a reference to testimonials or alleged testimonials, and I find that the ring in question has no efficacy in the treatment of disease as represented and that the representations of the respondent in this connection are knowingly false and fraudulent. . . ."

"In his answer the respondent volunteered the information that his receipts for the last year were \$45,600; that he paid income tax on \$15,500 for ten months and that he employs fourteen people in the business. The postmaster at Toledo reports that the concern is now receiving an average of eighty pieces of mail a day.

"I find that this is a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises, in violation of Sections 3229 and 4041 of the Revised Statutes, as amended, and therefore recommend that a fraud order be issued against the Electro-Chemical Ring Company and its officers and agents as such, Toledo, Ohio."

The fraud-order was issued against the Electro-Chemical Ring Company, Oct. 1, 1914. No sooner had the mails been denied to this concern than Brownson made arrangements to evade the law by continuing the business under his own name. This fact was brought to the attention of the federal authorities and the fraud-order was extended to cover the name of W. G. Brownson.

Correspondence

Effects of the Harrison Law

To the Editor:—I have looked over our records and have been interested in noting some of the effects of the Harrison law. I find that eleven deaths during the month of March are attributed to morphin. Seven deaths occurred indirectly from the sudden cessation of the use of morphin. Four died from taking an overdose of morphin. One of the four died from taking an overdose of "Dr. Weatherby's Remedy," a morphin cure containing over seventeen grains of morphin sulphate per ounce.

During the month of December we did not have one death from morphin. During January and February our record shows one death for each month from morphin.

WM. D. McNALLY,
Coroner's Chemist, Cook County, Chicago.

[Dr. McNally is the chemist attached to the office of Peter M. Hoffman, coroner of Cook County, Ill. The records include the reports of the coroner's physicians and the chemical examination of the organs].

Radiant Energy and Cataract

To the Editor:—In a recent editorial ("Radiant Energy and Cataracts," THE JOURNAL, Feb. 20, 1915, p. 668) you comment on the contention of Burge that senile cataract is due to the action of ultraviolet light, without, it seems to me, sufficiently pointing out the fallacies in his argument. Burge found that the rays from an unscreened quartz mercury vapor lamp had almost no coagulating effect on the lens protein even after an exposure of seventy-two hours at a distance of 5 cm., but that when acting in the presence of weak solutions of calcium chlorid, magnesium chlorid, sodium silicate or dextrose, coagulation occurred. Since in senile cataracts calcium, magnesium, and sometimes silicates, are

greatly increased, and in diabetic cataracts dextrose is presumably present, Burge assumes that these cataracts are due to the action of ultraviolet light. That is, he assumes that these substances are present in undue quantities in the lenses of certain individuals, and this renders the lenses vulnerable to the short waves of daylight.

This assumption is sufficiently controverted by the fact that senile cataract usually begins below where the lens is protected by the iris from radiations of all wave lengths. But in addition to this, other serious objections to his argument may be pointed out. In the first place, in traumatic cataracts and cataracts due to inflammatory conditions of the eye, calcium salts, and no doubt also magnesium and other salts, are deposited in great abundance, and the lens may even become completely calcified. In fact, the same thing occurs in dead tissues anywhere in the body, so that the reasonable assumption is that the presence of these salts in senile cataract is a result, not a cause. Then, too, Burge made use of intensities of exposure and wave lengths to which the lens is never subjected during life. The cornea completely screens it from practically all the short waves found effective by him.

Burge suggested also that his results might apply to glass-blowers' cataract, overlooking the fact that the latter typically begins in the posterior pole of the lens, whereas in his experiments the part of the lens facing away from the light was little if at all affected after the most prolonged exposures.

The fact that the relatively solid lens substance is less readily coagulable than fluid egg albumin or serum is not surprising, nor is the fact surprising that various salts should increase the coagulability of lens protein or any other protein.

F. H. VERHOEFF, M.D.,
Massachusetts Charitable Eye and Ear Infirmary, Boston.

[COMMENT.—The foregoing letter was referred to Professor Burge, who says:]

To the Editor:—I wish to point out that what Dr. Verhoeff terms fallacies in my argument regarding the production of cataract is in reality a misinterpretation or a misunderstanding of that argument.

He states that my assumption that senile cataract is due to a modification of the lens protein in such a way that ultraviolet radiation can precipitate it and hence produce cataract "is sufficiently controverted by the fact that senile cataract usually begins below where the lens is protected by the iris from radiations of all wave lengths." So far as I have been able to learn from ophthalmologists in this country and by correspondence from ophthalmologists in India, where senile cataract is of comparatively frequent occurrence, I do not think that Dr. Verhoeff's sweeping statement that "senile cataract usually begins below where the lens is protected by the iris from radiations of all wave lengths" is confirmed. I think a statement made by Schanz represents the present status of opinion regarding this type of cataract:

"The beginning of the cataract in the lower half of the lens is explained by the effect of light upon it. The lower half of the lens is affected by a quite differently constituted light to the upper. When we stand outdoors, direct sunlight and light from the sky affect the lower half of the lens while the upper is exposed to the influence of that reflected from the ground. . . . There can be absolutely no doubt that the light to which, during life, the lower half of the lens is exposed is much richer in short wave lengths than that which affects the upper half of the lens."

The objection is also made that I made use of intensities and wave lengths to which the lens is never subjected during life. The intensity of exposure was made great with the hope that the same effect might be produced in a period of time experimentally possible as is produced by less intense exposure over longer periods, such as is required for the formation and maturing of a cataract in a person. In my experiments I found that the most effective region for the precipitation of the modified lens protein under the conditions of the experiments was around 265 microns, since precipitation in this region could be produced after about twenty hours'

exposure. However, when the exposure was continued for 100 hours, precipitation of the modified lens protein occurred throughout the whole ultraviolet region, extending almost to the visible spectrum. This fact would seem to rule out his contention that the cornea forms an effective screen, since the cornea is not considered to cut out any wave lengths above 300 microns. I am convinced that any of the shorter wave lengths can bring about precipitation of the modified lens protein provided enough energy can be gotten into these wave lengths.

Another objection is concerning the application of my results to glassblowers' cataract, which usually begins in the posterior pole, whereas in my experiments the opacity began on the side of the lens next to the light. The beginning of glassblowers' cataract at the posterior pole is believed by Cramer to be caused by the greater concentration of chemical rays at that point, due to the refractive power of the eye media. The lenses in my experiments were distorted by being forced into quartz tubes and hence, if Cramer's explanation is a correct one, Verhoeff's criticism is not applicable to my experiments.

Verhoeff states that it is not surprising that various salts should increase the coagulability of lens protein or of any other protein. In my experiments I did not try out the effect of various salts, but made use of those elements which I had found were greatly increased over the normal in cataractous lenses. Whether it is surprising or not surprising that these substances should increase the coagulability of the lens protein I am not prepared to say.

W. E. BURGE,

Department of Physiology, University of Illinois, Urbana.

Different Attitudes of the Medical and Legal Professions

To the Editor:—I enclose a letter written by a well-known theologian and author, Henry C. Vedder, of the Crozer Theological Seminary, Chester, Pa., and would call attention to a paragraph which is of pertinent concern to physicians:

"I wonder why it is that men in the medical profession are so much more open to new ideas about social matters than men in the other professions. I have received a good many letters similar to yours from doctors, but never one from a lawyer. I have thought that perhaps the secret might be that lawyers are trained to have too great respect for precedent, and that this makes them conservative even when their temperament is radical; while the physician is trained according to the scientific method, and is taught to keep an open mind on all professional subjects, which inclines him to open-mindedness about everything else."

Coming from such a source it recognizes what would seem to be a deep movement in human thought and action tending inevitably to place the medical profession clearly at the forefront of every effort for social service and human betterment, a legitimate intellectual leadership that has been developed in modern times by the exercise of scientific powers to which there is no analogy in any other professional calling.

The title of the little work by Mr. Vedder in question is "The Gospel of Jesus and the Problems of Democracy," and was casually read by me some time ago in the course of collateral studies, and his manner of statement and reasoning seemed so fair, so sane and modern that a note of congratulation was sent through his publishers, and the letter is his acknowledgment.

Bearing on his comment touching the attitude of the legal profession, its indifference toward social problems and the like, almost at the moment of answering his note I opened Alfred W. Benn's new edition of his "The Greek Philosophers" and on page 161 found quoted Plato's scorching criticism of the legalists of his day, the translation being by Jowett from Thæætetus.

It was something of a revelation to me, and legal friends to whose attention it has been called have relied for defense on the strictest of technicalities.

GEORGE HOMAN, M.D., St. Louis.

Relationship of Veronal, Sulphonal and Trional

To the Editor:—In the series of articles on "Practical Pharmacology," it is stated that "veronal is closely related chemically and therapeutically to sulphonal and trional," and that "its actions do not differ essentially from those of sulphonal and trional qualitatively" (THE JOURNAL, March 20, 1915, p. 994). As these statements, which are so commonly made, seem to me to be demonstrably incorrect, I feel that they ought not to be allowed to pass unchallenged. Of course all of these drugs belong to the series of aliphatic compounds and are therefore in a sense chemically related, but the chemical relation between veronal and sulphonal does not seem any closer than that between veronal and chloral, for instance. The characteristic radical of sulphonal is the ethyl-sulphone group ($C_2H_5SO_2$) which is not found in veronal, while the carbamid group in veronal is not found in sulphonal. Chemically veronal is more closely related to ethyl carbamate than it is to the sulphone somnifacients. The physiologic differences between veronal and sulphonal are equally wide. While in overdose veronal is an active poison and in several instances has caused death, fatal results from acute sulphonal poisoning are extremely rare. Moreover, the symptomatology of the poisoning is quite different. In a large number of patients veronal, even in doses not grossly excessive, will produce dermatitis: I have not seen any report of skin lesions following the use of the sulphones. The characteristic symptom of chronic sulphonal poisoning is hematuria, which as far as I know has not been caused by veronal. Even in therapeutic doses veronal often exercises a diuretic effect, apparently from its carbamid group; this effect does not seem to be caused by the sulphones. Other differences in their action might be pointed out, but I think these facts are sufficient to show that veronal is not closely related to sulphonal and trional either chemically or therapeutically.

HORATIO C. WOOD, JR., Philadelphia.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

INQUIRIES ON THE HARRISON ANTINARCOTIC ACT

REGARDS THE LAW AS A REFLECTION ON PHYSICIANS

To the Editor:—I will appreciate your reply to the following questions relative to the Harrison drug act:

Do you believe the abusive use of habit-forming drugs, in the hands of a few unscrupulous physicians, sufficient excuse for the passage of such a drastic act?

Do you consider this law a reflection on every member of the profession, in being forced into a species of detective business?

Do you believe this work should have been in the hands of an efficient police force, instead of that of the physician?

Who is this man Harrison? What are his private interests?

Have you reasons for believing the passage of this act was prompted by his desire to serve individuals, instead of special interests?

As a member of the profession and of the American Medical Association, I feel that there was need of restrictions; but why must every physician be placed in a position of distrust and suspicion, when only a comparatively small number are guilty of the criminal administration of dope? This is very much like believing every man guilty of a crime committed, until a proceeding is taken to prove that he is not actually guilty. How about it?

C. B. G.

ANSWER.—The abuse of habit-forming drugs by physicians is not the reason for the passage of the Harrison law. In the editorial in THE JOURNAL, March 6, 1915, p. 834, appears a history of this movement. The law is not a reflection on the medical profession any more than it is on druggists, dentists, manufacturers, dealers and other persons affected by it. The object of the law is to check the use of habit-forming drugs. The Harrison bill is so called because it was introduced by Hon. Francis Burton Harrison, now Governor General of the Philippines, formerly a member of Congress from New York. While he introduced the bill, it was drafted by the State Department in accordance with our international treaties. At the previous session of Congress, it was introduced by Hon. Shelby M. Cullom, at that time senator from Illinois, and was known as the Cullom bill.

Governor Harrison has no interest in the matter except the cause of good government. This question has been before Congress for many years and has been given the most careful consideration. It is no reflection on the medical profession and will cause but slight inconvenience to physicians, while its enforcement will undoubtedly be of great benefit both to the public and the profession.

TREATMENT OF HABITUÉS

To the Editor:—Pursuant to your offer in current issue of THE JOURNAL to advise on points of the Harrison law, I wish to make to you the following statements and ask the following questions, on which I hope you will quickly give me all the information necessary:

I am the only physician or person practicing medicine or keeping drugs of any kind in this village. The nearest drug store is 9 miles away. There is living here an old soldier (aged 77 years) who uses morphin to the extent of about 1 grain a day and who has depended on me to supply this to him. Question: 1. Can I under the law supply this man and not be liable to penalty? If so, how? If not, what disposition can I make of him so that he will not suffer for the want of the drug?

2. If I call at a patient's house, or if a patient comes to my office in need of any of the prohibited drugs, must I keep a record of what I dispense to him? In other words, if I am called to a patient's house and see the need of leaving half a dozen one-quarter grain morphin tablets for this patient's use, can I leave them without keeping any record and be within the limits of the law?

A. J. M.

ANSWER.—1. The Harrison law does not restrict the right of a physician to prescribe as he may see fit. It requires him to keep a record of any drugs which he dispenses and requires the druggist to keep the copy of prescriptions for such drugs. Whether in the future any restrictions will be placed on physicians as to the continuous prescribing of these drugs to habitués without any attempt to reduce the dose or cure the patient of the habit remains to be seen. At present, the only thing required is that each physician must be able to show from his records exactly what he has done, and as all of these transactions may become public, it would naturally be advisable for a physician to be able to justify anything that he may do.

2. Under the present rulings of the Commissioner of Internal Revenue, a record must be kept of all habit-forming drugs dispensed.

SOME EXCEPTIONS

To the Editor:—1. (a) A patient has been a habitué for years. Shall I violate the law if I prescribe an opiate for him?

(b) If I can, is it the law that I should attend him in person and see that it is indicated; before prescribing for him?

2. (a) I visit a patient. Do I have to keep copy of prescription on file if I write an opiate for him?

(b) Should I keep copy of prescription for an opiate for one of my patients that I haven't seen?

(c) Do I have to attend them before I can lawfully prescribe an opiate?

THOMAS E. ANDERSON, M.D., Carthage, Tex.

ANSWER.—1. (a) No. (b) No.

2. (a) No. (b) No. (c) No.

PHENOL AND CHLORAL IN TETANUS

To the Editor:—The answer to the question of Dr. Mallarian regarding the use of phenol in tetanus and the action of hydrated chloral (THE JOURNAL, Feb. 20, 1915, p. 686) seems to me at least capable of misleading.

Speaking of the fatal dose of phenol you say: ". . . which is as a minimum 15 gm. (½ ounce)." That is truly remarkable. Meyer and Gottlieb, English translation, p. 515, say: "Toxicology.—This drug (phenol) is rapidly absorbed wherever applied, even through the skin, and its systemic action is exerted chiefly on the central nervous system. In animals poisoned with it at the start symptoms of excitation of the medullary and spinal centers preponderate, but in man, when poisonous amounts are absorbed, paralysis of the central nervous system occurs, usually without preceding convulsions. As even 1 to 2 gm. can produce poisoning and as 3 to 10 gm. are usually fatal, the maximal dose for internal administration should be 0.1 gm."

The doses of hydrated chloral mentioned are no less remarkable. Sainton gave his patients 12 to 16 gm. of chloral per rectum daily. This is equivalent to about ⅓ to ¼ gm. per kilogram daily, and as the drug is absorbed as readily from the rectum as from the stomach (or duodenum), at least in the cat, the doses seem to me to be distinctly dangerous.

I am well aware that with dogs the case is quite different, and enormous amounts may be given to them in divided doses.

There is good reason for thinking that man behaves toward chloral in a way intermediate between the cat and dog, but much more like the cat, for single therapeutic doses act for more than a day in man.

The suggestion that tetanus patients are more tolerant toward phenol and chloral than normal man is dangerous unless supported by evidence.

Picrotoxin has an apparent antagonistic action toward chloral, but the antagonism is almost negligible, so far as practical results in saving life are concerned. This matter was investigated by Husemann about fifty years ago, and his results were largely forgotten, but I believe that his conclusions are correct.

Certainly, I believe that the administration of 12 or 16 gm. of hydrated chloral per day must be extremely dangerous, and should the average physician attempt to approach those doses, dire results would probably follow. It is commonly stated that chloral injures the heart much as chloroform does, and while this is not always true, it is obvious that it is not to be expected that tetanus can have any protective action against chloral so far as the heart is concerned. I simply do not believe that any man ever received 93 gm. of hydrated chloral in such a way as to insure absorption in one day and survived.

D. C. R.

ANSWER.—With regard to the dosage of phenol, our correspondent is correct; 15 gm. (½ ounce) is a frequently fatal dose. According to Petersen and Haines, Legal Medicine and Toxicology, ii, 595: "The fatal dose of carbolic acid taken internally was placed by Falck at about ½ ounce (15 gm.). In a series of cases collected by this author most of the patients taking this or a larger dose died, while most of those who took a smaller dose recovered. Death has, however, resulted from the taking of much smaller doses; thus a woman died from 22 grains (1.4 gm.) while 1 dram (3.7 c.c.) of the liquid acid proved fatal in twenty-three hours to a girl of 17. It is said that most cases in which 60 grains were taken and retained and the proper treatment was not given ended fatally."

The statement that 93 gm. or 3 ounces of hydrated chloral were given in twenty-four hours without causing death was taken from Petersen and Haines, ii, 550. This was, of course, very large dosage and a practice which we would not recommend to be followed.

AUTOSEROTHERAPY IN SKIN DISEASES

To the Editor:—1. What is meant by autoserotherapy? 2. What is its principle of application? 3. Has it any place in chronic skin diseases, such as psoriasis and eczema?

G. EARL LOW, M.D., Klein, Mont.

ANSWER.—1. The term "autoserotherapy" is applied to injections of the patient's own blood serum or exudate serum. Blood serum is obtained by drawing off from a vein, usually at the elbow, a quantity of the patient's blood, from 50 to 250 c.c., allowing this to clot, and separating the serum from the clot by centrifuging. The serum is then reinjected into the patient, either into a vein or into the gluteal muscle. The serum of exudate in most cases is obtained from pleural exudate, which is removed in the usual way and reinjected either directly or after centrifugation.

2. The principles of the assumed action are not clearly formulated. In some cases, especially of exudates, it may be assumed that the serum contains antigenic substances so that the method might be regarded as a variety of autogenous vaccine treatment. It is also possible that substances are in the blood serum that stimulate leukocytic action and cause leukocytosis, because the serum will contain remnants of leukocytes and we know that leukocytic extract causes leukocytosis.

3. The method is being given a wide trial in various chronic skin diseases, especially in psoriasis and in rebellious itching dermatitis. The results reported so far are not conclusive.

LITERATURE ON HODGKIN'S DISEASE

To the Editor:—I should like to obtain a list of articles on the cause and treatment of Hodgkin's disease, including particularly the literature of the past two or three years.

J. K. R.

ANSWER.—The following is a list of articles on this subject:

- Bunting, C. H.: Blood-Picture in Hodgkin's Disease, *Bull. Johns Hopkins Hosp.*, June, 1914; abstr., *THE JOURNAL*, July 4, 1914, p. 59.
 Bunting, C. H.: Hodgkin's Disease, *Bull. Johns Hopkins Hosp.*, June, 1914; abstr., *THE JOURNAL*, July 4, 1914, p. 60.
 Yates, J. L.: Clinical Consideration of Hodgkin's Disease, *Bull. Johns Hopkins Hosp.*, June, 1914; abstr., *THE JOURNAL*, July 4, 1914, p. 60.
 Steele, A. E.: Corynebacterium Hodgkini in Lymphatic Leukemia and Hodgkin's Disease, *Boston Med. and Surg. Jour.*, Jan. 22, 1914; abstr., *THE JOURNAL*, Feb. 7, 1914, p. 488.
 Bunting, C. H., and Yates, J. L.: Cultural Results in Hodgkin's Disease, *Arch. Int. Med.*, August, 1913; abstr., *THE JOURNAL*, Sept. 13, 1913, p. 895.
 Motzfeldt, K.: Hodgkin's Disease, *Norsk. Mag. f. Laegevidensk.*, November, 1913; abstr., *THE JOURNAL*, Dec. 6, 1913, p. 2114.
 Ceconi, A.: Leukemia and Pseudoleukemia, *Gazz. d. Osp.*, Jan. 26, 1913; abstr., *THE JOURNAL*, March 8, 1913, p. 793.
 Harris, H.: Treatment of Hodgkin's Disease by Roentgen Rays, *Australasian Med. Gaz.*, June 8, 1912; abstr., *THE JOURNAL*, Aug. 17, 1912, p. 579.
 Beumelburg, K.: Pseudoleukemia, *Beitr. z. Klin. d. Tuberk.*, 1912, xxiii, No. 2.
 Blackford, J. M.: Hodgkin's Disease and Sarcoma of Cervical Glands, *Surg., Gynec. and Obst.*, January, 1912; abstr., *THE JOURNAL*, Feb. 10, 1912, p. 440.
 Blumberg, F.: Four Cases of Lymphogranulomatosis, *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1912, xxiv, No. 3; abstr., *THE JOURNAL*, April 27, 1912, p. 1321.
 Bunting, C. H., and Yates, J. L.: An Etiologic Study of Hodgkin's Disease, *THE JOURNAL*, Nov. 15, 1913, p. 1803; *ibid.*, Feb. 14, 1914, p. 516.

Billings, F., and Rosenow, E. C.: Ethology and Vaccine Treatment of Hodgkin's Disease, *THE JOURNAL*, Dec. 13, 1913, p. 2122.
Lawson, G. B., and Thomas, E. A.: Case of Hodgkin's Disease Treated with Benzene, *THE JOURNAL*, Dec. 13, 1913, p. 2157.
Stengel, A., and Pancoast, H. K.: Treatment of Leukemia and Pseudoleukemia with X-Rays, *THE JOURNAL*, Sept. 28, 1912, p. 1169.
Etiology of Hodgkin's Disease, editorial, *THE JOURNAL*, March 28, 1914, p. 1019.
Litterer, U.: Corynebacterium Hodgkini, abstr., *THE JOURNAL*, May 9, 1914, p. 1498.
Mills, C. K.: Paraplegia in Pseudoleukemia; Treatment by Laminec-tomy and Roentgen Ray, abstr., *THE JOURNAL*, Nov. 16, 1912, p. 1815.
Negri and Mieremet: Aetiologie des malignen Granuloms, *Centralbl. f. Bakteriol.*, orig., 1913, lxxviii, 292.

PROPERTIES OF CARBON TETRACHLORID

To the Editor:—Please discuss the chemical, therapeutic and toxic properties of carbon tetrachlorid.

As this chemical is one of the constituents of fire extinguishers, I should like to know if this chemical has any toxic properties when it comes in contact with oil or fire burns. Please answer in your *Queries* column under my initials.

F. J. P.

ANSWER.—Carbon tetrachlorid is a colorless liquid closely resembling chloroform. It is volatile but noninflammable. It dissolves in various organic liquids and is an excellent solvent for fats and other organic substances. It is liable to be contaminated by carbon disulphid in consequence of the employment of the latter in its manufacture. Its physiologic action closely resembles that of chloroform. It is anesthetic but has not been employed in surgery. We find no description of its toxic action, but it is probable that its action in this respect would be similar to that of chloroform. It has not been used therapeutically, so far as we know, in medicine. It would probably be irritant to burns and ulcerated surfaces. It is used very largely as a cleaning fluid and, as our correspondent says, for fire extinguishers. The activity of this substance for the latter purposes is due to the fact that it surrounds the burning object with an atmosphere of non-combustible vapor.

TRAUMATIC ERYSIPELAS

To the Editor:—Are there any cases on record in which erysipelas developed some distance from injury? A patient of mine cut his finger one week previous to developing phlegmonous erysipelas of the arm over the biceps on the same side as the injury, affecting practically the entire upper half of the body. The question arises, Is this traumatic erysipelas due to the cut of the finger or is it of the so-called idiopathic variety? It is important in this particular case, as it would come under the liability and compensation act of this state, if due to the cut, which was received while at work. I hold that streptococci entered the site of injury, and traveled by way of the lymphatics, starting the erysipelatous condition at a distance from the seat of entrance.

ALEXANDER MARK, M.D., Elmira, N. Y.

ANSWER.—The recorded cases of erysipelas do not indicate by their titles whether the condition referred to is described or not. Text-books, however, indicate that such a condition may occur. Thus it is stated that erysipelas is most pronounced at the borders of the patch, and the color fades at the original focus as the disease advances at the periphery of the red area. Erysipelatous redness may develop in spots with intervening healthy skin, as appears to have happened in the case described by our correspondent. The point of origin, as a rule, shows the least redness, the least swelling and the least pain. In the case described, the explanation given by our correspondent is probably correct.

THE THERAPEUTIC TEST FOR TRACHOMA

To the Editor:—In my readings regarding trachoma I notice they sometimes speak of the "therapeutic test." Please tell me what this is.

C. R. BYARS, M.D., Bay City, Texas.

ANSWER.—There is no absolute therapeutic test for this disease. Follicular conjunctivitis may for a time closely simulate trachoma in its clinical aspects, and be stubborn in yielding to treatment. When a case of this variety has been treated by efficacious methods and fails to respond after several weeks or months of treatment, one may feel morally certain that he has to deal with a case of genuine trachoma. This is probably what is referred to by various writers as the therapeutic test. It furnishes strong presumptive evidence that the condition is not one of benign conjunctivitis. Of course a microscopic examination, both of the discharge and of the granular tissue, should be made in all such cases, but as this not infrequently is not done, or is unsatisfactory, the therapeutic test may assist in arriving at a conclusion as to the exact character of the so-called "granular" lids.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Regular, Little Rock, May 11-12. Sec., Dr. W. S. Stewart, Citizens Bank Bldg., Pine Bluff. Homeopathic: Little Rock, May 11. Sec., Dr. Scott C. Runnels, 900 Scott St., Little Rock. Eclectic: Little Rock, May 13. Sec., Dr. C. E. Laws, 712 Garrison Ave., Fort Smith.
CALIFORNIA: San Francisco, April 13-16. Sec., Dr. Charles B. Pinkham, State Capitol, Sacramento.
DISTRICT OF COLUMBIA: Washington, April 13-15. Sec., Dr. George C. Ober, 125 B St., S. E.
ILLINOIS: Chicago, May 13-15. Sec., Dr. C. St. Clair Drake, Springfield, Ill.
LOUISIANA: Homeopathic, New Orleans, May 3. Pres. Dr. C. R. Mayer, 919 St. Charles St., New Orleans.
MASSACHUSETTS: Boston, May 11-13. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.
NEVADA: Carson City, May 3. Sec., Dr. S. L. Lee, Carson City.
NEW MEXICO: Santa Fe, April 12. Sec., Dr. W. E. Kaser, East Las Vegas.
OKLAHOMA: Oklahoma City, April 13. Sec., Dr. John W. Duke, Guthrie.
TENNESSEE: Knoxville, Memphis and Nashville, May 3. Sec., Dr. A. B. DeLoach, 426 Scimitar Bldg., Memphis.
WEST VIRGINIA: Charleston, April 13. Sec., Dr. S. L. Jepson, 31 12th St., Wheeling.

Idaho October Report

Dr. John F. Schmershall, secretary of the Idaho State Board of Medical Examiners, reports the written examination held at Wallace, Oct. 6-7, 1914. The total number of subjects examined in was 11; total number of questions asked, 110; percentage required to pass, 75. The total number of candidates examined was 6, all of whom passed. Three candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
California Eclectic Medical College.....	(1914)		84
Illinois Medical College.....	(1910)		83
Univ. of Michigan, Dept. of Med. and Surg.....	(1883)		81
Kansas City Medical College.....	(1896)		87
Western Reserve University.....	(1913)		84
University of Oregon.....	(1914)		81

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
University of Colorado.....	(1913)		Utah
Chicago College of Med. and Surg.....	(1910)		Utah
University Medical College, Kansas City.....	(1914)		Utah

Nebraska November Report

Dr. H. B. Cummins, secretary of the Nebraska State Board of Health, reports the written examination held at Lincoln, Nov. 11-12, 1914. The total number of subjects examined in was 14; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 13, of whom 11 passed and 2 failed. Eight candidates were given reregistration licenses. Twenty-three candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
George Washington University.....	(1914)		88.5
Bennett Medical College.....	(1912)		76.1, 80.2
Boston University	(1913)		84
John A. Creighton Medical College.....	(1914)		78.7, 80.9, 82.7, 83.9
University of Nebraska.....	(1914)		80.4
Columbia University, Coll. of Phys. and Surg.....	(1914)		88.1
Cornell University	(1912)		88.6

College	FAILED	Year Grad.	Per Cent.
Bennett Coll. of Eclectic Med. and Surg.....	(1907)		64.4
Lincoln Medical College.....	(1910)		73.1

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
University of Colorado.....	(1911)		Colorado
Atlanta College of Phys. and Surgs.....	(1909)		Georgia
Chicago Coll. of Med. and Surg.....	(1908)		Wisconsin
Chicago Homeopathic Medical College.....	(1903)		Iowa
Hahnemann Medical Coll. and Hosp., Chicago.....	(1913)		Ohio
National Medical University, Chicago.....	(1904)		Illinois
			Iowa

Northwestern University	(1912)	Illinois
Rush Medical College.....	(1910)	Illinois
Keokuk Medical College.....	(1900)	Iowa
Sioux City College of Medicine.....	(1903)	Iowa
State Univ. of Iowa, College of Medicine.....	(1906)	Iowa
State Univ. of Iowa, College of Homeo. Med.....	(1891)	Iowa
Kentucky School of Medicine.....	(1904)	Indiana
Tulane University of Louisiana.....	(1906)	Illinois
College of Phys. and Surgs., Boston.....	(1906)	Nevada
University of Mich., Dept. of Med. and Surg. (1901)	Michigan; (1906)	
Colorado; (1913) Michigan.		
American Medical College.....	(1913)	Illinois
Kansas City Hahnemann Medical College.....	(1914)	Kansas
Northwestern Medical College, St. Joseph.....	(1892)	Missouri
Eclectic Medical College, Cincinnati.....	(1910)	Arkansas

Texas November Report

Dr. W. L. Crosthwait, secretary of the Texas State Board of Medical Examiners, reports the practical and written examination held at Waco, Nov. 10-12, 1914. The total number of subjects examined in was 12; total number of questions asked, 120; percentage required to pass, 75. The total number of candidates examined was 34, of whom 29 passed, including 1 osteopath, and 5 failed. The following colleges were represented:

College	PASSED	Year	Per Cent.
Georgetown University		(1913)	91
Northwestern University		(1912)	87
University of Illinois.....		(1914)	79
University of Louisville.....		(1914)	87
Tulane University of Louisiana.....	(1897) 83; (1914)		86
Baltimore University		(1899)	75
Woman's Medical College of Baltimore.....		(1908)	82
Marion-Sims Medical College.....		(1898)	75.5
Columbia Univ. College of Phys. and Surgs.....		(1911)	82
Jefferson Medical College.....		(1894)	77
Meharry Medical College..(1903) 75; (1913) 75.6, 85; (1914) 75, 75, 84			
University of Tennessee.....		(1914)	76
Texas Christian University.....		(1914)	75
University of Texas.....		(1913)	84
Monterey School of Medicine, Nuova Leon.....		(1883)	75
National School of Medicine, Mexico (1885) 75; (1899) 80; (1900) 83; (1902) 80.5; (1903) 81; (1909) 80.			
University of Freiberg, Baden.....		(1898)	84
FAILED			
Meharry Medical College.....		(1912)	65
University of Tennessee.....		(1914)	71
Texas Christian University		(1914)	74*
National School of Medicine, Mexico.....		(1908) 62; (1911)	71

* Official information from this school states that this candidate is not a graduate.

Virginia December Report

Dr. J. N. Barney, secretary of the Virginia State Board of Medical Examiners, reports the written examination held at Richmond, Dec. 15-18, 1914. The total number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 27, of whom 23 passed, including 1 osteopath, and 4 failed. Fifteen candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year	Per Cent.
College of Physicians and Surgeons, Baltimore.....		(1884)	75
Maryland Medical College.....		(1912)	76
University of Maryland.....		(1913)	75
University of Pennsylvania.....		(1913)	79
University of the South.....	(1899) 75; (1903) 77; (1906)		75
University of Vermont.....		(1914)	83, 86
Medical College of Virginia (1913) 75, 76, 76; (1914) 76, 76, 77, 77, 78, 78, 79, 82, 85, 85.			
FAILED			
Meharry Medical College.....		(1914)	56, 67
Medical College of Virginia.....		(1914)	67, 70
College	LICENSED THROUGH RECIPROCITY	Year	Reciprocity
George Washington University.....		(1908)	Dist. Colum.
Atlanta College of Physicians and Surgeons.....		(1912)	Tennessee
Rush Medical College.....		(1891)	Texas
Louisville and Hospital Medical College.....		(1908)	W. Virginia
Baltimore Medical College.....		(1906)	(1908) Maryland
Johns Hopkins University.....		(1908)	Maryland
University of Maryland.....	(1866) Florida; (1907)		W. Virginia
Hahnemann Med. College and Hosp., Philadelphia...		(1909)	Penna.
Jefferson Medical College.....		(1913)	N. Carolina
University of Pennsylvania.....	(1894) New York; (1900)		Penna.
Western Pennsylvania Medical College.....		(1907)	Penna.
Medical College of Virginia.....		(1912)	N. Carolina

Book Notices

EDEMA AND NEPHRITIS. A Critical, Experimental and Clinical Study of the Physiology and Pathology of Water Absorption in the Living Organism. By Martin H. Fischer, M.D., Eichberg Professor of Physiology in the University of Cincinnati. Second Edition. Cloth. Price, \$5 net. Pp. 695, with 156 illustrations. New York: John Wiley & Sons, 1915.

There have probably been no two books issued in this country during recent years that have called forth such active, and at times acrid discussion, as the monographs entitled "Edema" and "Nephritis," the products of the researches into the application of physical chemistry to biologic problems by Professor Fischer. These two volumes now appear united in a single book, which includes the material of the first two brought up to date by the later investigations and reflections of the author, together with incidental attention to some of the attacks of his not too scanty or considerate critics. As the first of these books appeared in 1909, and the second in 1911, there has been time for the ideas advanced therein to have received due consideration, critical study and judicial weighing. We regret that we are obliged to state that most of the weighing which these ideas have received in both written articles and debates before societies have not been judicial, and that the criticism has rarely been founded on an adequate understanding of the principles or details of Fischer's contributions. He is fully justified in his complaint that there has been too much application of his conclusions without proper comprehension of the principles on which they are based, and too much destructive criticism based on a similar lack of comprehension, whereby his work has been injured equally by those who would accept it and by those who would not.

We believe that the difficulties which have beset the proper recognition (and by "proper" we reflect on both the over-enthusiastic and the hyperskeptical) of Fischer's stimulating and important contribution to medical science and literature, are referable to two causes. One is the very small, if not complete lack of understanding of the principles of colloidal chemistry on the part of the profession, a defect that is entirely excusable in view of the fact that this is a new-born branch of physical chemistry, followed closely by but a mere handful of scientists in the entire world, of which group Professor Fischer is one of the most active members. The other is an unfortunate style of presentation, a cock-sureness, a disregard of scientific conventions, a controversial character, an irritable impatience with less active minds, which has undoubtedly led many who have approached Fischer's writings with an open mind to feel doubt as to his sincerity, his soundness of observation, and particularly as to his disinterestedness in interpretation of results and observation. These defects in presentation are, we believe, but natural characteristics of minds which can disregard authorities and accepted teachings completely enough to overthrow them when necessary, and to bring forth boldly new truths which are unpleasant in their revelation of our own errors. Professor Fischer believes firmly that the facts developed by colloidal chemistry make untenable "facts" and theories long held to be established, and says so frankly. If we accept this we must admit that we have made many mistakes in our practice, and that many of our best investigators and most-admired leaders have done much work in vain. This is naturally painful, but we must be prepared always to unlearn as well as to learn, even if the former is much more difficult.

It cannot be denied that the colloids forming most of our protoplasm have remarkable powers to hold water, and that the amount of water thus held varies greatly under different conditions. Accepting this positive principle, we cannot refuse to admit that it must have a profound influence on the amount of water present in the tissues of the human body. How then can we fail to be concerned with the application of this principle to normal and pathologic conditions? Fischer has developed this theme to a greater degree than any one else, and for this he is entitled to all credit. Whether the applicability is as broad as he states it to be, time alone

can tell; but as yet the critics of Dr. Fischer's statements have made sorry work of their attacks on his facts and deductions, however justly they may have attacked his presentation. No thinking man can read Fischer's book without being stimulated, if not convinced, and the method of presentation in this new edition seems to be admirably adapted to enable those unversed in colloidal chemistry (meaning practically every one) to understand his ideas, even if not competent to weigh them critically.

TEXT-BOOK OF MASSAGE AND REMEDIAL GYMNASTICS. By L. L. Despard. Second edition. Cloth. Price \$4.50. Pp. 413, with 201 illustrations. New York: Oxford University Press, 1914.

In these unregenerate days of various drugless therapy sects, it is encouraging to find a text-book of massage by an author who fully realizes the ultimate dependence of such methods on a correct diagnosis and physiologic indications. In the introduction, this author says, among the rules to be observed by those practicing massage:

"No case should be undertaken except under the direction, or at least with the consent, of a doctor."

"Absolute loyalty and obedience to the doctor in charge of the case should be observed, and also strict reticence in regard to the patient's name and private concerns."

"Massage is contra-indicated in case of tumor, abscesses, aneurysms, in the early stages of thrombosis, tuberculous joints, diseases of the skin, acute inflammation of the kidneys, extreme fatty degeneration of the heart, acute neuritis, and in acute constitutional diseases."

Part I, which includes the first half of the book, is devoted to anatomy. The practical masseur should have a thorough knowledge of anatomy, especially as related to muscles and the surface relations of viscera. This is given adequately and supplemented by numerous excellent illustrations, many of them from the new Cunningham's Anatomy. In Part II, massage and gymnastics are concerned. In the classification the author adopts the Swedish method on which most massage and gymnastic systems are based. There is a long table of remedial gymnastics giving the various movements, the muscles and joints involved, the uses of the movements and the method of bringing them about. This section is fully illustrated, and almost any one should be able to carry out the manipulations suggested; but the author advises that before attempting any extensive work, massage should be studied under a competent teacher. Separate chapters are devoted to various diseases, to the use of lubricants, fomentations and bandages, and to electrical methods as supplementary to massage. The book is a worthy one and may be consulted with advantage by any physician not familiar with physical methods.

OBSTETRICAL NURSING. A Manual for Nurses and Students and Practitioners of Medicine. By Charles Sumner Bacon, Ph.B., M.D., Professor of Obstetrics, University of Illinois. Cloth. Price \$2. Pp. 355, with 123 illustrations. Philadelphia: Lea & Febiger, 1915.

There is no field of medicine to which nursing is so closely related and so important as to obstetrics. This book is one which can be read with profit not only by the nurse but also by the practicing physician and student. The great experience of Dr. Bacon has enabled him to prepare a book which will fully meet the needs for which it was written. In the preliminary chapters the author gives a number of directions to the nurse who is to assume charge of cases, not as in the hospital under departmental heads, but on her own reliance. He realizes fully the importance of a sympathetic understanding by the nurse of the patient's condition. This series of introductory notes is so well worded and sympathetically written that it should be placed in the hands of all nurses, whether specializing in obstetrics or other departments of medical practice. The author then considers fully the anatomic structure and functions of the pelvis, the development of the fetus, the various changes of pregnancy; lactation, etc. There are also chapters on the early care of infants, infant feeding and diet. To the average midwife this work would afford a liberal education in the obstetric art which she assumes to follow. It is compact, well written and illustrated, and is a splendid presentation of the subject.

Medicolegal

Duties and Rights of Physicians Prescribing Intoxicating Liquors

(*State vs. Bates (Mo.)*, 172 S. W. R. 79)

The Springfield (Mo.) Court of Appeals affirms a conviction of the defendant of issuing a prescription as a physician for intoxicating liquors to be used otherwise than for medicinal purposes. The court says that the sale of intoxicating liquors on a physician's prescription for medicinal purposes and the issuance of prescriptions by physicians calling for intoxicating liquors are restricted by the Missouri statutes within narrow limits. While alcohol and intoxicating liquors are recognized by the statutes as having medicinal value and the sale and use of same as medicine is permitted, yet the legislature has restricted both druggists and physicians to dispensing the same as medicine only. Section 5784 of the Revised Statutes of 1909 prohibits any physician from issuing to any person a prescription for intoxicating liquors, or for any compound of which such liquors shall form a part, to be used otherwise than for medicinal purposes. The physician issuing such a prescription must state therein that the intoxicant is a necessary remedy, and the law casts on him the duty of ascertaining in good faith that same is such necessary remedy. The physician cannot cast on the patient, suffering from some real or imaginary ailment, the privilege of diagnosing his own case and prescribing the proper remedy. The evidence shows that such patients often want the thing that has caused the ailment rather than one to cure it. If the patient knows both the cause and nature of his malady and the "necessary remedy" therefor, he has little need to consult a physician. If the physician acts in good faith in prescribing intoxicating liquors as a medicine, he is not to be punished for an error of judgment, nor because another physician differs with him as to its being a necessary remedy; nor is he liable in case the patient, without his knowledge, intends to use the liquors thus obtained as a mere beverage or for a purpose other than medicinal, and he cannot be convicted merely because the patient thereafter does so.

Kinds of Fractures—Dislocation of Testicle—Grounds for Allowance of Damages

(*Sang vs. City of St. Louis (Mo.)*, 171 S. W. R. 347)

The Supreme Court of Missouri, Division No. 1, affirms a judgment for \$4,000 in favor of the plaintiff for personal injuries alleged to have been caused by his being thrown out of, and under, a wagon by a defect in the street. The court says that the grave character of his injuries was not disputed, the testimony showing a complicated, compound, comminuted fracture of the left leg between the knee and the ankle. It also showed a resulting hernia, a lump hard by the groin, still existing at the trial. In addition thereto a singular thing happened, on the plaintiff's theory, namely, one of his testicles was driven by the accident up into his abdomen and remained there at the point of the hernia. The fact of the dislocated testicle was conceded. That it resulted from the accident was strenuously controverted by the defendant.

When the fracture was reduced at the outset the bones did not unite readily. It seemed the bones had been crushed somewhat, and this crushing made the fracture a "comminuted" one. Both bones of the leg were broken, hence the fracture was a "compound" one. It seemed that some of the flesh and ligaments got between the parts of this fracture. This fact was not discovered at the start and caused suppuration and failure to knit, thus giving rise to a "complicated" fracture.

Under the medical testimony, nothing short of an operation would put the dislocated testicle in the place nature designed for it; but there was no testimony tending to show that an operation was either necessary or advisable to protect or restore the integrity of its normal function, or that its present condition was dangerous to health, inconvenient, or made

or tended to make it *functus officio*. In this condition of the record, the court rules that the testimony left the question of the reasonable probability or necessity of medical services to replace the dislocated testicle a matter of merest conjecture. There was nothing to show it would be safe or better to replace it by surgical means; hence that part of an instruction on the measure of damages allowing a recovery for future medical attention could not well stand on this part of the record. Still the court by no means rules that the plaintiff was not entitled to recover substantial damages for the pain and suffering incident to the forceful dislocation of the part. It was ingeniously argued that the accident did not (and could not) cause the dislocation. The argument rested on the fact that the expert witnesses testified that they never read of or saw an incident of the kind; that the size of the usual canal, protected, as it is, by muscular rings, excluded the idea that the testicle could be driven by force from nature's sack up and into the abdomen along this canal; but this testimony was merely advisory. The court stresses the fact that there was testimony of lay witnesses, unimpeached save from these theories of the testifying physicians, that before the accident this man was normal in this particular and abnormal ever after. The credit due the testimony of lay witnesses directed to establishing facts as against the advisory theorizing of expert witnesses is always for the jury.

Coming to the reasonable necessity for medical assistance in the future arising from the hernia and the leg, the court holds that the testimony would sustain an allowance of damages therefor, notwithstanding that the physician, who had been long in prior attendance, had not attended the plaintiff for some time before the trial. To leave it to the jury is the best that the law can do, for no case calls for better testimony than the case admits of.

Not Liable for Services of Specialist

(*Ryder vs. Perkins (Mass.)*, 107 N. E. R. 387)

The Supreme Judicial Court of Massachusetts sustains exceptions to a verdict rendered for the plaintiff, an eye specialist, in this action for services rendered to one of the defendant's children. The court says that the child's mother had obtained a divorce from its father, the defendant in this case. The decree in the divorce case provided that the father should pay ten dollars a week for the support of two children, "and further the expense of necessary medical attendance to be rendered to said children by Dr. Burley." By reason of the death of Dr. Burley, such medical attendance as was necessary for the children was being rendered by a Dr. Johnson, with the consent of both parents. Dr. Johnson was, as Dr. Burley had been, a general practitioner. The plaintiff, an eye specialist, was employed by the mother, on the recommendation of Dr. Johnson, to prescribe for the child before mentioned, who had some trouble with his eyes. It was stated in the exceptions that the employment of the plaintiff was unknown to the defendant father and without his request and sanction. It was not contended that Dr. Johnson had any greater authority to bind the defendant than he would have had if the decree had been modified and his name substituted therein for that of Dr. Burley. The decree in the divorce case gave the custody of the children to their mother. Thereafter the legal liability of their father for their support and care was dependent on and limited by the terms of that decree. If the decree had provided that the defendant should pay "the expense of necessary medical attendance to be rendered to said children," and stopped there, the plaintiff doubtless could recover, as admittedly the services he rendered were necessary, and the charges reasonable. But the decree expressly limited the defendant's liability to the payment for services that should be rendered by Dr. Burley. The agreement of the parties went no further than to substitute Dr. Johnson for Dr. Burley. There was no ambiguity or uncertainty about the meaning of the decree. Unless and until it was modified by the court the defendant was not legally liable for the services of a specialist, rendered without his consent.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, SAN FRANCISCO, JUNE 21-25.

Alabama State Medical Association, Birmingham, Apr. 20-23.
Am. Assn. Gen.-Urin. Surgs., White Sulphur Springs, W. Va., May 18-20.
American Association of Immunologists, Washington, May 10.
American Dermatological Association, New York, May 13-15.
American Gastro-Enterological Association, Baltimore, May 10-11.
Amer. Gynecological Society, White Sulphur Springs, W. Va., May 18-20.
American Medico-Psychological Assn., Fortress Monroe, Va., May 11-14.
American Neurological Association, New York City, May 6-8.
American Orthopedic Association, Detroit, May 6-8.
American Pediatric Society, Lakewood, N. J., May, 25-27.
American Psychopathological Association, New York, May 5.
American Urological Association, Baltimore, April 13-14.
Arkansas Medical Society, Little Rock, May 3-6.
Association of American Physicians, Washington, May 11-12.
Conf. of State and Prov. Boards of North America, Washington, May 14.
Connecticut State Medical Society, Hartford, May 19-20.
Florida Medical Association, De Land, May 12-14.
Georgia Medical Association, Macon, April 21-23.
Illinois State Medical Society, Springfield, May 19-20.
Iowa State Medical Society, Waterloo, May 12-14.
Kansas Medical Society, Kansas City, May 5-6.
Louisiana State Medical Society, Lake Charles, April 20-22.
Maryland Medical and Chir. Faculty, Baltimore, April 27-29.
Mississippi State Med. Association, Hattiesburg, May 11.
Missouri State Medical Association, St. Joseph, May 10-12.
Nat'l Assn. for the Study of Epilepsy, Old Point Comfort, Va., May 10.
Nebraska State Medical Association, Hastings, May 18-20.
New Hampshire Medical Society, Concord, May 19.
New York State Medical Society, Buffalo, April 27-29.
North Dakota State Medical Association, Bismarck, May 12-13.
Ohio State Medical Association, Cincinnati, May 4-6.
Oklahoma State Medical Association, Bartlesville, May 11-13.
South Carolina Medical Association, Greenwood, April 20-22.
Tennessee State Medical Association, Nashville, April 13-15.
Texas State Medical Association, Ft. Worth, May 4-6.
West Virginia State Medical Association, Huntington, May 12-14.

THE PHILADELPHIA COUNTY MEDICAL SOCIETY (WEST BRANCH)

Meeting held March 16, 1915

DR. A. W. HAMMER in the Chair

NARCOTIC HABITUÉS AND THEIR TREATMENT

Relative Frequency of the Morphin and Heroin Habits

DR. CLIFFORD B. FARR: During the past summer my attention was called to the frequency of the heroin habit, and since the enactment of the Harrison law the number of admissions to the Philadelphia General Hospital of cases of morphin and heroin addiction has markedly increased. In the first sixty-eight days of 1915, eighty-six patients addicted to heroin were admitted, while in 1911 there was but one. In an analysis of 120 cases, ninety-one, or 75 per cent., were men, and twenty-nine, or 25 per cent., women. A large proportion were in the twenties. A few began the habit as early as the fifteenth year. In twenty-five persons the habit had persisted for less than one year; in twenty-three, from one to one and a half years; in forty-one from two to two and a half years; in eleven, for three years; in five, for four years, and in three, for five years. In not a single case had the drug been prescribed by a physician. In all but two cases the drug was taken as a snuff. In almost all cases $\frac{1}{6}$ grain (1 centigram) tablets were used. The dose ranged from 4 to 32 grains daily. I have reason to believe that in the majority of these cases cocain was first used, although its use as a habit was denied. Twenty-five of the 120 heroin patients used morphin either before adopting heroin or off and on as a substitute for it. A number had substituted one drug for the other to "break the habit."

In an analysis of 176 cases of the opium habit in other forms, there was a fair proportion of middle aged and elderly persons. In many cases the morphin habit was taken up merely as an indulgence. In other cases it was attributed to medication. Briefly stated, the heroin addiction is a negative pleasure, the cocain, a positive one. As a rule, the withdrawal symptoms are not so severe in heroin as in morphin habitués, but the difference is one of degree rather than of character. Heroin was introduced into practice

about 1898 (Dresser) and was recommended for the relief of pain, and particularly for respiratory conditions. It was repeatedly emphasized by reporters that it was not a habit-producing drug, and in France it was lauded as a cure for the morphin habit. As a result, a number of cases were reported by various men traceable to physicians. Phillips, as far as I can discover, was the first medical writer to describe the snuffing habit as it then existed in the "tenderloins" of the Middle West. Blanchard, in 1913, was the first to notice the prevalence of the habit among soldiers, to whom it was known as "happy dust."

My conclusions from a study of these cases as to the cause of the increase in the heroin habit are: The severe laws enacted against cocaine two or three years ago favored the introduction of a drug which might be taken in the same way, either with or without the cocaine. In the former case it tended to overcome some of the unpleasant features of the cocaine habit. The suppression of opium dens by the police had a similar though a less marked effect. Those addicted to the drug seemed to have a proselyting zeal which is difficult to account for, except in the case of those who were venders. The psychology of the "quarter" and the peculiar ideas of "habit" persuaded many persons that they had an addiction when they clearly had not as yet acquired it. The business was well organized and included manufacturing chemists, middlemen, druggists and venders. The epidemic arose quite independently of physicians and until recently was unknown to them.

Frequency of the Cocaine Habit

DR. C. G. STEINMETZ, JR.: My observation is based on a series of fifteen cases in which the habit had been acquired by men employed where the drug was manufactured. The series represents a particularly difficult group of patients to treat successfully because of their occupation. The ages of the men ranged from 23 to 40 years, and the daily quantity taken, from 20 to 60 grains. The method of taking was solely by snuffing, it probably being the most convenient. In all of these cases there was a neuropathic tendency or inheritance. As long as they had remained, constitutionally speaking, above par, they were able to combat this habit; but owing to the nature of inside positions they soon became anemic and were easy victims. This emphasizes the fact that employers should hire only those individuals who are in the best physical condition, and assume the responsibility of keeping them in the best of health. All of these patients had previously indulged in taking alcohol in its varied forms, but had acquired no other drug habit. Circumstances in this group made possible the withdrawal of the drug. Twelve patients developed acute symptoms. Hallucinations of sight and hearing, paresthesia (foreign bodies under the skin), epileptiform convulsions, acute delusional insanity and Cheyne-Stokes respirations were among some of the rarer symptoms encountered. In the treatment, cocaine was withdrawn instantly and the patients recovered. Those suffering with delusional insanity, however, retained their delusions after the delirious state had disappeared.

Management of Drug Habitués

DR. S. D. W. LUDLUM: In the cure of the drug habit it would seem that there must be a change of the bodily condition so that the patient can use his own will. There are several kinds of physical and mental treatments of morphinism and alcoholism. At Blockley I have seen many patients cured by scopolamin, but the majority relapsed and returned. I think the Towne-Lambert treatment is better; but no treatment is of value without something to sustain the moral nature after the treatment. People are made up of the sympathetic and autonomic nervous systems, and are dominated by one or the other of these systems. Eppinger and Hess have worked this matter out fully. Paralyze the sympathetic nervous system with morphin and the patient will show predominance of vagotonic symptoms, with the whole train of symptoms recognized as morphin symptoms. In the Towne-Lambert treatment, the vagotonic symptoms are held in check by the administration of belladonna, and the sym-

pathetic system is whipped up by xanthoxylin and hyoscyamus. As soon as the physical tolerance of the belladonna is reached, the sympathetic and vagotonic systems are in balance. It has been stated that the only way to change the desire of the drug habitué is to change the physiology. If the law governing the use of drugs is active, any treatment will answer, but the Towne-Lambert method is effective and gives the greater comfort to the patient than any method I have used. If, however, the law is inactive, it is urged that such habitués should be kept under control and away from the city for six months.

DISCUSSION

DR. S. D. INGHAM: It is the exceptional case that is traced to the negligence of the doctor. It is, as a rule, the weakling, the low member of society who develops the habit. The withdrawal symptoms are definite symptoms of illness, increasing with the severity of the case. All these symptoms are not due to the morphin toxemia, but in part to the interference with metabolism, giving us a complicated physical condition in addition to the nervous affection. The Towne-Lambert treatment is doubtless based on sound physiologic reasoning. I have seen cases that have responded to it nicely, and I have seen cases that have not. In the after-treatment there must be the establishment of good habits, for after the desire has been changed and the physical condition improved, merely a slight indulgence will cause a return of the habit.

DR. H. C. WOOD, JR.: While I do not wish to criticize the efficiency of the Towne-Lambert treatment, I cannot assent to Dr. Ludlum's explanation of its *modus operandi*. It is not established that there is any real antagonism between the sympathetic and autonomic systems; moreover, not all the effects of morphin can be attributed to a paralysis of the sympathetic system. The statement that hyoscyamus is a stimulant to the sympathetic system is contrary to all accepted opinions of pharmacologists. It contains two alkaloids, hyoscyamin and scopolamin. Both of these are paralyzants to the autonomic system; the latter comparatively feeble, but the former more powerful than atropin. The effects of this prescription are much more reasonably attributed to the action of the solanaceous group on the brain. The beneficial influence of atropin and scopolamin in drug addictions, not only morphin but also alcohol, has been recognized for many years. The beneficial results of the Towne treatment are due to the free catharsis which puts the digestive tract into good condition and gets rid of any possible toxic substance whose absorption from the alimentary canal might exercise an injurious effect, and the belladonna and hyoscyamus by their action on the cerebrum relieve the extreme nervousness caused by the withdrawal of the accustomed narcotic.

DR. C. B. FARR: Morphin is at first eliminated almost quantitatively by the intestinal tract, but after habituation this no longer holds true. It is believed, therefore, that there is some destructive power acquired by the body cells which causes the disintegration of the drug. This is not analogous to immunity. Hospital authorities were forewarned that there would be a flood of these cases when the Harrison law went into effect and made ample provision for their prompt treatment. Practically all cases were given the Lambert treatment. After two weeks, when the treatment was completed, the patients seemed to have no desire for the drugs. A few cases were treated in the medical wards by withdrawal of the drugs, purgation, enteroclysis, etc., with about the same immediate results. Many patients were sent to a convalescent hospital, and an attempt was made to keep the rest under supervision.

DR. S. D. W. LUDLUM: It is sometimes difficult to decide whether symptoms result from stimulation of the vagotonic system, or inhibition of the sympathetic system. The authority which I obtained was from good pharmacologic sources, more or less interpreted, however, by neurologists. Symptoms resulting from toxins and antitoxins can be interpreted only through the nervous system. I feel that I must challenge the statement of Dr. Wood, that the effect of scopolamin is entirely on the brain. We, as neurologists, do not believe it.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

March, XVII, No. 3, pp. 245-401

- 1 Histogenesis of Selachian Liver. R. E. Scammon, Minneapolis.
- 2 *Development of Thymus in Pig. J. A. Badertscher, Ithaca, N. Y.
- 3 Mitochondria (and Other Cytoplasmic Structures) in Tissue Cultures. M. R. Lewis and W. H. Lewis, Woods Hole, Mass.

2. **Development of Thymus in Pig.**—The thymus of the pig Badertscher found has an ectodermal entodermal origin. The respective origin of each segment is as follows: 1. The superficial thymus, which is a derivative of the cervical vesicle, has a purely ectodermal origin. It is a constant structure and, therefore, forms an integral part of the organ. 2. The connecting band is also a derivative of the cervical vesicle, and has, therefore, a purely ectodermal origin. In the majority of embryos it persists to birth but may be absent either on one or on both sides. 3. The thymus head, in which is lodged the parathyroid III, is formed by a fusion of a portion of the cervical vesicle to the anterior end of the epithelial diverticulum derived from the third pharyngeal pouch. It has, therefore, an ectodermal entodermal origin. 4. The intermediary and cervicothoracic cords, and the mid-cervical and thoracic segments are derived wholly from the epithelial diverticulum of the third pharyngeal pouch and have, therefore, a purely entodermal origin.

American Journal of Diseases of Children, Chicago

April, IX, No. 4, pp. 261-352

- 4 *Influence of Posture on Digestion in Infancy. C. H. Smith and L. T. LeWald, New York.
- 5 *Megacolon and Microcolon. L. Porter and A. Weeks, San Francisco.
- 6 Study of Nutritive Value of Some Proprietary Infant Foods. II. As Milk Modifiers. R. Wheeler, Urbana.
- 7 Studies on Infant Metabolism and Nutrition. A. M. Courtney and H. L. Fales, New York.
- 8 *Tuberculosis as Disease of Newborn. C. G. Grullee and F. Harms, Chicago.

4. **Influence of Posture on Digestion in Infancy.**—Smith and LeWald summarize their study of this subject as follows: Air is swallowed with the food by many if not by all infants. The erect posture favors eructation of this air; the horizontal prevents it. The horizontal posture by preventing eructation, is an important cause of vomiting, colic, indigestion and disturbed sleep. The following routine should be followed in feeding every infant: Before feeding the infant should be held upright to allow the escape of any gas present in the stomach. Immediately after feeding the infant should be again held up against the shoulder of the mother or nurse. He may be patted on the back or gentle pressure may be made on the epigastrium to encourage eructation of the swallowed air. It may be necessary to interrupt the feeding one or more times to hold the child upright to eructate, in cases in which an excessive amount of air is swallowed. After the gas is eructated the child should be put down to sleep, preferably in the prone position and with the head of the bed raised. If restless he may be taken up after a short time to see if there is more air in the stomach. Habitual tongue-suckers need to be held up several times between feedings, as they constantly swallow air. Other suckling habits must be prevented by mechanical restraint. Feedings should be given at as long intervals as possible, depending on the gastric capacity and the total daily requirements. A feeding should not be taken too slowly. From five to ten minutes are enough as a rule; fifteen minutes should be the maximum time at bottle or breast. The importance of posture and the wrong teaching given to physicians and nurses in the past warrant the emphasis laid on so simple a matter.

5. **Megacolon and Microcolon.**—Porter and Weeks believe that megacolon is a more common deformity than is gener-

ally thought. The symptoms are present from birth. They are: An enlarged abdomen, visible intestinal peristalsis, obstinate constipation, later, anemia and toxemia from fecal retention, accompanied sometimes by recurring attacks of intestinal obstruction. Pathologic hypertrophy with dilatation may include the entire intestine, or the dilatation may cease at the sigmoid, which will be hypertrophied, but with a narrow lumen. That isolated segments of the large intestine may be affected while most of the intestine remains intact and healthy is to be doubted. Fatal collapse can occur from fecal obstruction, and such obstruction may be brought on by injudicious attempts to empty the bowel. The one measure that promises relief is operative procedure, which may be utilized in either two or three stages: colotomy, with artificial anus (this cannot be done too early in the child's life or in the course of the case), later excision of the entire large intestine with anastomosis from the ileocecal region into the rectum; or anastomosis may be done as a second step and resection of the entire colon be made a third operation.

8. **Tuberculosis as Disease of Newborn.**—Grullee and Harms report the case of a child born of a mother with supposedly a healed tuberculosis, whose only subjective symptom was a severe leukorrhea of unknown cause. The mother survived the child (an unusual thing in these cases) many months at least, and probably is still living. A baby born apparently at term and apparently healthy, had as early as fifteen hours after birth a high temperature, which continued irregularly until death. There was a distinct tendency to regurgitation, and on the seventh day generalized convulsions developed, which continued up to twenty-four hours before death. Death occurred on the eleventh day. On physical examination the child showed only an enlarged liver and enlarged spleen. At necropsy a generalized tuberculosis affecting most markedly the abdominal organs, and especially the periportal lymph-glands, liver and spleen was found. The tuberculosis was miliary in type, but the stage of the tubercles suggests that it had already begun *in utero*. Many tubercle bacilli were found in all sections of tuberculous areas.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

March, LXXI, No. 3, pp. 385-560

- 9 *Resources for Giving Prenatal Care. A. B. Emmons, Boston.
- 10 *Teaching Obstetrics. W. W. Chipman, Montreal, Canada.
- 11 *Relation of Gynecologic Surgery to Bad Obstetrics. E. Reynolds, Boston.
- 12 *Need of Hospitals for Maternity Cases. E. P. Davis, Philadelphia.
- 13 Scopolamin Amnesia in Labor. W. F. B. Wakefield, San Francisco.
- 14 Limits of Safety in Blood Pressure Changes. D. Riesman, Philadelphia.
- 15 Extra-Uterine Pregnancy. Report of Three Unusual Cases. T. S. Welton, Brooklyn.
- 16 Clinical and Pathologic Features of Chorio-Epithelioma Malignum. Report of Three Cases. A. A. Strasser, Arlington, N. J.
- 17 Surgical Treatment of Posterior Uterine Displacements with Various Methods Past and Present. H. D. Meeker, New York.
- 18 Needs and Uses of Abdominal Cesarean Section. W. M. Brown, Rochester, N. Y.
- 19 Abdominal Section without Use of Retractors. G. Chandler.
- 20 Vertex Occipitoposterior Positions with Special Reference to Scanzoni Maneuver. A. H. Bill, Cleveland.
- 21 Vaginal Cesarean Section for Eclampsia and Other Conditions. I. W. Potter, Buffalo.
- 22 Treatment of Eclampsia. A. P. Leighton, Jr., Portland, Me.
- 23 *Energy Requirement of New-Born. H. C. Bailey and J. R. Murlin, New York.

9. Abstracted in THE JOURNAL, Jan. 2, 1915, p. 78.

10, 11 and 12. Abstracted in THE JOURNAL, Jan. 2, 1915, p. 79.

23. **Energy Requirement of New-Born.**—According to analyses reported by Bailey and Murlin human colostrum on the second and third days of the puerperium has the following composition: Protein, 2.3 per cent.; fat, 2.9 per cent.; milk sugar, 7.1 per cent., making a physiologic heat value of 650 calories per liter. It is not, however, until the fifth day that sufficient breast secretion to supply the require-

ment of the new-born for combustion alone, to say nothing of growth, can be counted on. Statistical studies made by the authors show that supplementary feeding on new-born infants from the first day onward with a formula somewhat resembling colostrum in composition diminishes the initial loss in weight, accelerates the return to birth weight, and has no unfavorable effects. The respiratory quotients of two new-born children examined at six hours of age indicate that the child has at birth some carbohydrate available for combustion. By the end of the first twenty-four hours, however, this supply is exhausted and the child has reached practically a pure fat combustion. If food is not supplied soon after this a starvation acidosis is likely to develop.

The energy requirement of the new-born kept comfortably warm and sleeping quietly may be placed tentatively between 1.7 and 2.0 calories per kilogram an hour, the lower figure for a very fat (10 pound) child and the higher for a thin (6 pound) child. Even vigorous crying does not raise this figure more than 40 per cent.

American Journal of Tropical Diseases and Preventive Medicine, New Orleans

March, II, No. 9, pp. 553-612

- 24 Observations in Tropical Pathology, II. Three Frequently Silent Lesions: Gastroduodenal Ulcers, Gallstones and Pancreatitis. Their Relative Incidence in Panama Canal Laborers as Disclosed by Autopsy. H. C. Clark, Ancon, Canal Zone.
- 25 Chaparro Amargosa in Treatment of Amebic Dysentery. P. I. Nixon, San Antonio, Tex.
- 26 Report of Antimalarial Campaign at Cuyamel. N. Barlow, Cuyamel, Honduras.

Annals of Otology, Rhinology and Laryngology, St. Louis

December, XXIII, No. 4, pp. 755-970

- 27 Anatomic and Clinical Relations of Sphenoid Sinus to Cavernous Sinus and Third, Fourth, Fifth, Sixth and Vidian Nerves. G. Sluder, St. Louis.
- 28 Value of Eye Symptoms in Diagnosis of Obscure Chronic Sinus Disease. L. C. Peter, Philadelphia.
- 29 Leprosy of Upper Respiratory Tract; Report of Case. J. Horn, New York.
- 30 Dynamics of Nasal Development—Its Bearing on Resection of Septum. W. W. Carter, New York.
- 31 Cases of Aural Infection with Streptococcus Capsulatus. C. E. Perkins, New York.
- 32 Histologic Pathology of Nose. J. C. Beck, Chicago.
- 33 Sociologic Aspect of Deafness, Congenital or Acquired in Early Life, with Suggestion for Betterment Through Indirect Effort. H. B. Young, Burlington, Ia.
- 34 Etiology and Prophylaxis of Tuberculous Laryngitis. J. Dworetzky, Otisville, N. Y.
- 35 Influence of Nose on Eye Affections as Evidenced by Case of Bilateral Blindness and One of Unilateral Scintillating Scotoma Cured by Operations on Ethmoid Cells. H. W. Loeb, St. Louis.
- 36 Clinical Significance of Bacteremia. J. E. Sheppard, Brooklyn.
- 37 Case of Septic Infection of Parotid Glands Resulting Fatally. F. E. Hopkins, Springfield.
- 38 Two Cases of Extensive Fibromyxoma of Nasopharynx. J. E. Brown, Columbus.
- 39 Case of Papilloma of Larynx Treated by Radium. F. E. Hopkins, Springfield.

Arkansas Medical Society Journal, Little Rock

March, XI, No. 10, pp. 231-253

- 40 Retrodisplacement of Uterus. R. C. Carlin, Fort Smith.
- 41 Report of Cases. Foreign Body in Bronchus; Abscess of Ear; Brain Abscess. R. H. T. Mann, Texarkana.
- 42 Few Essential Hints to Successful Surgery. C. S. Holt, Ft. Smith.
- 43 Some Things to Be Remembered by General Practitioner. G. E. Cannon, Hope.
- 44 Roentgen Ray in Diagnosis and Treatment of Fractures. J. P. Runyan, Little Rock.
- 45 Relief of Uterine Inertia. S. W. Douglas, Eudora.

Boston Medical and Surgical Journal

March 25, CLXXII, No. 12, pp. 429-466

- 46 Role of State Sanatorium in Tuberculosis Problem. E. Washburn, Rutland.
- 47 Diagnosis and Treatment of Pulmonary Tuberculosis. B. T. Crane, Rutland.
- 48 *Mortality after Prostatectomy. B. Tenney and H. M. Chase, Boston.
- 49 Study of Efficiency of Mixed Toxins (Coley) in Inoperable Sarcoma. T. W. Harmer, Boston.

48. Mortality After Prostatectomy.—The greatest danger in the operation of prostatectomy according to Tenney and Chase who studied 229 fatal results is death from uremia or from conditions closely associated with it (suprapubic operation, 22 per cent.; perineal, 31 per cent.). The percentage of deaths from uremia among the cases operated within two days was 37 per cent. while the percentage of deaths from the same cause among patients who were observed long enough to have functional tests made was 19 per cent. The second great danger in this operation is death from hemorrhage and shock (suprapubic operation, 21 per cent.; perineal, 28 per cent.). The third serious fatality is embolism (suprapubic operation, 20 per cent.; perineal, 11 per cent.).

Bulletin of Lying-In Hospital of City of New York

February, X, No. 1, pp. 1-78

- 50 Report of All Abdominal Cesarean Operations Performed in Service of Lying-In Hospital. A. B. Davis, New York.
- 51 *Cultivation of Human Tissue in Vitro. J. R. Losee and A. H. Ebeling, Brooklyn.
- 52 *Cultivation of Human Sarcomatous Tissue in Vitro. J. R. Losee and A. H. Ebeling, Brooklyn.
- 53 Scopolamin-Narcophin Seminarcosis in Labor. J. A. Harrar and R. McPherson, New York.
- 54 Two Cases of Appendicitis Complicating Pregnancy. J. W. Markoe, New York.
- 55 Effect of Subsequent Labors of Operations for Uterine Displacements. G. W. Kosmak, New York.
- 56 Treatment and End Results of Birth Fracture of Femur. Report of Five Cases. E. D. Truesdell, New York.
- 57 Fetal Osteochondritis. J. R. Losee, Brooklyn.
- 58 Report of Work Done in Babies' Class from October 1, 1913, to September 30, 1914. E. L. Coolidge, New York.
- 59 Case of Bacillus Mucosus Capsulatus Septicemia in Infant. J. R. Losee, Brooklyn.
- 60 Case of Extraperitoneal Cesarean Section. J. W. Markoe, New York.

51. Cultivation of Human Tissue in Vitro.—A strain of human connective tissue was kept in a condition of active life *in vitro* for more than two months by Losee and Ebeling. The culture medium consisted of human blood plasma, extract of adult or fetal tissues and Ringer's solution.

52. Cultivation of Human Sarcomatous Tissue in Vitro.—The medium employed in these experiments was composed of equal parts of normal human plasma, Ringer's solution and varying quantities of extract. The tissues employed were obtained from recently excised sarcomatous growths and cultures were made about one and a half hours after excision. The primitive cultures were made by putting small, thin fragments of this tissue into the medium. After coagulation the cultures were immediately placed in the incubator and incubated at 38 C. for twenty-four, forty-eight and seventy-two hours, the time of passage into fresh medium being governed by conditions which developed in the culture. Before the fragments in cultures were transferred into fresh medium they were washed in Ringer's solution for about one minute. The results obtained show that it is possible to cultivate *in vitro* fragments of human sarcomatous tissue for several generations, and that the method employed may prove of value in the study of the growth of human malignant tumor.

Florida Medical Association Journal, Jacksonville

March, I, No. 9, pp. 257-288

- 61 General Sanitary Management. J. Y. Porter, Jacksonville.
- 62 Toxemias of Pregnancy. F. J. Waas, Jacksonville.

Indiana State Medical Association Journal, Fort Wayne

March, VIII, No. 3, pp. 113-162

- 63 Nitrous Oxid Anesthesia in Obstetrics. A. E. Guedel, Indianapolis.
- 64 *Sarcoma of Ovary. M. F. Porter, Fort Wayne.
- 65 *Modern Methods in Diagnosis and Treatment of Cerebrospinal Meningitis. W. D. Hoskins, Indianapolis.
- 66 Gas Bacillus Infections. J. P. Simonds, Chicago.

64. Abstracted in THE JOURNAL, Jan. 31, 1915, p. 405.

65. Abstracted in THE JOURNAL, Oct. 24, 1914, p. 1500.

Iowa State Medical Society Journal, Des Moines

February, V, No. 2, pp. 41-88

- 67 Problems of Medical Prognosis. W. L. Bierring, Des Moines.
- 68 Septic Complications in Syphilis, Tuberculosis and Cancer. W. J. Mayo, Rochester, Minn.
- 69 Experimental Focal Infections and Their Bearing on Clinical Medicine. R. H. Babcock, Chicago.
- 70 Mouth as Source of Systemic Infection. F. T. Breene, Iowa City.
- 71 Medical Management of Uncomplicated Peptic Ulcer. J. T. Strawn, Des Moines.

Journal of Nervous and Mental Disease, Lancaster, Pa.

March, XLII, No. 3, pp. 129-192

- 72 *Progressive Vagus-Glossopharyngeal Paralysis with Ptosis. Report of Cases. E. W. Taylor, Boston.
- 73 *Puncture of Corpus Callosum with Special Reference to Its Value as Decompressive Measure. C. A. Elsberg, New York.
- 74 Pulmonary Complications of Apoplexy. P. C. Knapp, Boston.

72. **Vagus-Glossopharyngeal Paralysis with Ptosis.**—A clearly defined disease or symptom complex is described by Taylor consisting of ocular ptosis and paralysis of deglutition coming on after the fiftieth year, and leading to death without further involvement of the nervous system. Taylor believes that the affection is to be classed among the family hereditary diseases, as shown by the fact that it has occurred in two generations, in the second affecting all but one of those who reached the age of 50 years. The disorder is peculiarly remarkable in that although hereditary in type, it has not been known to occur in early life, and must therefore be regarded as superinduced in predisposed persons by conditions arising in the degenerative period of life. The justification for regarding the affection as a distinct entity lies in the fact that so far as ascertainable it occurs in precisely the same form in all persons affected and also invariably in the declining years of life.

73. **Puncture of Corpus Callosum.**—During the past two years Elsberg has performed puncture of the corpus callosum 37 times. All of the patients recovered from the operation without any bad after effects. Seven children who suffered from the non-obstructive variety of hydrocephalus. Elsberg has used this method 30 times instead of or combined with decompressive craniotomies, and in a considerable number of patients has seen great improvement follow the operation. In more than one-half of the patients, an immediate improvement occurred; the headache was relieved, the swelling of the optic nerve heads decreased and sometimes subsided entirely. In several cases the operation was done without any anesthesia because the patients were in stupor or coma. In two of these the patients became conscious and answered questions before they left the operating table. One patient had advanced symptoms of amid brain tumor. He was so much relieved for more than six months that he was able to return to his work. The headache and swelling of the disks disappeared rapidly, and ocular palsies subsided. In almost all of the patients some improvement occurred. In the patients in whom no increase of ventricular fluid was found there were of course no change in their condition, and other decompressive methods had to be resorted to. Elsberg regards the operation as being only a palliative or temporizing measure, and states that the radical removal of the tumor should always be done if that be possible. As a palliative method, however, he highly recommends this operation.

Laryngoscope, St. Louis

February, XXV, No. 2, pp. 65-128

- 75 Exploratory Opening of Sphenoid Sinus. C. P. Grayson, Philadelphia.
- 76 Collapse of Alae Nasi, Its Etiology and Treatment. W. C. Batroff, Philadelphia.
- 77 Plastic Operation for Dislocated Columnar Cartilage of Nose. E. L. Warren, St. Paul, Minn.
- 78 Posterior Nasal Operation by Means of Nasopharyngoscope. C. A. Gundelach, St. Louis.
- 79 Tumors of Uvula. Report of Case of Papilloma of Uvula. P. S. Stout, Philadelphia.
- 80 Angioma of Uvula. M. A. Goldstein, St. Louis.
- 81 Cavernous Angioma of Tongue. H. Arrowsmith, Brooklyn.
- 82 Scopulamin in Nose and Throat Operations. M. Metzbaum, Cleveland.
- 83 Streptococcus Viridans in Its Relation to Infections of Upper Respiratory Tract. R. L. Cecil, New York.
- 84 Treatment of Hay Fever by Active Immunization. R. A. Cooke, New York.

Medical Record, New York

March 27, LXXXVII, No. 13, pp. 505-546

- 85 *Clinical Significance of Auricular Fibrillation. H. Schoonmaker, Clifton Springs.
- 86 Conception of Sexuality Assumed by Freudian School. M. Solomon, Chicago.
- 87 *New Operation for Fistula in Ano. S. J. Blumenthal, Brooklyn.
- 88 Anosognosia and Anosodiaphoria. E. M. Auer, Philadelphia.
- 89 Roentgen Ray as Ideal Local Remedy for Eczema. I. W. Ballard, Opelika, Ala.
- 90 Results of Wassermann and Luetin Tests at Naval Prison, Portsmouth, N. H. G. E. Thomas, U. S. Navy.
- 91 Significance of Acids and Alkalies in Organic World. D. S. Kanstoroom, Washington, D. C.

85. **Auricular Fibrillation.**—Auricular fibrillation, Schoonmaker says, is the common cause of cardiac arrhythmia, characterized by complete irregularity. Auricular fibrillation is of frequent occurrence, especially in mitral stenosis and in the senile heart. Auricular fibrillation should be recognized without the aid of recording instruments. Digitalis is of almost specific value in controlling the heart rate in auricular fibrillation and is of but little value in tachycardia or arrhythmia from other causes. Angina pectoris may be induced by digitalis. Therefore in auricular fibrillation, especially in elderly people, it should be given cautiously, yet to effect.

87. **New Operation for Fistula in Ano.**—The principle of the operation described by Blumenthal is to remove the granulation tissue and to get primary union by collapsing the fistula at rest without mutilating the skin or sphincter in comparatively young fistulae.

New Orleans Medical and Surgical Journal

March, LXVII, No. 9, pp. 749-822

- 92 Splenic Anemia. J. D. Weis, New Orleans.
- 93 Some of Most Common Diseases of Cervix Uteri. S. M. D. Clark, New Orleans.
- 94 Emetin Treatment of Pyorrhea. E. S. Talbot, Chicago.

New York Medical Journal

March 27, CI, No. 13, pp. 601-652

- 95 Sex Gland Implantation. (To be Concluded.) G. F. Lydston, Chicago.
- 96 Static Dislocation of Hip; Sequel of Severe Burn. D. D. Ashley, New York.
- 97 Immunization in Typhoid Outbreak in Sloane Hospital for Women. M. L. Ogan, New York.
- 98 An Improved Technic for Blood Counts. H. J. Hartz, Philadelphia.
- 99 Recent Applications of Radium Emanations and Radium Water. S. G. Tracy, New York.
- 100 Diseases of Ear and Upper Respiratory Tract Among American Factory Workers. O. Glogau, New York.
- 101 Extraction of Cataractous Lens in Its Capsule. H. F. Hansell, Philadelphia.
- 102 Continuous Drop Irrigation from Thermos Bottle. N. G. Boze-man, New York.
- 103 Nature and Pathogenesis of Epilepsy. L. P. Clark, New York.

New York State Journal of Medicine

March, XV, No. 3, pp. 85-128

- 104 Practical Considerations of Blood Cultures. W. Lintz, Brooklyn.
- 105 Use of Bronchoscope in Direct Examination of Larynx, Trachea, Bronchi and Esophagus. P. Schoonmaker, New York.
- 106 Contract Medical Practice. A. T. Lytle, Buffalo.
- 107 Dietetic Malnutrition in Infants and Its Treatment. F. E. Brundage, Buffalo.
- 108 Our Chosen Profession. L. R. Mellor, Syracuse.

Pennsylvania Medical Journal, Athens

March, XVIII, No. 6, pp. 417-500

- 109 Observations on Epilepsy Chiefly from Roentgenologic Standpoint. T. M. T. McKennan, G. C. Johnston and C. H. Henninger, Pittsburgh.
- 110 *Observations on Some of Effects of General Continuous Flow Bath. C. L. Palmer, Pittsburgh.
- 111 Local Anesthesia, with Special Reference to Nerve-Blocking. P. G. Skillern, Jr., Philadelphia.
- 112 Narcotic Anesthesia. G. M. Astley, Philadelphia.
- 113 Spinal Anesthesia. W. A. Steel, Philadelphia.
- 114 Some Methods and Devices in Correction of Nasal Septum That Make for Success. G. M. Marshall, Philadelphia.
- 115 Trifacial Neuralgia from Nasal and Accessory Sinus Disease. G. B. Jobson, Franklin.

- 116 Cases of Foreign Bodies within Eyeball Orbit. J. C. McAllister, Ridgway.
117 Thrombosis of Lateral Sinus. Report of Four Cases. J. R. Simpson, Pittsburgh.
118 Report of Commission on Conservation of Vision. W. C. Posey, Philadelphia.
119 Insanity and Its Present Day Treatment. G. W. McCafferty, Jr., Waymart.
120 Surgical Treatment of Gastropexia. J. M. Wainwright, Scranton.
121 Dilated Cecum. R. T. Wall, Scranton.

110. Some of Effects of General Continuous Flow Bath.—Because of the constant and fairly uniform reduction in systolic blood pressure which the hot continuous flow bath produces Palmer claims that it is a reliable adjunct in the treatment of any of the chronic diseases in which there is high blood pressure. It also acts as a powerful diaphoretic which seems to be of some value in these cases. It is undoubtedly valuable in the treatment of most any form of delirium, having in the majority of cases a marked sedative effect. The most important effect of the cold continuous flow bath is the reduction of fever, therefore, it is a valuable aid in the treatment of any of the acute infections accompanied by a high temperature. It never seems to shock the patients as the sudden application of ice-cold water does, and it produces nearly as marked and persistent effect, not only on temperature, but in the relief of nervous symptoms also.

Philippine Journal of Science, Manila

September, IX, No. 5, pp. 381-464

- 122 Malaria in Philippine Islands. E. L. Walker and M. A. Barber, Manila.
123 Malaria in Philippine General Hospital, Manila, During Fiscal Year, 1913. D. G. Willets, Manila.
124 *Chief Intestinal Lesions Encountered in One Thousand Consecutive Autopsies in Manila. B. C. Crowell, Manila.

124. Intestinal Lesions Encountered in One Thousand Consecutive Autopsies.—In a series of 1,000 consecutive autopsies in Manila, performed during eighteen months, aside from the incidence of intestinal parasites and tumors and the lesions in bubonic plague, intestinal lesions have been encountered in 292 cases. In this series Asiatic cholera (on account of an epidemic occurring during this period) stood first numerically. Second in importance was intestinal tuberculosis, and attention has been drawn to the possibility of the occurrence of dysenteric symptoms in this condition and to the perforation of intestinal ulcers in three cases. Typhoid was present more frequently than either entamebic or bacillary colitis, and these typhoid cases showed a high percentage of perforations (30 per cent.) and hemorrhages (12 per cent.), all of the cases being among Orientals. Entamebic and bacillary colitis have been encountered with less frequency than the preceding diseases, and have presented many of the possible complications and sequelae. Liver abscesses occurred in 29 per cent. of the entamebic cases, and in two cases the intestines had perforated. Bacillary colitis was present more frequently in children than in adults. Nine cases of duodenal ulcers were encountered, six of which had perforated, and fifteen cases of peptic ulcer of the stomach occurred in the same series. Severe anemia and symptoms referable to the gallbladder were prominent in some of the cases of duodenal ulcer. Unclassified probably non-specific inflammatory lesions of the intestines, especially in infants, occupy an important place, and offer a promising field for further etiologic study.

South Carolina Medical Association Journal, Anderson

March, XI, No. 3, pp. 69-102

- 125 Pharmacology of Scopolamin. J. H. Gibbes, Columbia.
126 Achondroplasia. W. A. Smith, Charleston.
127 *Twenty-Seven Cases of Penetrating and Perforating Gunshot Wounds of Abdomen; Three Deaths. L. Guerry, Columbia.
128 Fractures of Long Bones. B. A. Henry, Anderson.

127. Penetrating and Perforating Gunshot Wounds of Abdomen.—Twenty-seven cases with three deaths are cited by Guerry. The youngest patient operated on was 7 years old, the oldest 57 years old. The average length of time that elapsed between the shooting and operation was between eight

and nine hours. The earliest case operated on was three hours, and the latest thirty-six hours after injury. The smallest number of perforations was two and the largest twenty-two. The average number of perforations for the entire series about nine.

In five patients the injury was confined to the upper abdomen (above the umbilicus) and in three other patients both lower and upper abdomen were involved. Of the five patients in which the upper abdominal cavity was the seat of injury, once there were two perforations only in the transverse colon; three times colon, stomach and liver were injured, and once spleen and stomach. Of the three in which both lower and upper abdomen was involved, twice besides three perforations to the small intestines, both colon and stomach were injured and in one patient with two small intestinal holes both colon and spleen were penetrated. In the remaining nineteen cases the projectile did not enter the upper abdomen.

The ureter was divided low down in one case and Guerry has been fortunate enough not to have had any of the great trunk vessels injured, except in two patients that died. In about ten patients there was a very serious hemorrhage from the injured mesenteric vessels. The element of shock was very much more marked in the white than in the colored patients; in more than half of the colored patients the amount of shock present was a negligible factor, while only three out of twelve white patients were not in a condition of serious shock, there being twelve white and fifteen colored patients.

Texas State Journal of Medicine, Fort Worth

March, X, No. 11, pp. 443-490

- 129 Open Operation in Treatment of Old Standing Dislocation of Shoulder. J. E. Thompson, Galveston.
130 Treatment of Trifacial Neuralgia by Deep Alcoholic Injections. R. B. Sellers, Fort Worth.
131 Apoplexy. J. S. Turner, Dallas.
132 Essentials of Blood Pressure in Life Insurance. J. S. Lankford, San Antonio.
133 Clinical Obstetrics. H. O. Sappington, Galveston.
134 Obstetrics as Practiced by Country Doctor. J. A. Odom, Rogers.
135 Obstetric Hodge-Podge. I. L. Van Zandt, Fort Worth.
136 Some Mistakes in Obstetrics. J. H. Graves, Waco.
137 Things To Do and Things Not To Do in Obstetrics. B. G. Prestidge, Alvarado.
138 Uterine Inertia. B. H. Passmore, El Camp.
139 General Management, After Care and Treatment of Normal Labor. D. C. Homan, Oglesby.
140 Breech Presentations. T. W. Shearer, Houston.
141 Cesarean Section. W. M. Wolf, San Antonio.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Roentgen Ray, London

March, XIX, No. 10, pp. 339-374

- 1 Roentgen Radiation. A. P. Gould.
2 Roentgen Rays as Aid to Dental Diagnosis. J. Hall-Edwards.
3 Treatment of Inoperable Malignant Growths by Diathermy. E. P. Cumberbatch.

British Medical Journal, London

March 13, I, No. 2828, pp. 453-492

- 4 Oral Sepsis in Relation to General Disease. H. L. McKisack.
5 *Treatment of Diabetes Mellitus with Casein and Cream. R. T. Williamson.
6 Early Administration of Vaccine in Pneumonia. W. H. Wynn.
7 Action of Calcium Salts. C. O. Jones.
8 Apparatus for Roentgen Ray Localization. W. Cotton.
9 Sanitation of Camps (Sand and Water). T. Forrest.
10 Epidemic Cerebrospinal Meningitis. J. C. G. Ledingham.
11 Cerebrospinal Meningitis: Diagnosis and Prophylaxis. A. Lundie, D. J. Thomas and S. Fleming.

5. Treatment of Diabetes Mellitus with Casein and Cream.—Casein and cream are given by Williamson in small quantities every two hours. The patient is kept at rest in bed, or on the sofa, and every two hours, from 8 a. m. to 10 p. m., receives a glass of artificial milk prepared from casein, cream and water. One tablespoonful of casein is well mixed in a tumbler with one tablespoonful of cream until a paste is

formed; then hot water (or cold if preferred) is added gradually until the tumbler is full, the mixture being well stirred with a teaspoon while the water is being added. A white fluid is thus prepared which has the appearance of milk. It contains milk albumin fat, but only a very small percentage of milk sugar derived from the cream. The fluid may be sweetened with saccharin if desired, or a pinch of salt may be added, or it may be flavored with nutmeg, according to the patient's taste. The fluid may be taken well when it is hot, but may cause nausea when lukewarm or cold. When it produces nausea, or is distasteful even when the fluid is warm, another preparation of casein should be tried. Usually the treatment with the casein and cream causes a little loss of weight; but for a week or two if the patient rests in bed or on the sofa all day, the loss is only a few pounds. In milder cases of diabetes and in many cases of medium severity the urine becomes quite free from sugar in two or three days or in a few days, even when an ordinary rigid diabetic diet has failed to check the glycosuria. In many cases the casein treatment can be continued for two or three weeks, or a little longer, without much loss of weight and without producing much weakness or unpleasant symptoms; and the urine may be kept free from sugar during this period.

Williamson sounds a note of warning. He says that the treatment requires to be very carefully watched and the patient seen daily and the urine tested daily during the casein treatment. Though he has never had any serious bad results, it was necessary to discontinue the treatment promptly in a small percentage of the cases, owing to the onset of untoward symptoms, such as a feeling of great weakness and exhaustion, mental depression and irritability. In a few it produces dyspepsia, or diarrhea, or constipation. But in the majority of cases it can be followed quite easily and without unfavorable symptoms.

Dublin Journal of Medical Science

March, III, No. 519, pp. 161-240

- 12 Chronic Fixed Retroversion of Uterus: Plea for Operation. B. Solomons.
- 13 Theory and Technic of New Method of Radium Therapy. Report of Cases Treated During Last Nine Months. W. C. Stevenson.
- 14 Case of Carcinoma Uteri Benefited by Radium Emanation. J. Moore.
- 15 Case of Trichocephalus Dispar. H. C. Drury.

Edinburgh Medical Journal

March, XIV, No. 3, pp. 161-240

- 16 *Remarkable (Temporary) Condition of Pulse in Two Cases of Adams-Stokes' Disease with Heart-Block. B. Bramwell.
- 17 Alcohol Poison and Its Victims. J. Strachan.
- 18 Summary of Recent Work on Vitamines. H. L. Watson-Wemyss.
- 19 Case of Hunter's Freemartin in Which There Were Reversion to Wild Park Cattle Type. D. B. Hart.
- 20 Case of Tuberculosis Involving Hip Joint, Bronchial Glands, Lungs and Intestines. J. L. Smith.
- 21 Six Cases of Tuberculosis of Mamma. A. Miles.

16. **Condition of Pulse in Two Cases of Adams-Stokes' Disease with Heart-Block.**—In the two cases recorded by Bramwell as the syncopal attack passed off and before the ventricular contraction was reestablished, a very small, feeble radial pulse numbering 120 to 130 beats per minute, occurred for a brief period. Bramwell suggests that these small radial pulsations were due to contractions of the auricle and not of the ventricle. The long duration of the stage of unconsciousness in some of the syncopal attacks (more than half an hour) in the first case is remarkable.

Indian Medical Gazette, Calcutta

February, L, No. 2, pp. 41-80

- 22 *Is There Primary Lesion in Leprosy? A. Gwyther.
- 23 Studies in Malaria. H. Stott.
- 24 Observations at Some Hospitals at Home. G. T. Birdwood.
- 25 At Clinic of Lieut. Colonel Henry Smith, Amritsar. C. F. McCarthy.
- 26 Indications for Gastrojejunostomy Based on Eighteen Cases in Kashmir Mission Hospital. A. Neve.
- 27 Interesting Sequelae in Case of Cholera. C. Milne.
- 28 Influence of Atmospheric Temperature on Sand-Fly Fever. W. O. Walker.

22. **Is There Primary Lesion in Leprosy?**—From an analysis of over 500 cases Gwyther concludes that there is in leprosy a primary lesion which appears some considerable time before the generally accepted manifestations of the disease, but is unfortunately so small and insignificant as to have been overlooked. This primary lesion usually takes the form of a patch of anesthesia, a small blister, or the two combined. Blisters account for 35.67 per cent. of the cases; anesthesia for 24.14 per cent.; hyperesthesia for 16.05 per cent.; ulcers for 5.50 per cent., while macula and tubercles amount to 10.55 per cent. It occurs most frequently in those parts of the body which are, from anatomic reasons, most exposed to injury. The feet are affected in 52.76 per cent.; hands in 8.04 per cent. There is a definite period of time between it and any secondary manifestation, varying with the type of the disease. In many cases there are distinct rigors between the primary and secondary manifestations which are peculiar in being unaccompanied by rise in temperature. The secondary manifestations appear either rapidly or slowly and gradually, according to the type of the disease.

As to the etiology of the disease and source of infection Gwyther's investigations lead him to believe that there is little evidence of direct infection in any way from a diseased person to a healthy one, so that he cannot help thinking that the disease is one of locality, viz., that there must be local conditions of soil-water or whatever the factor may be, which favors the intensification of the virulence of the disease, or else that there is a missing cycle in the life-history of the causative organism which local conditions favor. He suggests it is possible that the causative agent of the primary lesions is of the nature of a streptothrix, and that the acid-fast types found in the secondary stages, or the developed disease may prove to be a sporular development.

Journal of Tropical Medicine and Hygiene, London

March 1, XVIII, No. 5, pp. 49-60

- 29 Tinea Capitis Tropicalis in an Egyptian Soldier Caused by Trichophyton Discoides Sabouraud, 1909. A. J. Chalmers and A. Marshall.
- 30 So-Called Parasite of Yellow Fever. C. M. Wenyon and G. C. Low.

Lancet, London

March 13, I, No. 4776, pp. 533-582

- 31 *Operative Treatment of Cleft Palate. H. Blakeway.
- 32 Outbreak of Toxic Jaundice Due to Tetrachlorethane Poisoning. W. H. Willcox.
- 33 *Unusual Rupture of Mitral Valve. A. M. Kennedy and J. B. McDougall.
- 34 Surgical Notes on Serious Head Injuries. A. G. Whitehorne-Cole.

31. **Operative Treatment of Cleft Palate.**—Results in 100 consecutive cases treated by Lane's operation are cited by Blakeway. These patients were operated on between April, 1905, and January, 1907. Of these 100 cases 87 have been traced, and of these 40 have been seen; 1 of these has since died. Of the remaining 47 patients, 33 are dead, and in 14 the result of the treatment was ascertained by correspondence. The ages of the patients at the time of the first operation varied from 1 day to 11 years, but 79 of the children were under the age of 1 year. The cases showed the following degrees of severity: Complete cleft of hard and soft palates, 35 cases; cleft of soft and part of hard palate, 45 cases; cleft of soft palate only, 11 cases; congenital central cleft of palate, 1 case. In the remaining 8 cases the extent of the cleft was not stated in the notes and could not afterward be determined.

Of the children 33 died. Of the 33, 19 deaths are judged to have been due to the operation; 13 of these resulted from first operations and 6 from second or later operations. For complete clefts there were 35 primary operations, with 5 deaths, or 14.28 per cent., 33 secondary operations, with 3 deaths, or 9.0 per cent. For clefts of soft and part of hard palate there were 45 primary operations, with 6 deaths, or 13.3 per cent., 39 secondary operations, with 1 death, or 2.56 per cent. For clefts of soft palate there were only 11 primary operations with 1 death, or 9.0 per cent. The secondary operations for clefts of the soft palate were too few for conclusions to be drawn from them. One death from a primary

operation and one after a secondary one occurred in cases in which the extent of the cleft was not stated in the notes. In 9 cases death took place shortly after the child had returned home. Among 44 first operations for all varieties of cleft, under the age of 3 months, 9 were fatal, a percentage of 20.45; whereas of 56 first operations on children over that age only 4 resulted fatally, a percentage of 7.14. Of lesser complications 2 cases of recurrent hemorrhage occurred.

As regards closure of the cleft: The results in 40 cases were as follows: (a) Fifteen cases of complete cleft of hard and soft palates: Complete closure, after one operation 3, after more than one operation 4. Partial closure, after one operation 2, after more than one operation 6. (b) Nineteen cases of cleft of soft and part of hard palate: Complete closure, after one operation 4, after more than one operation 4. Partial closure, after one operation none, after more than one operation 4. Failure after one operation 1, after four operations 1. (c) Six cases of cleft of the soft palate only: Complete closure after one operation 3. Partial closure after one operation 3. Several of the cases described as "partial closure" have only small holes left, the rest of the palate being completely healed. After discussing other methods of operation Blakeway concludes that Langenbeck's operation is still the best for routine use. The experience of the operator, the width of the cleft, together with the height of the palatal arch and the general health of the child, have all to be considered before a decision is reached. If the condition is complicated by the presence of harelip, closure of the latter during the first few weeks of life has a valuable effect in causing obliteration of the most anterior part of the cleft.

33. Unusual Rupture of Mitral Valve.—The case recorded by Kennedy and McDougall was one of malignant endocarditis, not valvular but mural, in which inflammatory reaction in the cardiac tissue at the base of the mitral valve was so acute that necrosis occurred and the cusps were torn off from their attachments to the wall.

Bulletin de l'Académie de Médecine, Paris

February 23, LXXIII, No. 8, pp. 261-287

- 35 *Importance for Diagnosis and Prognosis of Electric Tests of Compressed or Severed Nerves. M. Mendelssohn.
36 Efficacy of Polyvalent Serum for Direct Application to Wounds. (Sur le traitement sérique spécifique des plaies.) Leclainche and Vallée.
37 Advisability of Postponing Operations for Cataract on Soldiers in the Active Army. (Des opérations inopportunes sur les blessés de guerre.) E. Valude.
38 *Differential Diagnosis of Typhoid, etc., by Microscopic Examination of the Blood. (Etude du sang pur appliquée au diagnostic de la fièvre typhoïde et d'autres maladies infectieuses.) D'Oelsnitz and Others.

March 2, No. 9, pp. 289-312

- 39 Metal Spring Tourniquet. (Ressort métallique hémostatique.) A. Monprofit.
40 Metal Disk for Amputations; Pushes Back Soft Parts and Leaves only Bone Protruding. (Des rétracteurs métalliques pour amputation.) A. Monprofit.
41 *Hour-Glass Stomach Following an Ulcer; Forty-One Cases. (Sténose mésogastrique d'origine ulcéreuse.) A. Mathieu.
42 Antitetanus Serum and Chloral in Treatment of Tetanus. L. Spillmann and A. Sartory.
43 *Fungus Infection of Wounds. (Certaines mycoses de blessures de guerre et leur traitement.) E. Rouyer and J. Pellissier.
44 Protection Conferred by Vaccination against Typhoid. P. Carnot and others.

35. Electric Tests of Injured Nerves.—Such articles as this by Mendelssohn, based on practical experience with large numbers of nerves injured in war, throw light on the question whether electric tests can be applied to the nerve after the skin wound has healed or whether it is necessary to open up the region to apply the test directly to the nerve. He refers to the faradic and galvanic currents alone, as the more complicated technics are seldom accessible to the army surgeon. The reaction of degeneration in the muscles is purely a muscular phenomenon, but, when a nerve is injured, every muscle tributary to this nerve should be examined for the slightest tendency to the reaction of degeneration. On the whole, he concludes, the electric tests are only rela-

tively instructive in regard to diagnosis of the nerve trouble but they are extremely important for the prognosis. An exploratory incision can be reserved for exceptional and complicated cases in which the usual tests give inadequate responses, as he describes in detail.

38. Microscopic Examination of the Blood in Differentiation of Typhoid.—The findings in large numbers of typhoid cases were constant: A thin layer of blood under the microscope showed invariably subnormal numbers of leukocytes and no visible fibrin network. With pneumococcus affections the fibrin network is prominent and there is hyperleukocytosis. The reds also cluster closer together with the latter, with smaller open spaces between.

41. Hour-Glass Stomach from Ulcer.—Of Mathieu's forty-one cases during the last six years, in 11 the constriction was merely the result of spasmodic contraction of the mesogastrium as was demonstrated by an operation in 3 cases and in the others by the return of the stomach to normal shape either spontaneously or under atropin or belladonna. In 10 of the cases the ulcer had existed over twenty years; in 11 from five to fifteen years, and only in 9 instances was the interval less than five years. All but 10 of these patients were women. In his experience in about a thousand cases of simple gastric ulcer, the female patients outnumbered the male two to one. The diagnosis of an hour-glass stomach is not difficult, but it is important to ascertain to what extent spasmodic contracture participates in the constriction, and whether pyloric stenosis accompanies it.

43. Fungus Infection of Wounds.—Rouyer has encountered a number of cases of actual mycosis of the tissues after a shell wound. Ordinary antiseptics had no influence on it and healing was long retarded until he abandoned tincture of iodine for formaldehyd or a stick of copper sulphate with which he cauterized the edges of the wound. In one case the fungus was identified as the *Saccharomyces tumefaciens*.

Presse Médicale, Paris

February 25, XXIII, No. 8, pp. 57-64

- 45 War Deafness. (La surdité de guerre.) M. Lermoyez.
46 *Wounds of Nerves. (Etude médico-chirurgicale des blessures des nerfs.) J.-A. Sicard and others.

March 4, No. 9, pp. 65-72

- 47 *Clinical and Anatomic Conditions in One Hundred Cases of Gunshot Wounds of Nerves in the Limbs, and Outcome of Treatment. H. Claude and others.
48 Treatment of Typhoid Fever. (Un traitement pratique de la fièvre typhoïde aux armées.) Gay.
49 Localization of Foreign Bodies by Radioscopy. Debiegne.

46. Wounded Nerves.—This article reports the results of the collaboration of an expert neurologist, histologist, electrologist and surgeon. Among the large number of wounded in their care they have been able to trace to date forty-two operated on for injury of peripheral nerves. The injury dated from three to over five months before and the wound had healed aseptically. When there was merely persisting pain in the nerve they injected into the nerve itself 2 or 3 c.c. of some weak anesthetic or merely air. This distends and stretches the nerve and generally answers every purpose.

No operation is attempted when by the third month a paralyzed limb has regained some motor functioning unless special circumstances call for operative measures. When an operation is deemed necessary and the nerve is exposed, it may seem entirely normal; its lack of functioning is a kind of stupor. It can be roused to normal functioning by injection into the nerve trunk of 1 or 2 c.c. of a 1 per cent. solution of methylene blue or by injection of air. The latter is useful also as a preliminary to an operation on the nerve itself. Before attempting the latter, they examine under the microscope a minute particle snipped from the nerve, and complete the exploration with electric tests. Operate, release the nerve from everything binding it down, but never resect—these are the principles followed. Success was realized only with paralyzed arms; no benefit has been realized to date from any operations of the kind on the sciatic nerve, not even in cases in which the nerve did not seem to be seriously injured.

47. **Operative Treatment of Wounds of the Nerves.**—During the last three months the neurologic service organized in the eighth district for the wounded has had 400 cases in its charge and operative treatment was applied in 100. The immediate results were strikingly good and the improvement has continued to progress as the patients are reexamined day after day. In 45 cases more than one nerve was involved in the injury; in nearly all the cases the time interval since the wound ranged from three to five months. The operative measures were conservative in the extreme; the principal aim was always to liberate the nerve and mobilize it in sound tissue. No attempt at suturing was made except as a last resort when the continuity of the nerve had been entirely interrupted. Several illustrations are given of the more common type of injury, the binding down of the nerve by cicatricial tissue after it had been nearly cut across.

Berliner klinische Wochenschrift

February 22, LII, No. 8, pp. 173-200

- 50 *Analysis of Flours by Means of Stains. (Farbenanalyse des Brotes.) C. Posner.
- 51 *Psychoses during the War. (Wesen und Bedeutung der Kriegspychosen.) K. Singer.
- 52 *Tetanus. (Meine Beobachtungen über Tetanus im Frieden und im Felde.) Grundmann.
- 53 Emergency Tracheotomies. (Nottracheotomien.) V. Thom.
- 54 Biologic Action of Condensed Radium Emanation. E. Partos.
- 55 Intermittent Expiration with the Systole. (Herzsystolisch-intermittierende Expiration und negativer Brustpuls.) C. Frugoni.
- 56 *Epidemics in Wartime. (Entstehung und Ausbreitung der Kriegsepidemien.) F. Hueppe. Commenced in No. 7.

50. **Differential Staining Technic for Flours.**—Posner gives several illustrations of the microscope findings with flours stained with a methylene blue-eosin contrast stain or Ehrlich's triacid stain. Potato flour takes the stain differently from cereal flours. Bread dough made with potato flour does not rise as well as wheat or rye flour dough, and the bread is less porous.

51. **Psychoses at the Front.**—Singer comments on the comparative rarity of psychoses at the front. When they occur it is generally found that the man had been under medical care at some time in his life for nervous or mental disease. He thinks this relative rarity of psychoses among the troops speaks volumes for the sound constitution, mental and physical, of the men. The deprivation of alcohol has not caused by any means the amount of disturbance that had been anticipated. In those predisposed to nervous and mental disease, however, the vicissitudes of the campaign tend to bring them rapidly to full development and even a small amount of liquor is liable to bring on delirium tremens in chronic drinkers after being deprived of alcohol for a few months.

52. **Tetanus.**—Grundmann states that since he took charge of a certain base hospital the mortality from tetanus dropped from 100 to 65 per cent., excluding the moribund cases, to 55 per cent. Many of those who recovered had an incubation of only three or five days. He ascribes these favorable results to his method of managing the cases. The main point, he says, is to recognize the first symptoms, including slight difficulty in swallowing, sweating, starting at noises, bright light or sudden drafts, and dizziness or twitching or stiffening of the muscles when they are tapped. The pulse was about 100 throughout the disease. Antitetanus serum was injected at the earliest possible moment; the tetanus patient was kept in a quiet, dark room. Every hour he was given some light digestible nourishment.

The wound was left in peace; any attempt to resect the tissues at this late stage merely opens up new blood and lymph vessel paths for toxins and bacteria. The tetanus toxin is absorbed so rapidly that any operation usually comes too late. In some of his cases a splinter of wood or scrap of cloth or straw was left in the wound and was spontaneously expelled later. He merely dressed the wound with iodoform, after cleansing with hydrogen dioxid, and injected around the wound 80 or 100 antitetanus serum units to catch the toxin as it spread, repeating this for several days. An intravenous injection of the serum was made daily also to neutralize the

toxin in the blood, supplemented the first and third day by lumbar intraspinal injection of the same amount. He never witnessed any signs of anaphylaxis even when a total of 150 units had thus been administered for several days in succession.

He is convinced that most of the deaths from tetanus are due to the excessive accumulation of waste products in the muscles from their intense and prolonged contraction. This is combated best with magnesium sulphate, and he uses this freely. He never witnessed any disturbance in breathing or any respiratory paralysis although he makes a practice of injecting subcutaneously three or four times a day, 20 c.c. of a 10 or 15 per cent. solution until the muscular contractions and rigidity have subsided. It is necessary to begin with tentative doses, not over 5 c.c., and increase them until slight general anesthesia is induced. A dose of 5 c.c. of a 5 per cent. solution of calcium chlorid or 1 mg. of physostigmin is kept at hand to use at need. He never ventured to inject the magnesium sulphate into a vein or into the spine. The antitetanus serum treatment is kept up for from four to seven days. In conclusion he warns that a tent cloth or blanket should be thrown over straw before a wounded person is laid on it. Also that the wounded lying next to one with tetanus should be given a preventive injection of serum. He had two cases of tetanus develop in a crowded ward sixteen and twenty days after the men had entered it.

56. **Epidemics in War.**—In concluding this long sketch of the history and present status of epidemics in war time, Hueppe remarks that it is an interesting question now to learn how the simultaneous inoculations against smallpox, typhoid and cholera, possibly also against dysentery and tetanus, are going to influence each other; whether they will reenforce or attenuate each other.

Correspondenz-Blatt für Schweizer Aerzte, Basel

February 27, XLV, No. 9, pp. 257-288

- 57 Roentgenotherapy in Gynecology. (Bisherige Erfahrungen und Resultate aus dem Röntgeninstitut der Universitätsfrauenklinik Bern.) M. Steiger. Concluded in No. 10.
- 58 Severe Toxic Symptoms in Kidneys, Bladder and Urethra after Wearing Porous Plaster for Two Weeks. (Intoxikation der Harnwege nach Alicock's Porous Plaster.) A. Guth.

Deutsche medizinische Wochenschrift, Berlin

February 25, XLI, No. 9, pp. 241-272

- 59 *Acid Agglutination Test for Typhoid Bacilli. (Die praktische Verwertbarkeit der Säureagglutination für die Erkennung der Typhusbazillen.) L. Michaelis.
- 60 The Dietary for a Workingman in the City. (Ernährung grossstädtischer Arbeiter und Eiweissbedarf des Menschen.) F. Hirschfeld and M. Rubner.
- 61 *Arrest of Respiration after Intraspinal Injection of Neosalvarsan. (Lähmung des Atmungsentrums im Anschluss an eine endolumbale Neosalvarsaninjektion.) J. Lewinsohn.
- 62 Tetany in Course of Gallstone Colic. G. Graul.
- 63 Wounds of the Brain and Spinal Cord in War. (Beobachtungen an Schussverletzungen des Gehirns und Rückenmarks.) Goldstein.
- 64 Wounds of Peripheral Nerves in War. S. Auerbach.
- 65 Gas Phlegmons. G. Seefisch.
- 66 Dangers of the Plaster Cast, and Effectual Substitute. (Die Gefahren des Gipsverbandes.) A. Philippsthal and S. Rummelsburg.

59. **Acid Agglutination as Test for Typhoid Bacilli.**—Michaelis declares that the acetic-acid agglutination method, to which he called attention in 1911, is proving instructive for differentiating typhoid. The findings are said to be more constant and reliable than with any other technic. It is based on the fact that bacteria are agglutinated by acetic acid, the quantity of acid required for the purpose differing for different species of bacteria. This optimal acid concentration is sharply defined in case of typhoid bacilli and thus serves to differentiate them.

61. **Paralysis of Respiration Center After Lumbar Injection of Neosalvarsan.**—Lewinsohn had made sixteen injections of the kind in eight patients with general paralysis or tabes, without mishap, when a severe and nearly fatal arrest of the respiration occurred twenty-four hours after intraspinal injection of 6 c.c. of a solution of 0.15 c.c. of neosalvarsan in 300 c.c. of saline. After an hour and a half of artificial

respiration the man breathed spontaneously for five minutes and consciousness returned. He was urged to breathe deep, and kept this up volitionally, sustained by occasional artificial respiration for two hours, without any automatic breathing. Whenever he forgot to breathe, all respiration ceased and his attention had to be recalled to it by slapping his chest and arms. By the end of the fourth hour the danger seemed past; the man was breathing well. After eight hours there was a brief cessation of breathing and the pulse stopped also, but under artificial respiration, camphor and caffeine they returned apparently to normal. As soon as he dropped to sleep he stopped breathing, and had to be wakened and urged to breathe deep. Finally, after over twelve hours had elapsed, he got several hours of normal sleep and had no further respiratory disturbances.

The patient was a man of 40 with signs of tabes for four years. A severe gastric crisis had followed in the night after the injection of neosalvarsan. To relieve this, 0.02 c.c. morphin had been given and this may have reduced the excitability of the respiration center below the safe level under the conditions. Foerster has reported a case of spontaneous arrest of the respiration in a case of tabes; the attacks of apnea recurred three times in one month and each lasted about half an hour. Stimuli applied to the skin brought the patient out of it each time. He has also had a case in which the man stopped breathing and became unconscious after 0.01 or 0.015 c.c. morphin had been given to relieve a gastric crisis. Only by artificial respiration, kept up for hours, was the patient tided through the dangerous attacks. In this case also the man responded to urging to breathe deep when there was no automatic respiration. Lewinsohn refers in conclusion to a number of similar cases mentioned at the last annual meeting of the A. M. A., adding that these experiences warn of the necessity for extreme caution with intraspinal injections in tabetics.

Internat. Monatsschr. f. Anat. u. Physiol., Leipzig and Chicago
XXXI, Nos. 7-9, pp. 305-436. Last indexed January 23, p. 375

- 67 Comparative Physiology of the Cerebellum. (Ricerche sulla Fisiologia comparata del cervelletto.) O. Polimanti.
- 68 The Process of Horn Production in the Nails. (Della corneificazione dell'unghia.) L. Martinotti.
- 69 Crossing of the Nerves of Taste. (Chiasma gustativo—periferico—nella lingua dell'uomo e di alcuni mammiferi.) G. Vastarini-Cresi.
- 70 Influence of Ultraviolet Rays on the Regeneration of the Pigment Apparatus in the Skin of Tritons. (L'influenza dei raggi ultravioletti sulla rigenerazione dell'apparato pigmentario della cute dei Tritone.) L. Torraca.

Medizinische Klinik, Berlin

February 21, XI, No. 8, pp. 207-236

- 71 *Indigestible Food and Chilling of the Abdomen as Factors in Diarrhea. (Zusammenhang von gutartigen Durchfällen mit dem Genusse schwerverdaulicher Nahrung und mit Abkühlung des Bauches.) A. Schmidt.
- 72 *Ultraviolet Rays in Treatment of Suppurating Wounds. (Behandlung eiternder Wunden mit künstlicher Höhensonne.) A. Mayer.
- 73 *Roentgen Treatment of Severe Fractures. (Zur Heilung von schweren Knochenbrüchen mittels Röntgenreizdosen.) M. Fränkel.
- 74 *Care of Surgical Instruments in the Field. (Sterilisierung und sterile Aufbewahrung chirurgischer Instrumente im Kriege.) K. Gerson.
- 75 Ovary and Testicle Extracts in Treatment of Impotency. (Zur Behandlung der sexuellen Insuffizienz.) I. Bloch.
- 76 Apparatus for Determining the Carbon Dioxid Tension in Alveolar Air. (Klinische Methode zur Bestimmung der Blutalkaleszenz.) O. Forges and A. Leimdörfer.
- 77 *Gonorrheal Arthritis. (Die gonorrhoeischen Gelenkentzündungen.) O. Nordmann.

71. **Diarrhea and Chilling of the Abdomen.**—Schmidt remarks that intestinal trouble is far less prevalent among the German troops in this war than in any previous campaign. He ascribes this in large part to the excellent arrangements for feeding the troops, the motor-truck "field kitchens." But even these cannot always keep up with the troops, and defectively cooked food often sets up acute gastric indigestion. When the bowels are thus upset, chilling of the abdomen is liable to exaggerate peristalsis and bring on diarrhea. Consequently he emphasizes the necessity for wearing a warm woolen band around the abdomen when there

is a tendency to diarrhea. Such persons are generally dyspeptic, with insufficient gastric secretion or excessive motor functioning in stomach and bowel. The healthy should not wear an abdominal band as it has no prophylactic action in regard to dyspeptic diarrhea, and those with sensitive bowels should wear it only while the tendency to diarrhea persists.

72. **Ultraviolet Rays in Treatment of Superficial Suppurating Wounds.**—Mayer has been very favorably impressed with the unusually rapid healing and subsidence of the pain when suppurative wounds were systematically exposed to the mercury vapor lamp. The penetrating power of the rays is greater in diseased tissues, especially when the limb is raised to expel the blood. The skin is a living organ with physiologic functions and these functions are materially promoted by the ultraviolet rays. Mayer is not so enthusiastic as Kromayer who asserts that the mercury vapor lamp will save the wounded thousands of weeks of hospital treatment. Mayer has found that fluorescent substances, such as eosin, seem to sensitize the tissues and then they respond more readily to ultraviolet rays; it is his routine practice now to swab the suppurating surface with a solution of eosin preliminary to applying the rays. It may be possible, he adds, to treat peritonitis in this way, applying the rays when the abdomen has been opened; he is now experimenting in this line. Friedberger reported last year the successful application of the ultraviolet ray in disinfection of the throat preliminary to operative treatment, and in diphtheria.

73. **Stimulating Doses of Roentgen Rays for Tardy Healing of Fractures.**—Fränkel cites Bernhard's statement that burns heal in his mountain district remarkably early, the sunshine and the dry air evidently promoting the healing. Aimes found that an extensive burned area, which for months had refused to heal, soon healed completely under exposure to the direct sunlight. These and similar experiences by others justify the application of the chemical rays in all old torpid lesions. Fränkel applied stimulating doses of the Roentgen rays in several cases of old fractures that refused to consolidate. The patients were four children, three women between 18 and 35 and two men of 33 and 46. The results confirm the value of the chemical rays in starting the regeneration of bone tissue and promptly healing the fracture. The dosage in such cases must be merely stimulating, as the tissues are otherwise sound and their further growth must not be interfered with.

74. **To Sterilize Instruments and Keep Them Ready for Use.**—Gerson, for a period of one minute, wipes off the blade with cotton dipped in tincture of soap, and then repeats the procedure with fresh cotton. Each blade is then wrapped separately in fresh cotton dipped in the tincture of soap, and the instrument is laid away ready for use at once or even after an interval of several weeks. This method has stood the severest tests, he says, and proved entirely satisfactory in fifteen years' experience with it.

77. **Gonorrheal Arthritis.**—Among the characteristic features of gonorrheal joint trouble is that the smaller rather than the larger joints are usually affected. If the gonorrhea is in a chronic or symptomless stage, there may be difficulty in differentiation. When only one joint is affected, gonorrhea should always be suspected and the vaginal or uterine secretions examined for the gonococcus. The sudden stormy onset, the extreme painfulness and tenderness and the consequent inability to sleep are characteristic, as also the failure of the salicylates in treatment. No drugs give any relief; reliance must be on active hyperemia, immobilization, extension and superheated air. The constricting band to induce obstructive hyperemia should be worn for twenty hours at a time. It should never be tight enough to make the limb look bluish. The limb should be raised on cushions. The relief from pain with this stasis hyperemia is so great that the patient frequently clamors to have the band applied again before the four-hour interval is concluded. If this fails, a plaster cast will usually relieve the pains at once. After eight or ten days at farthest it should be removed for part or all of the time, and the limb be passively exercised to

keep the muscles in tone. When the pain will not yield to anything else, it may subside under extension.

Monatsschrift für Geburtshilfe und Gynäkologie, Berlin

March, XLI, No. 3, pp. 189-284

- 78 *Post-Partum Hemorrhage. (Behandlung der Blutungen in der Nachgeburtszeit.) P. Zweifel.
79 Extra-Uterine Pregnancy. B. Hada.
80 The Distribution in the Tissues of Colloidal Metals after Intravenous Injection as Revealed by the Ultramicroscope. (Dunkelfelduntersuchungen über das Schicksal intravenös injizierten kolloidalen Silbers.) J. Voigt.

78. **Management of Hemorrhage Post Partum.**—Zweifel describes a number of practical measures to arrest hemorrhage when the uterus walls are not elastic enough to contract. When the labor contractions are weak, the atony of the uterus walls, revealed by this, persists after delivery and the hemorrhage keeps up unchecked, but there is no hemorrhage so long as the child is still in the uterus and the placenta is still adherent. Hence the imperative rule to delay the expulsion of the child until the uterus walls can be toned up by mechanical, thermic, chemical or electric means. If hemorrhage keeps up unduly after delivery, it must be arrested as speedily as possible, and he has found bimanual extragenital massage of the uterus a useful method. The left hand, with nails cut short, is worked straight down between the symphysis and the uterus, pushing the cervix firmly back against the sacrum, while at the same time, with the back of the hand and fingers, the uterus is pushed upward against the right hand which grasps the body of the uterus above and rubs and presses it, thus effectually massaging the organ. This procedure is easily and rapidly done unless there is too much fat in the abdominal walls. Working the left hand down in this way between the symphysis and uterus serves a second purpose also, as it shows whether or not the after-birth is loose. If it has become detached, the umbilical cord is generally pushed out of the vagina by this manipulation, while, if the placenta is still attached, the protruding cord is drawn in again by it.

As the uterus is being thus massaged, hot water 49 C. (120 F.) should be prepared, containing two teaspoonfuls of salt to each liter. Water alone dissolves blood corpuscles and thus checks coagulation. Hemorrhage from atony of the uterus is generally arrested in fifteen minutes by the massage, thermic and drug stimulation. If it keeps up, or recurs after this, there is probably some internal injury, and Zweifel advises constricting the waist according to the Momburg procedure. This leaves the physician's hands free for internal examination. If the uterus is contracting and still the bleeding continues, it must come from some artery and this must be sought and ligated or the opening drawn up with a thread. Zweifel declares that if the os is completely dilated at delivery there can be no laceration of the cervix. It is better, he adds, to wait for complete dilatation, using inflatable bags or even cutting the cervix; this is better than letting it tear. If the finger feels a slit in the cervix, the edge each side is seized with forceps. This arrests the hemorrhage and permits the edges to be sutured together between the forceps, which are not removed until the catgut is ready to be tied. Three illustrations are given to show the exact technic of the measures advised. When the uterus has to be tamponed, he has found most useful a purified tincture of ferric chlorid, made by evaporating the officinal tincture and redissolving it in distilled water to its former volume. Gauze dipped in this arrested hemorrhage, even in merely a 5 per cent. solution, better than anything else he ever tried, and it is not caustic. It can be made up fresh for each case, the dried residue keeping well.

Münchener medizinische Wochenschrift, Munich

February 16, LXII, No. 7, pp. 217-248

- 81 *Unusual Course and Complications of Vincent's Angina. (Plaut-Vincentsche Rachen- und Mundentzündungen.) F. Reiche.
82 *Intradural Tuberculin Treatment in Tuberculous Meningitis; Three Cases; Recovery in Two. J. Bacigalupo.
83 The Food Supply during the War. (Die Volksernährung im Krieg.) W. Hanauer.
84 Importance and Treatment of Venereal Disease in the Active Army. (Geschlechtskrankheiten im Felde.) Lenzmann.

- 85 Any Dysenteriform Disease Confers Agglutinating Properties on the Serum. (Warum die Gruber-Widalsche Probe zurzeit für die Typhusdiagnose unverwendbar ist.) A. Wolff-Eisner.
86 Technic and Immediate Results of Inoculation against Typhoid. (Beobachtungen bei der Typhusschutzimpfung mit dem Russel-schen Impfstoff.) H. Stieve.
87 Desiccated and Pulverized Cultures of Tetanus Bacilli Killed by Heat as Local and General Preventive of Tetanus. M. Piorowski.
88 Operative Treatment of Aneurysms. G. Hotz and Harass.
89 Surgical Work at a Field Hospital. (Unsere operative Tätigkeit im Feldlazarett.) H. Flörcken.
90 Conservative Efforts in Military Surgery. E. Grunert.
91 Localization of Foreign Bodies by Radioscopy. (Praktische Erfahrungen mit der Fürstenauschen Lokalisationsmethode von Geschossen.) O. Weski.

February 23, No. 8, pp. 249-288

- 92 The Healing Process with a Natural Pneumothorax as Watched in the Tuberculous Lungs of a Young Man. H. Rieder.
93 *Autogenous Serotherapy in Infectious Diseases. (Ein neues Prinzip der Serumtherapie bei Infektionskrankheiten.) H. Koenigsfeld.
94 *Nerve Blocking for Normal Childbirths; 225 Cases. (Novokain-anästhesie bei normalen Geburten.) K. Bollag.
95 The Muscular System. (Neue Versuche zur Theorie der Muskelmaschine.) V. Weizsäcker. Commenced in No. 7.
96 Treatment of Nervous Disease of Syphilitic Origin. (Das Problem der Therapie der syphiligen Nervenkrankheiten im Lichte der neueren Forschungsergebnisse.) M. Nonne. Concluded in No. 9.
97 Military Surgery Now and Forty-Five Years Ago. (Kriegschirurgie früher und jetzt.) H. Fehling.
98 Wounds of the Eye and Orbit in War. (Kriegsschädigungen des Auges.) H. T. L. Oloff and F. Salzer.
99 Siphon Device for Draining Deep Wounds. (Dauerdrainage tiefer Wundhöhlen.) K. Weiler and Krecke.
100 Devices for Restoring Function to Stiff Joints. (Mobilisierung versteifter Gelenke.) F. Schede and C. Walter.
101 Basophil Granules in the Blood Corpuscles as Sign of Lead Poisoning from Retained Scraps of Shells. A. Schnitter.

81. **Unusual Course and Complications of Vincent's Angina.**—Reiche has encountered 139 cases of the Plaut-Vincent angina or stomatitis in addition to the 4,052 cases of simple angina at the Hamburg Barmbeck hospital in the last twelve years. In another group of 23 cases the Vincent angina was accompanied by diphtheria bacilli which had no influence on the clinical picture. In 2 other cases the Vincent angina was superposed on diphtheria. In 2 of his more recent cases what seemed to be a pure Vincent angina ran an exceptionally severe course, terminating fatally in one. This patient was a child of 11; the stomatitis was of several weeks' standing and pernicious anemia had developed. Marked improvement had followed cleansing out the mouth with hydrogen dioxid, but it proved transient and the child died within two months. The other patient was a young woman and the Vincent tonsillitis caused severe general disturbance, with intense headache, leukopenia, eosinophilia, abducent paralysis, enlargement of the spleen and destruction of part of the soft palate. The abducent paralysis developed the twenty-sixth day but disappeared after three and a half weeks. The angina ran its course in about six weeks and complete recovery followed.

82. **Intradural Tuberculin Treatment of Tuberculous Meningitis.**—Bacigalupo thinks it is more than a mere coincidence that marked improvement followed intraspinal injection of tuberculin in an advanced stage of tuberculous meningitis. As the child had miliary tuberculosis at the same time, recovery was out of the question, but some of the brain symptoms subsided after the injection. Encouraged by this success, he applied the same treatment in two other cases of uncomplicated tuberculous meningitis, and complete recovery followed after two and three injections in the course of twenty days. Tubercle bacilli had been found in the cerebrospinal fluid in both cases. He calls attention particularly to the unusual temperature reaction to the intradural injections; the temperature dropped at once about 1 degree C. and kept low thereafter. There are only twenty-two cases on record, he says, of recovery from tuberculous meningitis, and to these he adds his two. His dosage was about that usual with other technics. He began with 1 mg. of tuberculin for the child of 3; repeating with a little larger dose after twenty-four hours, when the symptoms showed no improvement.

93. **Autogenous Serotherapy in Infectious Disease.**—Koenigsfeld regards the patient's own serum as the one to be

used in serotherapy; this contains the antibodies not only against the species of bacteria involved but also against the special strain. The autogenous serum method can be used in infectious diseases of all kinds, and the technic is simplicity itself. He has applied it in eighteen cases of typhoid; 50 or 60 c.c. of blood is drawn and set on ice. The serum is decanted after a few hours and a 5 per cent. solution of phenol is added, a drop at a time, up to 10 per cent. A daily subcutaneous injection of 2.5 or 4 c.c. of the serum was then given until the fever dropped. After five or six days blood is drawn anew for the purpose, thus not breeding a "serum-fast" strain. The results were so promising in all the eighteen cases, as also in a number of bacilli carriers, that he urges others to give the method a thorough trial. The serum cannot be expected to be effectual when taken before antibodies have had time to develop; it might be well to commence with serum from some convalescent patient.

94. Blocking the Nerves for Painless Childbirth.—Bollag writes from Basel to extol the benefits from direct injection of 2 c.c. of a 2 per cent. solution of novocain, injected to block the pudic nerve on each side. This technic was applied in over 225 cases and proved successful in arresting all pain in the domains innervated by the branches of this nerve. It failed in only seven cases. The needle is inserted just back of the tuberosity of the ischium, between the tuberosity and the middle of the perineum, pointing it toward the lesser sacrosclatic foramen. One of the great advantages of the method is that any laceration can be sutured at once without causing the patient the slightest pain and the entire management of the case is much easier for the obstetrician. Nothing to indicate the slightest harm from it for mother or child was detected in any instance. It does not abolish the true labor pains but it prevents all pain in the nervus pudendus region.

Zentralblatt für Chirurgie, Leipzig

February 27, XLII, No. 9, pp. 129-144

- 102 *Extraction of Fragments of Shells with Large Electromagnet. A. Tietze.

102. Electromagnet for Extraction of Fragments of Shells.—Tietze writes from a field hospital to relate how he introduced the tip of a large magnet into the crushed tissues of the brain in a recent case, through a trephine opening. At a depth of 6 cm. he heard a click and the fragment of shell, weighing 375 mg., was pulled out on the end of the magnet. The electromagnet was improvised for the purpose from the electric light and telegraph equipment of the troop.

Zentralblatt für Gynäkologie, Leipzig

February 27, XXXIX, No. 9, pp. 129-144

- 103 Conditions Affecting Menstruation after Operations on the Ovaries. (Menstruationsverhältnisse nach gynäkologischen Operationen.) F. Ebeler.

Zentralblatt für innere Medizin, Leipzig

February 27, XXXVI, No. 9, pp. 129-144

- 104 The Biologic, Chemical and Physical Factors in Vegetarian and Mixed Diets. (Vegetarische Küche und Fleischküche.) W. Sternberg.

Policlinico, Rome

February 21, XXII, No. 8, pp. 253-284

- 105 Complete Retention of Urine from Unsuspected Calculus in Prostate. (Ritenzione vescicale completa da calcolosi prostatica occulta.—Ascesso consecutivo della prostata: svuotamento, guarigione.) I. Scalone.

Surgical Section No. 2, pp. 53-104

- 106 *Inflammation Tumors in the Abdomen. (Tumori flogistici dell'addome.) G. Baggio. Commenced in No. 1.

- 107 *Pulsating Exophthalmos Cured by Ligation of Common Carotid. C. Silvan.

- 108 Retroperitoneal Abscess Perforating into the Bladder. A. Miliani.

106. Inflammation Tumors in the Abdomen.—Baggio gives some colored plates showing the findings in his two cases of this condition. Although anatomically it is an ordinary inflammatory process, yet clinically it is of great importance as, unless its true nature is suspected, it is liable to lead to an unnecessary operation. The main thing is to suspect that the tumor is of this character. These inflammation tumors

can generally be traced to some foreign body, usually derived from the intestines, but the tumefaction does not involve the bowel directly. In only one of the 47 cases he has compiled did the tumor develop on the perforated intestine and secondarily invade the abdominal wall. In 10 cases the whole mass was excised, but 4 of these patients died on the table. The 37 other patients recovered under conservative measures or a partial operation.

107. Ligation of the Carotid Cures Pulsating Exophthalmos.—Silvan's patient was a girl of 16 who was thrown from a carriage and an intracranial arteriovenous aneurysm developed, causing pulsating exophthalmos. About five months after the accident the increasing exophthalmos and loss of vision compelled intervention. The common carotid was ligated on that side in time to prevent serious injury of the eye. Vision rapidly returned and the symptoms of the intracranial aneurysm gradually subsided entirely. The skull had evidently been fractured and the seventh nerve had been injured. The symptoms from this persisted unmodified by the ligation of the carotid, which put an end only to the symptoms from the aneurysm in the right internal carotid and sinus cavernosus.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

February 20, II, No. 8, pp. 569-640

- 109 *General Paralysis and Tabes. (De moderne behandeling der zogenaamde metasyphilitische ziekten van het centrale zenuwstelsel.) B. S. de Smitt.

- 110 Neoplasm in Dental Tissues; Odontome. (Een zeldzaam kaakgezwel.) A. Nicolai.

February 27, No. 9, pp. 641-716

- 111 *The Fever in Pulmonary Tuberculosis. (Koorts bij longtuberculose.) H. Schut.

- 112 Anthropologic Studies in the East Indies. (Ethnologische opmerkingen omtrent lichaamsafwijkingen bij de inlanders van den indischen archipel.) J. P. K. de Zwaan.

- 113 Bilateral Pigmentation of the Cornea. (Pigmentteering van het hoornvlies.) P. J. Waardenburg.

- 114 Decayed Teeth and Rheumatic Pains in the Limbs. (Rheumatische (?) pijnen een gevolg van tandziekten.) D. E. Da Costa.

109. Modern Treatment of Tabes and General Paralysis.—De Smitt is convinced that repeated examination of cerebrospinal fluid will enable us to keep an oversight over conditions so that treatment of syphilis can be suspended or resumed as needed, and in this way the patients be saved from the development of tabes or general paralysis later in life. Even when the latter is already under way, as revealed by the cerebrospinal fluid, prompt and vigorous treatment may arrest it in its incipency. He describes a typical case of this kind and also one of tabes. He agrees with Wechselmann that it is better not to give mercury during the course of salvarsan. No influence on the Wassermann from mercurial treatment was evident in the cases cited, but when the mercury was dropped and reliance placed on salvarsan alone the cerebrospinal fluid findings and the Wassermann reaction soon returned to normal. In conclusion he reiterates his belief that the future will see very few cases of tabes and general paralysis if general practitioners appreciate the power in their hands. They are the ones to whom the patients first apply, and the outcome may depend altogether on their diagnosis.

111. The Fever with Pulmonary Tuberculosis.—Schut published last year an account of experiments in which he injected substances which irritated the sympathetic nerve, such as tetrahydro-beta-naphthylamin or suprarenal extract, and in consequence most of the glycogen disappeared from the liver. On the other hand, injection of cholin, which stimulates the antagonistic nerves, was followed by an increase in the glycogen content in the liver. The mobilization of the glycogen by stimulation of the sympathetic nerve was accompanied by a rise in temperature proportional to the amount of glycogen present in the liver at the time. A report of later research was sent to the *Archives internat. de pharmacodynamie et de therapie* but its publication has been held up by the war. In this he presented evidence that the disappearance of the glycogen from the liver is the primary phenomenon and that the consequent increase in the sugar content of the blood is the cause of the higher tem-

perature. After injection of the drug the blood invariably shows a higher content of sugar, and this hyperglycemia always precedes the rise in temperature. If the injection is repeated while there is still little or no glycogen left in the liver, no hyperglycemia follows and the temperature does not go up.

Applying to tuberculosis the facts thus learned, there is much to sustain the assumption that the tubercle bacilli or their toxins irritate the sympathetic nervous system and thus start the above mechanism to work, mobilizing the glycogen in the liver, and the resulting hyperglycemia sending up the temperature. The greater or less response of the sympathetic nervous system to irritation is thus responsible for the behavior of the temperature, and drugs which reduce the temperature are those which deaden the sensitiveness of the sympathetic nervous system or enhance that of its antagonists. In tuberculin treatment we must keep below the threshold of irritation of this nervous system.

Hygiea, Stockholm

LXXVII, No. 3, pp. 97-159

- 115 *Tubercle Bacilli in the Feces and Their Diagnostic Import. (Om den diagnostiska betydelsen av påvisandet av tuberkelbaciller i faeces.) H. Bergstrand.

115. **Tubercle Bacilli in the Feces.**—Bergstrand applied five different methods for showing up tubercle bacilli in the feces in 25 cases in which they were known to be present in the stools. The ether extract-centrifugation-microscope method of Schöne and Weissenfels proved far more reliable than any of the others, while the technic is much simpler. In the stools of 60 non-tuberculous persons no tubercle bacilli were discovered at any time. Examination of 110 adults revealed tubercle bacilli in the sputum much more frequently than in the feces, but in 8 cases they were found in the stools and not in the sputum. The tests were repeated three times and in this way tubercle bacilli were found in the stools in 90 per cent. of those with positive sputum findings. Only one of 20 tuberculous children examined had tubercle bacilli in the stools.

Norsk Magazin for Lægevidenskaben, Christiania

March, LXXVI, No. 3, pp. 305-416

- 116 *Lane's Plates in Treatment of Fractures. (Operativ behandling av benbrud.) J. Nicolaysen.
117 *Simultaneous Extra-Uterine and Intra-Uterine Pregnancy. (Samtidig extra- og intrauterin graviditet.) O. Tandberg.
118 Present Status of Rachitis, Osteomalacia and other General Diseases of the Bones. (Kort oversigt over de senere aars forskning i skelettets systemsygdomme.) A. Ingier.
119 *Thrombosis of Mesenteric Vessels. (Trombose av mesenterialkar.) R. Ingebrigtsen.

116. **Operative Treatment of Fracture.**—Nicolaysen has only favorable experiences to report from the use of Lane's plates or Lambotte's fixator. He extols the advantages of the former as he applied them in fifteen cases, and discusses the special indications for them. With recent fractures the outcome was always ideal. With pseudarthrosis there is not so good a hold, and in a few cases the lower stump twisted a little. He warns against too early exercise; function returns perfectly even after immobilization for six or eight weeks.

117. **Simultaneous Extra-Uterine and Intra-Uterine Pregnancy.**—Tandberg thinks it was a twin pregnancy, one twin developing in the uterus and one in the tube. After rupture and removal of the latter, the normal pregnancy developed to term without mishap. There are about 200 cases on record of simultaneous normal and ectopic pregnancy but only in the rarest cases was the correct diagnosis drawn. The prognosis also is graver than for an ectopic pregnancy alone.

119. **Thrombosis of Mesenteric Vessels.**—Ingebrigtsen gives the necropsy findings in six cases of this kind, and compares them with the main features of the 251 cases on record. Operative measures were applied in 91 and 18 of the patients recovered. The ages in his own 6 cases ranged from 24 to 70, with one 6 weeks' infant with transposed heart and large vessels. In 2 of the cases the thrombosis in the superior mesenteric artery occurred without symptoms—only 1 similar

case is on record (Trübel). The syphilitic endarteritis had evidently developed so gradually that there was no hemorrhagic infarct. Cases of this kind must be commoner than hitherto supposed, especially in syphilitics. Collateral circulation develops in the course of the slow process and serious trouble is thus averted. Heart disease or arteriosclerosis was evident in the other cases.

The only means of relief is from an operation, and the discovery of a hemorrhagic infarct at any laparotomy should suggest thrombosis and be treated accordingly, instead of its being ascribed to some other cause. The infarct had not been diagnosed beforehand in the 19 cases with successful operative treatment. The laparotomy disclosed an aseptic venous thrombosis in most of them, and the compromised segment of the intestine was resected with the corresponding omentum. The intestine was then sutured, end-to-end, or a temporary anus was made. In Gobiet's case the length of the segment of ileum resected was 320 cm. and in MacGuire's 336 cm.; both patients were in good condition nine months later.

Ugeskrift for Læger, Copenhagen

February 18, LXXVII, No. 7, pp. 241-286

- 120 *Operative and Roentgen Treatment of Cancers. J. Nordentoft.
121 Cross-Fire Roentgen Treatment of Inoperable Uterine Cancer; Clinical Recovery. A. G. Lauritzen.
February 25, No. 8, pp. 287-310
122 Fixation Abscess Treatment of Various Acute Diseases. (Behandling med Terpentinsabsces.) C. de F. Licht.

120. **Roentgen Treatment of Cancer.**—Nordentoft's article was presented at a medical meeting where he demonstrated the patients whose cases he describes. His principle is either to apply the Roentgen rays before and after the operation, and again later, or to trust to exclusive roentgenotherapy. The necessity for studying which types of cancer are amenable to the rays and which are most likely to recur is the task now before us. One of the three typical cases cited is the further history of a case summarized in THE JOURNAL, Oct. 24, 1914, p. 1514. The patient is a woman of 24 who had a cancer removed from one ovary in 1912 and from the other in 1913. Multiple metastases in the abdomen subsided completely under Roentgen exposures. She was clinically well for some months but then returned with complaints of pain and tenderness in the liver region. Roentgenoscopy showed that the excursions of the diaphragm on the left were free and normal, but on the right side the diaphragm was pushed high up and held immovable there, a dark shadow filling the space below. Four exposures were made, five large fields being exposed, in the course of five days, and by the end of this time the diaphragm was free and working normally on both sides. All the abnormal shadows had disappeared except that the liver seems a little larger than usual. He gives roentgenograms of this patient.

It is only a question of time, in his opinion, when all superficial cancers will be treated with radiotherapy alone. It answers the purpose as well as, if not better than, operative treatment, while there is no resulting mutilation beyond what the growth has already induced. This applies also and with particular force to growths involving Stenson's duct. The injury to vessels, etc., from an operation in this region, the difficulty of the technic and peculiar liability to recurrence were reasons which justified him, he thought, in applying roentgenotherapy alone in a case of this kind, still in an operable stage. The results have justified his confidence. The ultimate outcome with or without operation depends in reality on the individual virulence of the cancer and whether or not it is inclined to spread, and these two factors we are unable to determine exactly beforehand or to influence. He has four patients free from recurrence from five to fifteen years after vaginal hysterectomy for advanced uterine cancer while other much more promising ones have succumbed to prompt recurrence. He declares further that if he or any members of his family develop cancer in the antrum or larynx or external genitals, he will reject operative treatment and trust in radiotherapy alone. Even in apparently the most desperate inoperable cases remarkable results are sometimes obtained.

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CHEMOTHERAPY AND TUMORS*

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Within the last three years a number of reports have appeared in the medical press which bear on the treatment of malignant growths in human beings by chemical preparations. The most persuasive and the most insistent claims have been made in connection with the colloidal solutions of certain metalloids and metals, notably selenium, vanadium and copper. At the same time a number of drug houses both in this country and abroad have placed on the market proprietary preparations of these substances in various forms, for which the claim is made that they produce striking therapeutic effects and sometimes even cures in malignant neoplasms.

The impulse toward the use and production of this type of preparation is directly traceable to a series of scientific experiments on the tumors of animals, which date back no farther than the year 1911. In that year Wassermann and his co-workers¹ published a report on the treatment of rat tumors by means of the intravenous injection of selenium compounds. This paper received wide notoriety through its enthusiastic diffusion by the lay press. Shortly afterward Neuberg and his co-workers² published their observations upon the therapeutic effects of certain metallic compounds. The clinical application of the encouraging results obtained by these authors in animal tumors followed rapidly, and up to the present time a number of papers have appeared in which the claim is made that human tumors also may be favorably influenced through the constitutional use of substances similar to those used by Wassermann or Neuberg. In some cases, use has been made of colloidal solutions of the heavy metals such as copper; in others, selenium compounds have been used, while in a third set of observations the therapeutic agent represents an attempt to combine the virtues of these two types of therapy by employing selenium in colloidal form. As an example of the first class, may be cited the cuprase of Gaube du Gers;³ of the second, the selenio-vanadic ointment of Roemer and the sulpho-selene of Walker; of the third, seleniol and electro-selenium.

Inasmuch as this new type of cancer therapy derives its origin, its justification and its support, in very

large measure, from the laboratory results obtained in animals, it is a matter of considerable importance to examine those results with care, in order to determine whether they furnish a satisfactory basis for human therapy, and whether they justify the hopes to which they have given rise.

It is safe to assert that the application of chemotherapy to the treatment of tumors practically dates from the publications of Wassermann. He stated the principle that a rational therapy of tumors must be based on constitutional treatment. It appears evident that local treatment can have only local effects. The lymphatic extensions of tumorous growths, and the often unsuspected metastases in distant organs must of necessity escape the effects of purely local treatment. Hence, Wassermann reached the conclusion that all treatment of cancer which was to be effective, and not merely palliative, must be carried to all parts of the body by means of the blood stream. He therefore introduced the use of intravenous injections in the experimental therapy of rat and mouse tumors. An accidental observation led him to believe that selenium was a substance possessing a high degree of affinity for tumor cells.

In order to insure the penetration of the tumor in the live animal by this substance, however, he considered it essential to combine it with some other highly diffusible substance. This type of substance, which was to act as a carrier of the selenium, he described under the name "cytotrochin," from the Greek word *τροχία*, meaning road. For this purpose he selected eosin. The eosin and the selenium were then combined by a method and in a form the details of which have never been published. All that we know of this preparation is contained in the statement that it is very difficult to produce, and that it is extremely unstable and difficult to keep. Mice can be given amounts of from 2 to 3 mg. of this substance in solution. Wassermann experimented with mice inoculated with transplanted tumors of the types of carcinoma and sarcoma. After from three to five intravenous injections of the drug, he notes that the tumors become softer and fluctuate. After still further injections the fluid mass undergoes absorption, and the tumor gives the impression of an empty sac. If it is possible to carry the injections up to the number of ten or twelve, recovery ensues. In such cured animals there remain only the unabsorbed portions of the fibrous capsule. Recurrences were not observed in the cured animals. Wassermann further stated that two spontaneous tumors in mice which had been treated by this method presented favorable results.

Wassermann's original presentation gave few experimental details, and has not been followed by the promised scientific report. From his article it is impos-

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* This critical discussion of the status of chemotherapy in tumors was prepared at the request of the Council on Pharmacy and Chemistry of the American Medical Association.

1. Wassermann, Keysser and Wassermann: *Deutsch. med. Wchnschr.*, 1911, p. 2389; *Berl. klin. Wchnschr.*, 1912, p. 4.

2. Neuberg and Caspari: *Deutsch. med. Wchnschr.*, 1912, p. 375. Neuberg, Caspari and Löhe: *Berl. klin. Wchnschr.*, 1912, p. 1405.

3. Gers, Gaube du: *La cuprase et le cancer*, Paris, 1913.

sible to determine what proportion of his animals were cured and what proportion failed to survive the treatment. From a later paper by Keysser⁴ we learn that by far the larger proportion of the animals perished during the treatment in the stage of softening, so that a cure was accomplished in from only 3 to 5 per cent. of the animals. This is a point of great importance, inasmuch as it furnishes an indication of the highly dangerous character of this mode of treatment. Fatal results are attributed by Keysser to the absorption of toxic products from the tumor. This contention, however, is supported by no observations, and it is certainly equally fair to assume that death results from the toxic effects of the compound. A microscopic study of tumors taken from animals undergoing treatment was made by Hansemann. He found that the death of the cells was the result of nuclear destruction.

Within a very few months of Wassermann's publication, Neuberg and Caspari² published a paper which was the first of a series of studies on the therapeutic effects of the heavy metals on the animal tumors. They used zinc, platinum, tin, selenium, copper, silver and cobalt in the form of certain complex organic compounds, the composition of which is not revealed. Owing to the fact that intravenous injections of these compounds produced a specific effect on the tumors, they are described as "tumoraffin" substances. Immediately after the intravenous injection of these preparations, there followed a marked hyperemia of the tumor, whereas the remainder of the mouse's body appeared markedly anemic. The hyperemia was often attended by hemorrhage into the tumor. This first stage was succeeded by liquefaction and absorption followed by recovery in favorable cases. The authors failed to state in what proportion of their experiments the animals died, and in what proportion recovery ensued.

The second paper on this subject is by Neuberg, Caspari and Löhe,² in which further details are vouchsafed. They state that with the compounds used by them the toxic and the therapeutic doses approximate very closely, from which it follows that the treatment, as with the Wassermann method, results in a very high mortality. Smaller doses produce no therapeutic effect; on the contrary, they seem to act as a stimulus to the tumor, accelerating the normal rate of growth. Spontaneous tumors show similar effects, but no cures are recorded. Only in tumors in which autolysis is active *intra vitam* does the method exert any effect. Consequently the benign primary tumors of animals, such as fibromas, are not influenced by it.

Neuberg and Caspari are to a great extent responsible for the colloidal theory of treatment in tumors. Accepting the observations of Petri and others that the autolytic ferments in tumors are quantitatively greater and qualitatively different from those present in the normal tissues of the body, they venture the assumption that the process of recovery in the experimental tumors of animals is due to the self-digestion of the tumor by these ferments. Ascoli and Izar⁵ had shown that such ferments are materially stimulated by the presence of metals, and more especially of metals in colloidal form. This contention is apparently in harmony with the well-established fact that certain colloidal metals of themselves are capable of

acting under certain circumstances as ferments. Neuberg and Caspari were at first of the belief that the compounds produced by them circulate in colloidal form. Subsequently they stated that these compounds were crystalline substances, but they assumed, under the influence of the theoretical consideration mentioned above, that these substances are broken up in the tumor and there undergo transformation into the colloid state.

In connection with the preceding observations there are certain other experimental results which require mention. Izar⁵ succeeded in curing rat tumors by means of injection of colloidal sulphur. C. Lewin⁶ cured subcutaneous mouse tumors with various preparations of gold. Werner and Szécsi⁷ produced similar results through a combination of selenium-vanadium with cholin-borate; in these experiments the selenium-vanadium was supposed to be present in colloidal form.

Within a comparatively brief period of time, therefore, it fell to the lot of a number of observers, using strikingly different substances, to produce therapeutic effects amounting in a certain percentage of cases even to cure in the experimental tumors of the lower animals. The various procedures have little in common. Both metals and nonmetallic substances have been employed either in colloidal form or in combination with organic radicals. In some instances a diffusible carrier is combined with the basic substances; in others not. All of the preparations appear to possess a high degree of toxicity, although adequate data on this very essential feature are almost invariably withheld.

Wassermann's results with eosin-selenium were soon critically examined by other observers. Uhlenhuth⁸ and Contamin⁹ were unable to confirm his observations, but their negative results are attributed by Keysser to the fact that they were not in possession of the proper formula for the preparation of the eosin-selenium compounds as used by Wassermann. Apolant,¹⁰ however, in Ehrlich's name confirmed Wassermann's findings.

The most important critique of eosin-selenium has been contributed by the subsequent investigations of one of Wassermann's original collaborators, F. Keysser.¹¹ Keysser's publication contains a large number of very careful observations on the various forms of eosin supplied by the German manufacturers, as well as on other matters which cannot here be considered in detail. He finally reached the conclusion that the eosin furnished by the manufacturing house of Sandoz was the most effective for his purposes, inasmuch as it combined the lowest grade of toxicity with the highest capacity for discoloring the tissues. The selenium, he used in the form of seleno-vanadium furnished by Clin of Paris, which was the identical preparation used by Werner and Szécsi in combination with borcholin. The maximum dose of this selenio-vanadium is 0.06 c.c. for each gram of mouse. Eosin, 0.01 gm., dissolved in 0.5 c.c. of physiologic salt solution, is mixed with 0.5 c.c. of the selenio-vanadium. This

4. Keysser: Wien. klin. Wchnschr., 1913, p. 1664.

5. Izar: Ztschr. f. Immunitätsforsch., 1913. Izar and Basile: Berl. klin. Wchnschr., 1913, p. 1312.

6. Lewin, Carl: Berl. klin. Wchnschr., 1913, p. 147; Berl. klin. Wchnschr., 1913, p. 541.

7. Werner and Szécsi: Ztschr. f. Chemotherap., 1913, Orig., i, 358. Szécsi: Ibid., ref., 1913, ii, 1060.

8. Uhlenhuth, Dold and Bindseil: Ref., München. med. Wchnschr., 1912, p. 1782.

9. Contamin, Detoef and Thomos: Bull. de l'assn. franç. pour l'étude du cancer, vi, 62.

10. Apolant, H.: VI Tag. der freien Vereinigung für Mikrobiologie., Berlin, 1912. Ref. München. med. Wchnschr., 1912, p. 659.

11. Keysser, F.: Ztschr. f. Chemotherap., 1914, Orig., ii, 188.

mixture is then used for intravenous injections. The results produced by the injection of this mixture are to all intents and purposes similar to those obtained by Wassermann, except that Keysser induced cure in a larger proportion of animals, namely, from 6 to 8 per cent. It is evident from his careful description of his experiments that the treatment is extremely toxic to the animals. The therapeutic dose is considerably greater than one-half the toxic dose. This accounts for the fact that an extremely large proportion of the animals perish during the course of the treatment. The tumors failed to be influenced unless the dose given fell very little short of the fatal amount. Moreover, in order to accomplish a complete cure, at least eight to ten injections must be given, and in some instances not less than fourteen.

Keysser's most important conclusions, however, were obtained by following an altogether different line of procedure. It had been pointed out by Carl Lewin⁶ that the therapeutic results obtained from subcutaneous mouse tumors, however encouraging, could not be logically applied to the treatment of human cancers. The subcutaneous transplanted tumors, as is well known, are as a rule limited by a distinct capsule and show no tendency to infiltrative growth. In this particular they present a most striking difference when compared with human tumors. On the other hand, the metastases of mouse tumors in the internal organs present an infiltrative mode of growth and thus approximate very much more closely to the human type of tumors. Keysser therefore determined to test the therapeutic effectiveness of his compounds on tumors implanted in various organs. He developed a technic which enabled him to implant tumors in the liver, the spleen, the kidneys and other parts of the mouse by means of injection through special needles, often without the assistance of a cutting operation.

The tumors so implanted grew rapidly, and within from two to three weeks reached the size of cherry pits. The growth was characteristically infiltrative. Animals with these tumors were then submitted to intravenous injection of the therapeutic agents in exactly the same fashion as the animals carrying subcutaneous tumors. The results, however, were absolutely different. Whereas the subcutaneous tumors invariably showed a much more intense discoloration than the other tissues of the mouse, this feature was entirely lacking in the case of the internal tumors. Softening and liquefaction, which almost invariably follows on the third or fourth injection in the case of subcutaneous tumors, and which is the first symptom of cure, never presented itself in the case of the internal tumors. Their consistency throughout the treatment was indistinguishable from that of the tumors of control animals. The treatment, in fact, appeared to exercise not the slightest influence on internal tumors. There was neither cessation nor retardation in growth, but the tumors continued their normal rate of destructive increase with the production of metastases, leading eventually to the death of the animal either during the course of the treatment or shortly thereafter. Microscopic changes, such as had been observed by Hansemann in the case of subcutaneous tumors, were entirely lacking. No matter in what organ the tumors were implanted, these results remained the same. No matter what type of tumor was employed, whether carcinoma, adeno-carcinoma or sarcoma, the therapeutic outcome was regularly and consistently nil.

These results induced Keysser to determine whether or not eosin-selenium could actually be shown to exercise a deleterious effect on cancer cells outside the body. In order to do this he made a suspension of mouse tumor cells in salt solution and mixed this with the eosin-selenium-vanadium, using the latter in amounts equivalent to three times the fatal dose for a mouse. After the mixture had stood from one to three hours, it was injected either subcutaneously or intravenously into mice in order to test the vitality of the cells. In every instance the injections resulted in the production of tumors which could be in no way distinguished from the tumors produced by untreated cancer cells. In other words, the therapeutic preparation had absolutely no effect on the tumor cells.

In the same way Keysser carried out experiments along the lines inaugurated by Neuberg, using a combination of glycocholl and copper. He also tested the combination of borcholin with selenium-vanadium used by Werner and Szécsi. He was able to confirm the fact that both of these substances produced an unmistakable therapeutic effect on subcutaneous tumors. On the other hand, they were absolutely without influence on the internal tumors. In this respect, therefore, they were entirely comparable with the eosin-selenium compound. The theoretical basis constructed by Neuberg, which rests on the assumption that the metallic compounds stimulate autolytic processes in the tumors, was also subjected by Keysser to destructive criticism.

Finally, Keysser showed that none of these therapeutic agents were effective even in the case of subcutaneous tumors, unless the latter had reached at least the size of cherry pits. If a therapeutic injection were made immediately after inoculation of the tumors, no effect was observed. The tumors grew exactly as in the controlled animals, and died in about the same period of time as they.

All of these facts, which taken together constitute a very remarkable and convincing piece of scientific investigation, permit of but one conclusion. It is quite clearly established that none of the preparations of which the therapeutic effectiveness has hitherto been proclaimed exercise any direct influence on the life or development of the tumor. Under certain very definite and restricted conditions, however, they do appear to produce certain changes in the tumors, and in a small proportion even cures. These results, however, are obtained only in the case of tumors which are subcutaneous in location and not smaller than a cherry pit in size. Keysser's interpretation of the striking differences between the effects observed in the subcutaneous and in the internal tumors is of interest in this connection. He believes that the constant palpation and examination of the subcutaneous tumors, which is prompted by interest in the experiment, produces circulatory changes with hyperemia and hemorrhage. These circulatory changes are responsible for the increased tendency of the injected substances to lodge in the tumors, thereby possibly increasing the tendency to autolysis which the circulatory changes have inaugurated. It is, of course, questionable whether this explanation can be regarded as final. In a series of experiments which I performed many years ago, I was able to show that sodium iodid when injected intravenously accumulates in tumors in larger amounts than in any other tissue of the body in rats. A similar observation has been recorded by Wells, de Witt and

Corper.¹² In the same way I found that various dyes, such as Congo red, when injected intravenously, could be demonstrated in tumors long after the rest of the body had recovered its normal color; the liver alone varied with the tumors in this respect. The dyestuff was invariably sharply localized in the necrotic portions of the tumor. The conclusion seemed obvious that, owing to circulatory conditions or possibly even to chemical conditions, the dye was retained longest in the necrotic parts of the tumor. This effect was unquestionably not due to handling, inasmuch as the animals in my experiments were not palpated from the time of injection until death.

I have, however, had an even more striking demonstration of the same fact. I have given intravenous injections of dyes to patients suffering with various forms of internal tumors, as, for example, cancer of the breast, in the hope of favorably influencing the growths. At operation, the picture presented by the tumor is striking in the extreme. It presents areas of various size which are intensely discolored by the dye. These areas, both to the naked eye and under the microscope, are the necrotic parts of the tumor. The actively growing areas of tumor tissue and all the normal tissues of the organ present their normal color. All of these observations lead to the conclusion that the necrotic areas in tumors either possess a higher affinity for sodium iodid and for the dyes than do the normal tissues, or that these substances are more slowly absorbed from the necrotic areas owing to the circulatory deficiency. Whichever of these explanations be accepted, it is quite reasonable to believe that necrotic areas might well undergo liquefaction under the influence of the various substances which have been used for therapeutic injection. Such a result is, of course, without direct effect on the growth or vitality of the living part of the tumor. This fact is quite clearly evidenced by the experimental data, which show that the internal portions of the tumor might undergo liquefaction and yet the tumors were not cured. Indeed, Löhe, who made microscopic examinations of the tumors treated by Caspari and Neuberg, states particularly, with reference to a tumor which had been subjected to treatment, that "the central portion of the tumor showed softening, while the external margin was composed of actively growing cells." The central portions of implanted tumors are, of course, those which first undergo spontaneous necrosis.

It still remains to explain the small percentage of cures achieved by Wassermann and by Keysser. It does not appear to me that this problem presents any insuperable difficulties. The fact must be emphasized that practically 95 per cent. of the animals die under the treatment, which sufficiently indicates the toxic effects of the agent used. We must remember that transplanted tumors are under all circumstances at a certain disadvantage as compared with the normal tissues of the body. After all, they are implanted on a foreign soil. Their blood supply is impoverished and imperfect. They have a natural tendency to undergo necrosis, and in many cases spontaneous retrogression. It is not strange, therefore, that they should prove in slight degree more susceptible to toxic effects than are the normal tissues of the body.

If we remember that the various therapeutic agents introduced in all probability reach a somewhat higher degree of concentration in the necrotic areas of the

tumor than in the normal tissues of the body, an assumption which is entirely in accord with the facts as observed in the case of sodium iodid and of various dyes, we may be quite prepared to believe that this factor is sufficient to induce the destruction of the marginal healthy and living cells of the tumor. The fact that small subcutaneous tumors were found by Keysser to be entirely refractory to the treatment is entirely in accord with this assumption, in view of the fact that tumors of this size present practically no central necrosis. The same explanation holds of the observation previously cited from Caspari that the primary spontaneous tumors of animals do not yield to the treatment. Indeed, he himself states that the treatment is effective only in tumors in which autolysis takes place during life. The word autolysis, however, in this connection is a misnomer and represents a gratuitous assumption; as an actual fact, one is entitled to say only that such tumors undergo central necrosis, in all probability owing to defective circulatory supply. The process is exactly similar to the coagulation necrosis described in the case of tubercles by Weigert. If autolysis occurs it is only secondary to the preceding necrosis.

This explanation, however, is confronted by the fact that the internal tumors produced by Keysser showed no tendency to effect a localization of the dyes, and correspondingly no tendency to be affected by the therapeutic agents. One might be permitted to inquire whether these internal tumors had undergone any necrosis. Keysser unfortunately makes no mention of this matter. It is certainly true that the infiltrative mode of growth of the internal tumors, which is entirely different from that of the subcutaneous implantations, is associated with a much better blood supply and a lessened tendency to undergo necrosis. That such tumors can undergo necrosis, however, is evidenced by certain illustrations given by Carl Lewin in his paper on internal tumors. But such changes usually occur only in advanced stages. To judge from his plates, Keysser worked with relatively small tumors, an assumption which is rendered even more likely by the fact that his injections were undertaken in a fairly early stage of their growth. In this connection I may quote certain experiments of my own on internal tumors.* The implantations made in my experiments were produced by intravenous injections of a tumor suspension into the jugular vein of rats. Such injections resulted almost invariably in the production of a large number of tumors in the lungs, which, as is well shown in the figures accompanying the original article, differed very markedly in size. The smaller of these tumors are composed throughout of actively growing cells, while the large tumors present an area of central necrosis exactly as do the subcutaneous tumors. If such an animal be given an intravenous injection of a dye such as Congo red, it will be found that the larger tumors present an area of central discoloration corresponding to the area of previous necrosis, while the smaller tumors, like the normal tissues, are not colored. Thus, it is clear that the internal tumors implanted in animals are subject to the same laws concerning the distribution of dyes and, of course, other substances as are the subcutaneous tumors. As I have stated previously, an exactly analogous observation has been made in a human breast tumor. In the absence of any contradictory evidence, therefore, I think that it is perfectly justifiable to

12. Wells, H. G., De Witt, and Corper: *Ztschr. f. Chemotherap.*, 1914, Orig., ii, 110.

* *Jour. Med. Research*, 1913, p. 497.

assume that Keysser failed to achieve a result in the internal growths simply owing to the fact that those growths presented practically no areas of necrosis at the time of his injections.

Another theoretical question which bears closely on the recent therapeutic investigations in human beings concerns the rôle of colloids as such in the procedure. It is quite clear from what has already been said that all experiments with animal tumors have been largely influenced by the belief that metals in the colloidal form exercise a peculiar and characteristic influence on the destruction of tumors. Even where the therapeutic agents have been introduced in crystalline form, as by Neuberg and Caspari, the authors find themselves compelled to assume that the metals are reduced to colloidal form within the tumors. For the latter assumption there is absolutely no evidence; it is due simply to the influence of the colloidal theory. If one critically examines the data on which this theory is based, one is forced to the conclusion that it has practically no established claim to validity. If we grant that colloidal metals have been shown to stimulate autolysis in the test tube, the same fact must be admitted of metals in noncolloidal solution. The experiments, however, are very far from establishing either of these facts satisfactorily. But even were this the case, it is an unjustifiable inference that living tumor cells would be influenced in anything like the same manner as are the dead cells observed in test-tube experiments. As an actual fact, we know from the work of Evans and Schulemann that only the "scavenger cells" of the body take up foreign colloids, and to this class the tumor cells do not belong. Moreover, the form in which metals are introduced into the circulation is not necessarily or even probably the form in which they act on the tissues. Colloidal solutions of the metals are certainly subject to precipitation and other changes on entering the blood. This fact I have shown experimentally in a previous study on colloidal copper.¹³ In the same way it is probable, as has been pointed out by Wells, that metals when introduced in crystalloid form may rapidly be altered so that they are carried throughout the body in colloidal form. All of these considerations indicate how unjustifiable is the assumption that colloidal metals exercise a peculiar action on growing tumors. It is hardly surprising that their empiric use has failed to measure up to expectations based on so slim a foundation of fact.

CLINICAL OBSERVATION

Clinicians have not been slow in following the lead suggested by the therapeutic experiments in animals. It is perfectly proper that this should be the case. In dealing with a disease of the character of cancer, in many instances entirely beyond our power to influence, no one can question the advisability of trying any and every agent which holds out the slightest promise. Unfortunately a closer analysis of the animal experiments fails to vindicate even that degree of faith. When one considers the facts which have been analyzed in the preceding discussion, it would appear not only futile but actually dangerous to attempt to benefit cancer sufferers by means of any of the agencies which have been employed in animal experimentation. Nevertheless, the fact remains that a variety of preparations have been used in the human clinic. The various

types of preparations may be satisfactorily grouped under four classes, namely:

1. The crystalline salts of selenium.
2. Selenium in colloidal solution.
3. Other metals in colloidal solution.
4. Compounds of metals with organic radicals.

These substances have been administered by injection or by the mouth. In the case of injection, the injections have been made either into the subcutaneous tissues, intramuscularly, or intravenously, or finally, directly into the tumors. Before passing to a further consideration of this subject in detail, it may be well to recall the fact that in the experimental tumors of animals, no matter what preparation has been used, it has been possible to accomplish therapeutic effects only by the use of relatively enormous doses of the medication, of doses, in fact, which were scarcely lower than the lethal dose. Certain experimenters have noted that smaller doses actually stimulated the growth of the tumors. In the second place, it has almost invariably been found necessary to administer the treatment intravenously, inasmuch as the other modes of administration failed of therapeutic effect. It is quite apparent that a procedure in human beings in any degree analogous to that pursued in animals is entirely impossible. The doses used, with one notable exception to be subsequently mentioned, have invariably been relatively small. Hence it is apparent at the outset that at least one fundamental condition of success in the treatment of animal tumors has been necessarily excluded in the clinical applications.

The salt used by Wassermann is not stated in his original publication. Wolff¹⁴ speaks of it as a sodium salt, whereas Keysser says that it was a combination with potassium cyanid. In only one instance, as far as I am aware, has the sodium salt been used therapeutically in human beings. Delbet¹⁵ states that he employed this salt intravenously in one case, and that its use was shortly followed by death. Unquestionably the salts of selenium are very much too toxic to be used in this way.

The majority of those who have worked with selenium have used it in colloidal form, either preparing it themselves or employing one of the preparations put on the market by the pharmaceutical firms. Of the latter the best known are the electro-selenium of Clin, and the Seleniol of Couturieux. Of those who have made use of selenium in these forms may be mentioned Cade and Girard,¹⁶ Bougeaut and Galliot,¹⁷ Blumenthal,¹⁸ Thioloix and Lancien,¹⁹ Delbet, Laurent and Bohec,²⁰ and most extensively of all, M. Touche.²¹ All of these authors have described cases of malignant new growths of the most varied character which were treated by these preparations.

The results obtained are fairly concordant. The intravenous injection of the preparation produces but slight disturbance. There is leukocytosis, a moderate rise of temperature, and not infrequently a chill. Otherwise the substance seems to possess no toxicity.

14. Wolff: Die Lehre von der Krebs Krankheit, iii, b, 1913.

15. Delbet, P.: Bull. de l'Assn. franç. pour l'étude du cancer, 1912, v, 121; *ibid.*, 1913, vi, 85.

16. Cade and Girard: Bull. Soc. méd. d. hôp. de Lyon, 1912, xi, 397.

17. Bougeaut and Galliot: Clinique, Paris, 1912, vii, 501.

18. Blumenthal, A.: Jour. méd. de Bruxelles, 1912, xvii, 325; *Presse méd. belge*, 1913, lxxv, 919.

19. Thioloix and Lancien, A.: Bull. et mém. Soc. méd. d. hôp. de Paris, 1912, xxxiii, 197.

20. Laurent, M., and Bohec, J.: Med. Press and Circular, 1912, xciv, 461.

21. Touche, M.: Bull. et mém. Soc. méd. d. hôp. de Paris, 1913, xxxv, 451.

13. Weil, Richard: The Effects of Colloidal Copper with an Analysis of the Therapeutic Criteria in Human Cancer, *THE JOURNAL A. M. A.*, Sept. 27, 1913, p. 1034.

The effects produced on the tumors have almost invariably been described as encouraging. Touche, who treated twenty-seven cases in this way and has described each case in detail, states that under the treatment the surface of the tumors, if ulcerated, became cleaner and healthier; the tumors became softer; the rate of growth was arrested, and there was relief of pain and of the accompanying functional disturbances; often, too, there was a gain in weight and an improvement in general wellbeing.

Touche concludes his article with the statement that "it is certain that the effect is not curative, but it is actually palliative." Delbet, on the other hand, states that he has seen no beneficial effects from the use of colloidal selenium injected intravenously. In the discussion on Delbet's paper, Ledoux-Lebard states that he has observed nothing from selenium further than the temporary improvement which is shown by almost all cancer cases on the application of any new therapeutic measure. In one or two instances the claim is made in the literature of an actual cure of malignant growth through the use of selenium. Such for example is the case described by Blumenthal. From the clinical description this might have been a cancer of the tongue, and was judged to have been such in view of the negative Wassermann. No microscopic examination was made. Salvarsan was given. The patient recovered. It is clear that instances of this type cannot be accepted as beyond criticism, and it is safe to say that nothing more convincing in the way of actual cure is offered in the rather voluminous literature on the use of selenium.

Numerous compounds of selenium, some of them claiming to circulate in colloidal form, have been described, and have been put on the market for use in malignant disease. Such are Walker's sulpho-selene, and selenio-vanadium, which has been prepared in the form of an ointment by Schering and Glatz. These preparations lay claim to the same palliative effects which have been previously described for colloidal selenium.

Of the other metals in colloidal form, chiefly silver and copper have come into use. Colloidal silver was first recommended for malignant growths by Vogel. It is obtainable on the market in proprietary form under the name of fulmargin, and also as electrargol. Recently Rohdenburg²² has made a careful study of the effects of colloidal silver in experimental and in human tumors, and finds that they have no value. Colloidal copper has been used in recent times for the same purpose by Gaube du Gers and by others. I have recently examined the effects of colloidal copper on malignant tumors in man, and have been unable to find that it has any therapeutic value. Furthermore, a study of the distribution of the copper in tumors obtained at operation or by necropsy from individuals so treated failed to show that the copper had been deposited therein.

Finally, preparations similar to those used by Werner and by Caspari in animals have also been used in human beings. In these cases also the authors have been able to record palliative effects on the tumor, but in no instance cures.

We have seen that it has been quite impossible to duplicate in human beings the therapeutic technic employed in animal experiments. We have seen further that the use of a modified technic in animal

experimentation has never been productive of favorable results even at the hands of enthusiastic adherents. In striking contrast to these conclusions are the observations made in human therapeutics. For every type of preparation described in the preceding paragraphs, the claim has been made practically without exception that it exercises a markedly beneficial effect on malignant disease in the human being. Not only are the subjective symptoms alleviated, but also the tumors appear to become cleaner and softer; the rate of growth is retarded; necrosis and metastasis are prevented, and inoperable tumors become operable. How are we to interpret these observations? How are we to explain the fact that they are the almost invariable accompaniment of the most diverse methods of treatment? I have already quoted the statement of Ledoux-Lebard that every therapeutic novelty appears to exercise a favorable effect on cancer cases. The same fact has been observed in a variety of other diseases, such as locomotor ataxia.

In order to arrive at a safe and reliable estimate as to the value of any new or experimental procedure in cases of cancer, it seems advisable to accept certain definite therapeutic criteria by which the cases are to be judged. In the absence of such a method, alterations in symptoms which are actually of no real value or importance receive undue emphasis. The natural course of the disease is associated with such fluctuations that a sanguine therapist can gain some encouragement from even the most hopeless cases. Hence it follows that every mode of treatment has found adherents. The market is flooded with cancer drugs, and cancer charlatans flourish in the most highly educated communities. Unfortunately even well trained, honest and reputable physicians have fallen victims to this fallacy, and have lent their names to the support of modes of treatment which in reality produce no determinable effect on the natural evolution of the disease. It was the desire to combat this unfortunate tendency which led me some time ago to attempt to establish a reliable set of criteria of therapeutic effects in cancer. These were embodied in an article¹³ which appeared two years ago, and I may be here permitted to quote them *in extenso*:

CRITERIA OF THERAPEUTIC EFFECTS

In determining the effects of any given mode of treatment on a tumor, a variety of criteria may be relied on. Circulatory changes in the tumor, the relief of pain and the restoration of a secondarily impaired function are certain of the criteria on which stress has been laid by the majority of observers in the past. Important as are these criteria in determining the progress of purely inflammatory processes, it is unquestionable that their value in judging of the effects of therapeutic methods when applied to malignant disease is open to criticism. It is a curious and interesting fact that almost every therapeutic claim made in recent years in connection with cancer has included among its virtues the relief of pain. This is true of vaccination with cancer tissue, of Hodenpyl's method and of many others. In view of this very general effect, not much stress can be laid on this symptom, and it is probably fair to assume that in the great majority of these cases the result is in no small measure psychic. The improvement of function is also largely a subjective phenomenon, and as such requires most careful criticism. Osler relates that he has known a patient with gastric cancer to be relieved of digestive disturbances and to gain 18 pounds in weight as the result simply of the visit of a sanguine consultant who denied the presence of a tumor. Improvement in the ability to chew food, to articulate words or to move a limb are phenomena familiar to those who attempt to treat cases of cancer. The victims of this disease

22. Rohdenburg, H.: Jour. Med. Research, 1915, xxvi, p. 331.

seem to be in a very high degree "suggestible" and impressionable and respond nobly to every therapeutic effort.

Circulatory changes in tumors offer an interesting group of clinical symptoms. The observation has often been made, especially in ulcerated new growths, that treatment is associated with swelling, peripheral hyperemia, and an altered character of the discharge. In spite of the fact that there is no reasonable relationship between this congeries of symptoms and the actual cure of the tumor, they generally receive considerable emphasis and are cited as an indication of the specific local action of the agent employed. It is also true, however, that the growth may continue to advance in spite of their presence. It is of some importance to inquire into the mechanism which produces these circulatory changes and into their clinical interpretation. It is a well-known fact that many drugs, when introduced into the body either by the mouth or through the skin, are excreted not only by the normal channels of elimination, such as the kidney or the intestine, but also from such ulcerated surfaces as may be present on the body. This is easily shown to be true, for example, of certain of the anilin dyes, which, when introduced by way of the veins, produce an intense discoloration of the dressings over ulcers. It is likewise true of certain of the metals, such as arsenic. In order to understand the series of events previously enumerated it is therefore only necessary to assume that the therapeutic agent is excreted from the ulcerated surface of tumors. If an irritant, it will tend to produce hyperemia of the margins of the ulcer, and an increase of the secretions. If an astringent, however, it may produce just the opposite of these effects. Such a result, however striking, is purely accidental, and has no necessary bearing on the growth or destruction of the tumor itself. It constitutes a symptom on which no reliance should be placed.

Excluding from consideration all of these secondary factors, we may conclude that the observation of the size of the tumor itself is the sole criterion on which we can place reliance in judging of the effect of therapeutic measures. This implies, in the first place, that a tumor must be accessible to fairly accurate measurement. Tumors of the uterus, for example, and intra-abdominal growths will only exceptionally fall into this class. In the second place, indirect evidence of a decrease in the size of tumors, such as is afforded by the increased permeability of obstructed passages, as in the case of tumors of the esophagus, pylorus or intestine, must be accepted only with great reserve. Remissions in the obstructive symptoms characteristic of such tumors are a frequent feature of the normal evolution of the clinical history of such growths. The relief of obstruction, however, may be due either to necrosis of the obstructing portions of the tumor, while the remainder continues to grow progressively, or to a relief of the accompanying muscular spasm. Finally, evidence of decrease afforded by the roentgenogram is not sufficiently exact in most cases to afford ground for so important a conclusion as that at present in question.

Not only must there be unquestionable evidence, however, of the diminution in size of the tumor, but this diminution must be of a kind not ordinarily attributable to the natural evolution of the tumor. . . . It is safe to say that multiple tumors offer enormous difficulties in the matter of interpreting therapeutic results. At present we have in the wards of the hospital a patient with multiple metastatic carcinomas of the skin. For several months we have at intervals made accurate measurements of certain of these tumors and have found that some have undergone retrogression, others have entirely disappeared, while still others have continued to grow steadily. In the case which afforded the ascitic fluid used in Hodenpyl's experiments, many of the lymphatic metastases underwent complete retrogression, while the metastatic process in the liver, as was demonstrated at necropsy, increased progressively, and ultimately almost destroyed that organ. Thus, in multiple carcinoma, the retrogression of individual nodules is no indication that therapeutic intervention has produced an improvement.

I shall not delay to emphasize those variations in the size of solid tumors which accompany hemorrhage and its absorp-

tion, edematous swelling, necrosis in the depths, and other familiar factors which clinically simulate, or induce, the softening and the reduction that are so often attributed to therapeutic interference. But it is important to draw attention to a similar feature in that type of superficial epithelioma known as rodent ulcer. These new growths not infrequently advance at one point of the periphery, while they recede at another, and thus cicatrization and contracture may simulate a partial recovery. This effect is due in part to alterations not in the growth itself, but in the accompanying ulcerative process. The secretions from the growths, especially if confined under dressings, may have eroded and destroyed the surrounding skin, and it is tempting to interpret a recession of the associated ulcerative disease as an indication of a favorable effect on the new growth. It is unquestionably this aspect of rodent ulcers which plays so generously into the hands of the numerous nostrum venders for this disease.

In brief, the demonstrable reduction in size of a tumor, of a kind not to be attributed to the natural processes of evolution of that tumor or of its associated lesions, is the one essential feature of effective therapeutic intervention.

When the various methods of treatment which have been discussed in this paper are judged by the standard advocated above, it is apparent that none of them can lay claim to therapeutic effectiveness. The modifications of the disease attributed to them are modifications which occur spontaneously in a very large proportion of cases as a result of the natural evolution of the disease process. This is a fact which cannot be too strongly emphasized. Owing unfortunately to the hopeless character of cancer, men are not prone to study with care all the lesser changes which the disease and the patient present under ordinary conditions; but when a "cure" is under investigation, the patient and his medical attendant note every apparent improvement with painstaking attention and enthusiasm. As a result, some evidence of improvement in treatment is entered on the books.

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THE SIGNIFICANCE OF BACILLUS COLI IN PASTEURIZED MILK *

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The presence of *Bacillus coli* or of any other non-sporulating gas producer in pasteurized milk is usually taken to indicate either improper pasteurization or subsequent contamination of the milk. For according to most authorities the thermal death points of *B. coli* and similar organisms are below the temperature of pasteurization. Thus Kolle and Wassermann¹ give the following summary of the various findings for *B. coli* up to the year 1903:

C Minutes		
62-63	1	} Von Geuns
59	5	
60	15	} Kitasato
60	10	
60-61	5	} Weisser
59	15	
55-60	120	} Chantemesse and Vidal
		Fränkel

However, more recently De Jong and De Graef² have described seven strains of *B. coli* which survive 65 to 67 C. (149 to 152.6 F.) for thirty minutes in milk or broth. These strains would not be killed by the degree of heat commonly used in pasteurization and

* From the Laboratory of Bacteriology and Hygiene, Johns Hopkins University.

1. Kolle and Wassermann: Handb. d. Path. Mikroorg., 1903, ii, 385.

2. De Jong and De Graef: Quoted by Rullmann, Centralbl. f. Bakteriöl., Part 2, 1914, xli, 269.

in consequence the presence of *B. coli* in pasteurized milk could no longer be taken as an index of improper pasteurization or subsequent contamination.

With the object of confirming these observations I examined samples of the various brands of milk pasteurized in Baltimore, twenty-two in all, and with one exception succeeded in isolating some aerobic, non-sporulating gas producer from every sample. Thirty-one strains were recovered along with thirteen strains from unpasteurized milk of excellent quality and their thermal death-points were determined.

The method employed was to transfer by means of a sterile pipet 1 c.c. of the milk from below the cream line to 2 per cent. dextrose broth in a fermentation tube. Then the milk in the original container and the fermentation tube was incubated. The following day gas usually would appear in the fermentation tube. From this preparation and from the cream on top of the milk specimen plates of dextrose-litmus agar were made. After from twenty-four to forty-eight hours incubation red colonies were replated, recovered and identified.

In this way there were isolated from the cream of the pasteurized specimens two strains of *B. coli communis*, one strain of *B. coli communior*, one strain of *B. coli communis immobilis*, two strains of *B. cloacae*, one strain of *B. coli liquifaciens*, and five of *Bact. aerogenes*. From the milk were recovered five strains of *B. coli communis*, four strains of *B. coli communior*, one strain of *B. coli communior immobilis*, seven strains of *B. cloacae*, and two of *Bact. aerogenes*. From the unheated milk were isolated four strains of *B. coli communior* and one of *Bact. aerogenes*, and from the unheated cream eight strains of *Bact. aerogenes*.

The majority of these organisms gave typical reactions in the usual culture mediums and could be identified easily. However, three strains of *B. cloacae* gave no gas or acidity in lactose broth when isolated, but later acquired this power. In addition, many of the cultures of *B. coli* showed no motility even in six-hour broth cultures when first recovered. But after about three months' artificial cultivation the greater number acquired this power and in young broth cultures showed violent motility. In two strains, however, no independent movement was ever observed. Yet they show no capsule when stained by the same method which was employed successfully in demonstrating the capsules of the various cultures of *Bact. aerogenes* isolated. In consequence these two strains could be identified neither as *Bact. acidi lactici*, *Bact. aerogenes*, nor *B. coli*, but resembled rather the *B. coli immobilis* of Germano and Maurea with which they were classed.

As soon as recovered and identified as gas producers, the various cultures were tested roughly as to their ability to withstand a temperature of 60 C. (140 F.) for fifteen minutes. The method employed was to transfer the organisms to peptone solution in test tubes and immediately heat in the water-bath for fifteen minutes. Then the tubes were cooled rapidly and incubated. At the end of from twenty-four to forty-eight hours turbidity indicated survival. Transfers were then made to dextrose broth in fermentation tubes and gas formation after incubation was taken to mean the survival of the organism tested. In my experience this method is inaccurate and misleading, but it has the advantage of being easy to accomplish and was used in this work merely to divide

the organisms into two classes, one capable of surviving 60 C., the other killed by this temperature.

Of the thirty-one strains of gas producers recovered from pasteurized milk, eleven survived this process, twenty were killed. None of the thirteen strains isolated from unheated milk survived. Of the eleven strains which 60 C. failed to destroy, four were classed as *B. coli communis*, three as *B. coli communior*, one as *B. coli communior immobilis*, two as *B. cloacae*, and one as *B. coli liquifaciens*. Seven of these cultures were recovered from the milk, four from the cream.

As a control to these results about 10 c.c. of each specimen of milk examined was transferred by means of a sterile pipet to a sterile test-tube and heated in the water-bath for fifteen minutes at 60 C. This preparation was incubated and on the following day 1 c.c. was transferred to dextrose broth in the fermentation tube in an effort to recover *B. coli*. No gas was produced by this means in the dextrose broth however, and no culture of *B. coli* could be recovered from the milk so heated in the laboratory.

On the completion of the preliminary work the thermal death-points of the various cultures were determined in the following manner adapted from the method of Sternberg:³

First, small test-tubes were procured with a diameter just sufficient to admit the ordinary glass rod used in transferring. In these tubes bulbs were blown capable of holding about 2 c.c. Then they were filled with Dunham's peptone solution, corked with cotton, and sterilized in the autoclave. When cooled they were inoculated from twenty-four hour agar cultures of the strains to be tested. No definite amount of the organism was transferred, but roughly as much as could be taken conveniently on the end of the platinum wire. These preparations were sealed by melting the glass mouths in the flame of the Bunsen burner. Next they were weighted and immersed deeply in a water bath heated to the desired temperature. They were kept in this fashion fifteen, and in some cases, thirty minutes, and then were immersed in cold water. When cooled the ends of the tubes were filed and broken and the contents expelled into test-tubes of sterile litmus milk by means of gentle heat applied to the bulb. The milk tubes were incubated and on the appearance of acidity transfers were made to dextrose broth in fermentation tubes. The evolution of gas in these was taken usually to indicate the survival of the original culture tested, but in the case of those strains showing high thermal death-points the organisms were recovered from the milk and identified. Two thermometers were used in the experiments, one touching the bottom of the water-bath in contact with the bulbs; the other suspended in the water. The Bunsen burner used was kept with a small flame and was placed at the side away from the bulbs. In spite of these precautions Sternberg's limit of error of two degrees was taken as a fair figure.

The various strains first were tested at 60 C. for fifteen minutes. Those surviving this process were subjected to 61 C. for fifteen and thirty minutes, and then at each experiment the temperature was raised one degree until none survived. Those killed by 60 C. were subjected to decreasing degrees of heat for fifteen minutes until all survived this treatment. In this way the following results were obtained:

3. Sternberg: Text-book of Bacteriology, New York, William Wood & Co., 1892, p. 147.

STRAINS FROM PASTEURIZED MILK

	Thermal Death-Point, C.	
	15 Minutes	30 Minutes
B. coli communis		
Strain 30	+ 66-67	+ 62-63
Strain 6	+ 65-66	+ 63-64
Strain 11	+ 65-66	+ 63-64
Strain 12	+ 62-63	+ 60-62
Strain 26	+ 58-59	
Strain 2	+ 57-58	
Strain 14	+ 57-58	
B. coli communis immobilis		
Strain 1	+ 57-58	
B. coli communior		
Strain 29	+ 67-68	+ 64-65
Strain 16	+ 64-65	+ 62-63
Strain 34	+ 64-65	+ 62-63
Strain 7	+ 59-60	
Strain 13	+ 58-59	
B. coli communior immobilis		
Strain 33	+ 63-64	+ 62-63
B. aerogenes		
Strain 4	+ 59-60	
Strain 8	+ 59-60	
Strain 19	+ 59-60	
Strain 20	+ 59-60	
Strain 27	+ 59-60	
Strain 31	+ 59-60	
Strain 28	+ 58-59	
B. cloacae		
Strain 18	+ 63-64	+ 60-62
Strain 10	+ 60-61	— 60
Strain 9	+ 59-60	
Strain 17	+ 59-60	
Strain 15	+ 57-58	
Strain 32	+ 57-58	
Strain 5	+ 54-55	
Strain 21	+ 53-54	
Strain 25	+ 53-54	
B. coli liquifaciens		
Strain 22	+ 60-61	— 60
From Unheated Milk		
B. coli communior		
Strain 109	+ 58-59	
Strain 112	+ 56-57	
Strain 104	+ 54-55	
Strain 114	+ 54-55	
B. aerogenes		
Strain 105	+ 59-60	
Strain 115	+ 59-60	
Strain 108	+ 58-59	
Strain 107	+ 57-58	
Strain 103	+ 56-57	
Strain 111	+ 56-57	
Strain 113	+ 56-57	
Strain 106	+ 55-54	
Strain 110	+ 55-54	
Control		
Stock B. typhosus	+ 54-55	

SUMMARY

Of the thirty-one strains of various gas producing aerobes isolated from pasteurized milk, eleven possessed a thermal death-point above 60 C. for fifteen minutes. Three of these survived 63 C. for thirty minutes and three others survived 62 C. for the same length of time. One strain, identified as *B. coli communior*, possessed a thermal death-point of 68 C. at

fifteen minutes and 65 C. at thirty minutes. This was the most resistant strain of *B. coli* recovered. The least resistant in this group were two cultures obtained from unheated milk which were killed by an exposure to 55 C. for fifteen minutes. The highest thermal death-point of *B. cloacae* was found to be 64 C. for 15 minutes, 62 C. for thirty minutes. The lowest belonged to two strains which originally failed to ferment lactose broth but which later acquired this power. These cultures were killed on being subjected to 54 C. for fifteen minutes. No culture of *Bact. aerogenes* isolated survived 60 C. for fifteen minutes. Different strains of this organism varied comparatively little in regard to their thermal death-points. All those recovered from pasteurized milk were killed by 59 or 60 C. for fifteen minutes. Two strains from unheated milk failed to survive 56 C. for the same length of time.

CONCLUSIONS

1. As observed by De Graef and De Jong, certain strains of *B. coli* are not killed by a temperature exceeding that commonly used in pasteurization.
2. The thermal death-point of this and similar organisms is not a constant quantity but varies for different strains of the same bacterium. In the case of *B. coli communior* this variation was found to be as great as thirteen degrees.
3. The presence of *B. coli* in pasteurized milk cannot be taken as an index of its improper pasteurization or subsequent contamination.

THE SMALL HEART IN TUBERCULOSIS

A SUGGESTED PHYSIOLOGIC EXPLANATION

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The small heart, often found in tuberculosis, has long been looked on as being a predisposing factor in this disease. That small hearts and hearts smaller than normal are common in tuberculosis, and this, in early as well as late tuberculosis, seems to be well-established. Ordinary methods of examination, as well as orthodiagraphic records of excellent observers,¹ prove this to be a fact.

It will be recalled that Brehmer,² the founder of modern phthisiotherapy, being convinced by the researches of Louis, Rokitansky and Beneke that the small heart was a predisposing cause of tuberculosis, founded his method of treatment on the idea that the cure of the disease could best be furthered by strengthening and increasing the capacity of the small heart. Exercise, particularly graduated hill climbing, was a very important part in his program.

The small heart in tuberculosis has been accounted for by Martius³ as being due to constitutional weakness and as being associated with narrowing of the arteries. Grödel¹ says that it is an expression of malnutrition. He also says that the small heart is found in those suffering from enteroptosis and particularly those having narrow chests. If the small heart is found in tuberculosis, enteroptosis and those having narrow chests, it is well to make inquiry in order to find out whether or not there are factors affecting the

1. Grödel: Lehman's Med. Atlanten., München, 1909, vii.
2. Brehmer: Die Etiologie der chronischen Lungenschwindsucht, 1885.
3. Martius: Pathogenese innere Krankheiten.

circulation which are common to these three conditions, and to see if such factors could in any way alter the size of the heart.

That not all persons with small hearts develop tuberculosis is evident. Then it is necessary, if we are to maintain the theory that the small heart is a predisposing factor to tuberculosis, to explain why it is predisposing in one individual and not in another.

My conception of clinical tuberculosis is that it is a pure accident. Practically every one is infected with tubercle bacillus, as is shown by both clinical observation and pathologic examination. Whether the disease shall go on to an immediate active disease or assume a quiescence, at least temporarily, is largely a matter of suitability of the soil (whatever that may mean) and the size of the dose of inoculating bacilli. Whether the disease, which quiets for a time, shall ever become active again, or remain quiescent, or heal, depends on factors which we do not understand, although the number of bacilli in the inoculation is probably a factor. That the bacilli do multiply and form metastases in and about the apices of the lungs of a large portion of adults is now well known. This amounts to 63.4 per cent. of Hart's series of cases and 71.2 per cent. of Naegeli's. Whether this metastatic infection shall take on itself activity and produce clinical pulmonary tuberculosis does not necessarily depend on an undernourished condition, for the well-nourished and those of stocky build are often victims of clinical tuberculosis. The small heart theory of the cause of tuberculosis was propounded long before the bacillus was discovered, but its disappearance has been exceedingly slow even though we now know the disease to be an infection. We know the infection is not a result of the small heart, for practically all have it, and it would be exceedingly difficult for us to show a definite causative relationship between the active clinical disease and the small heart. It does not seem rational that the size of the heart should be the determining factor in these cases.

It seems to me that a more rational explanation of the small heart in tuberculosis is that it is a result of compensatory circulatory changes; and that this is probably correct is suggested by the fact that the same small heart is found in enteroptotic individuals.

This explanation is based on well-known physiologic facts. The most important direct forces in the circulation of the blood are the impetus given the column of blood by the heart during systole and the elasticity of the vessel walls. The most important accessory mechanism is the pumping effect on the returning blood exerted by the inspiratory enlargement of the thoracic cavity. Every inspiration increases the negative pressure within the thoracic cavity, dilating the large veins and heart chambers. The amount of dilatation depends on the length of the inspiration and the degree of expansion of the lungs. There is no other mechanism that can take the place of this accessory action of the inspiratory act in its effect on the circulation. If inspiration is interfered with, the suction action on the intrathoracic vessels will be lessened and a diminished amount of blood will be delivered to the heart in a given time. The result of this is a consequent decrease in the total content of blood in the chambers of the heart and a decrease in the output of blood at each systole, which results in a relatively small amount of blood in the arteries and a damming back of blood in the systemic veins.

This condition is found in tuberculosis, and also in enteroptosis and other conditions which interfere with the contraction of the diaphragm and consequently with the freedom of the inspiratory act. Such patients have a relative arterial anemia and appear pale in consequence of it. On the other hand, they have an excessive amount of blood in the veins, particularly the splanchnics and the liver.

The heart usually delivers from 50 to 100 c.c. of blood at each contraction. In order for a given heart to deliver the normal amount of blood at each systole, the circulatory system must be in perfect functioning condition. The heart and arteries must be in a state of perfect compensation, and an adequate amount of blood must be delivered into the right auricle.

Inasmuch as this delivery of blood to the heart depends on a normal inspiratory expansion of the chest, any disturbance in the inspiratory act will decrease the amount of blood sucked into the heart, and if the heart and vessels are not able to compensate for this in some manner, there can be but one result, a lessened amount of blood in the chambers of the heart and a lessened amount delivered at each contraction.

Since the conditions which interfere with inspiration in tuberculosis are constant, at least extending over a long period of time, the heart must adapt itself to a smaller intake, a smaller content and a smaller output of blood for a like period. If the circulation is properly balanced, each chamber of the heart contains the same amount of blood, and the result is that by adapting itself to this smaller quantity of blood the heart must, of necessity, become smaller itself.

That the heart is an organ which adapts itself to various conditions there can be no doubt. Moritz⁴ has shown that there is a decided reduction in the size of the heart in the standing as compared with the reclining position. He has shown this in animals as well as man. Common observation shows the heart as enlarging and decreasing in size under pathologic conditions. We are justified in believing that any constant factor or any factor extending over a prolonged period of time which decreases the amount of blood delivered to and consequently the total amount of blood contained within the cavities of the heart at any one time would be met by a compensatory contraction of the organ as a whole. This is the condition in tuberculosis and enteroptosis. This may also account for the reduction in size of the arteries in the same conditions, as noted by certain pathologists.

The factors which interfere with the full expansion of the thoracic cavity come early in tuberculosis. They may be either the changes in the pulmonary tissue itself or the pleural adhesions which are often present (these are more potent factors as the disease progresses) or the reflex motor disturbance of the muscles of inspiration, particularly the diaphragm. Later these factors are exaggerated and others enter.

It seems logical that these hindrances to inspiration might produce:

1. A diminution in the size of the heart.
2. A diminution in the size of the arteries.
3. A relative arterial anemia with its consequent (a) lowering of blood pressure; (b) apparent anemia, which examination fails to confirm, and (c) congestion of systemic veins, particularly those of the abdominal organs.

4. Moritz: Ueber funktionelle Verkleinerung des Herzens, München. med. Wehnschr., 1908, No. 14.

THE PHYSICIAN'S RESPONSIBILITY IN
ACUTE OSTEOMYELITIS *

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For twenty odd years the surgeon has been scolding the physician for his tardiness in recognizing and promptly referring for surgical treatment such diseases as appendicitis, gastric and duodenal ulcer, tuberculosis of the kidney, cancer of the stomach, perforating typhoid ulcer and ectopic gestation. There have been three reasons for the justification of the physician's tardiness. The first is that the disease is often difficult to recognize. The second reason is that many of these patients recover under medical treatment. The third reason is that some do badly under surgical treatment. This is a combination of circumstances hard for surgery to contend against.

Acute osteomyelitis is different from these diseases. It is in a class by itself. It is wholly surgical. The physician has just one function in relation with it; that is, to recognize the disease and without a minute's delay to place it in the hands of the surgeon. In all of the first-mentioned diseases, the physician can apply some alleviatory measure. In acute osteomyelitis there is but one thing for him to think of applying, and that is surgical relief. Without surgery it is a serious disease even in its mildest form; with surgery, it is hopeful even in its worst stages. There is one treatment, and that is operative.

As the bacteria are brought to the bone by the blood stream, a general infection may be said to exist before the osteomyelitis begins. Every abscess or other focus of staphylococcus infection in other parts is a potential cause of osteomyelitis. When staphylococci are deposited in the soft tissues of the body an abscess forms with yielding walls and elastic environment; but when staphylococci are deposited in the bone marrow all of the phenomena of inflammation must develop within an unyielding bony case. Swelling is one of the salient features of inflammation. It means expansion to accommodate the dilated vessels and the outpouring of serum and leukocytes. It is the saving and essential characteristic of inflammation. But in osteomyelitis it cannot take place; the inflammation is hampered in its expression; it is locked in a vise. As soon as the limit of expansion in the marrow is reached, something must happen. The products of inflammation next exert themselves on the internal blood supply of the bone. The vessels are quickly occluded, and in a few minutes the fate of the bone is sealed.

Not only is the nourishment of the bone lying within the periosteum cut off and circulation supplanted by stasis and coagulation, but all of this dead structure is rapidly infected. Two results are inevitable: necrosis and abscess. The pus is still retained under pressure until the periosteum is penetrated. The bone is dead material, either to be removed by operation or eroded and dissolved away.

If there is any one dangerous thing in the animal organism it is pus under pressure. This exists in acute osteomyelitis as in no other disease. It gives rise to pain and aseptic absorption. Not only do the ptomains of infection enter the blood, but the internal pressure also forces bacteria into the blood stream. This means

secondary invasion of the rest of the medulla of the same bone, and then metastatic deposits of bacteria. This virulent general infection threatens bones, joints, meninges, the valves of the heart and every other structure of the body. For this reason osteomyelitis is so commonly characterized by the appearances of infection in other bones in other parts of the body, and by septic thrombosis. These new foci may continue to appear for a period of a year or more.

Loss of life is a common result; permanent disability may be expected in a large proportion of cases; and destruction of bone always. It is one of the most serious diseases; and once begun, the end can never be predicted, unless prompt surgical treatment is applied. This treatment consists in opening the bone by trephine or chisel to relieve the pressure and provide drainage. If the opening is made at that part of the bone nearest to the pain and tenderness it will be found to expose the infected zone. The free exposure of the inflamed marrow and the introduction of a rubber drain is simple and sufficient.

Here is a serious disease for which there is but one treatment. There are no two surgeons who disagree. No two surgeons apply different methods. Not only is this the case, but it is furthermore true that when this treatment is applied early the disease is cured, the destruction of bone prevented, and the patient saved from the dangerous sequels of metastatic infection. The final unique feature of the disease is that its recognition is made positive by certain signs which are characteristic. Thus the diagnosis is easy, the treatment simple and the cure effective. No set of circumstances more fortunate combine in the case of any other grave surgical disease.

Two symptoms suffice for diagnosis. Pain of rapid onset, usually in the end of a long bone, and fever, often high, are characteristic. The blood picture and the prostration of serious infection are present. Local tenderness follows the pain. Redness and swelling appear only after the moment for advantageous treatment is long passed. The tibia, femur and humerus are most commonly attacked; but any other marrow bone may be the first. The Roentgen ray is of no value in early diagnosis.

This is a common disease. It is especially prevalent among the poorly nourished. Therefore, the children of the working class, one-fourth of whom in our great cities suffer from undernourishment because of the advantage which the privileged property-owning class takes of them, are its chief victims. Osteomyelitis belongs with crowded tenements, tuberculosis, low wages, child labor and unemployment, as an expression of the immoral economic system under which we are trying to live.

Let us see what happens. In many of these cases a physician is summoned only when it is clearly obvious that the patient has some serious condition, often after a temporizing expedient has been employed. Working people can afford to summon a doctor only as a last resort. It is not like summoning a fire engine. Anybody may do that when his property is threatened. Society provides fire engines impartially for all; but the threatened life of a child is different. The community has not yet provided for that because the child does not represent property—that sacred object of barter and profit.

The economic sin is the worst; but next to it comes the medical sin. There are so many of these cases that

* Read before the Medical Society of the County of Kings, Feb. 16, 1915.

often the physician sees them in their early stage. What do we find has been done with such? In the great majority the physician has made a diagnosis either of rheumatism or sprain, and proceeded accordingly. Many of these cases have been diagnosed later as simple abscess, septicemia, pyemia, septic thrombosis, neuralgia, typhoid, meningitis or scurvy. In all the available histories of this common, easily recognizable and curable disease, it is most rare to find a case in which the physician has promptly made a correct diagnosis and done the one best thing possible for the patient. In a surgical experience extending over twenty-five years, I have yet to see such a case. Most commonly they come to the surgeon after the damage has been done and necrosis of bone, metastatic abscesses and infective endocarditis have developed.

Here are three illustrative cases at present under treatment, which are cited to show the physician's responsibility and how it is being met.

CASE 1.—Boy, aged 13. Suddenly seized with pain just above ankle; doctor summoned and diagnosis of rheumatism made. Temperature ranged between 104 and 105 every day for weeks. The boy was under medical treatment for three months; the leg was swollen; secondary deposits rapidly appeared in the femur, opposite tibia, and bones of the hand and foot. Septic endocarditis next developed. Delirium was present much of the time for two months, as a result of the profound sepsis. Casts and albumin appeared in the urine. During the medical treatment the boy lay with the infected parts swathed in cotton and oil of wintergreen, with an ice bag on his head for the delirium, and an ice bag over the heart. He took during that period 970 grains of sodium salicylate, 885 grains of potassium iodid, 474 minims of digalen, 360 minims of tincture of digitalis, 285 grains of aspirin, 29 drams of Basham's mixture, 3,780 minims of syrup of ferrous iodid, 1¼ gallons of cod-liver oil, to say nothing of strychnin, iron, quinin, benzoic acid, spartein, sodium bromid, veronal, pilocarpin and sweet spirits of niter. Six different injections of vaccine were given. At the end of fourteen weeks of treatment for rheumatism what remained of the child was sent to us for surgical treatment. He was literally reeking with sepsis. There were discharging sinuses, abscesses and dead bone; the valves of the heart were seriously damaged; the limbs were distorted and extreme emaciation and prostration were present.

The whole of the shaft of the tibia had to be removed; the other foci of dead bone were extirpated; and the boy after a year of suffering is about to be returned to society, permanently crippled, as the result of a malady which could have been cut short by a simple opening made in the lower end of the tibia when he first came under medical observation.

CASE 2.—Boy, aged 10, taken sick with pain referred to shoulder, which came on rapidly during the night. He seemed very sick and the pain in his arm severe. The next day he was taken to a physician, who made a diagnosis of neuralgia and prescribed liniment for rubbing. This treatment was persisted in for two months, during which time the upper arm at the shoulder became larger and larger. A change of doctors secured a diagnosis of rheumatism, and treatment by passive motion and electricity was carried out for six weeks. Later a needle was introduced into the swelling and pus found. The abscess was incised. This not healing, the boy was sent to the hospital for surgical treatment. The head of the humerus was found necrotic. Its removal left the boy with a stiff shoulder. Now, after nearly a year of invalidism, he is developing a secondary focus of infection in the tibia.

CASE 3.—Boy, aged 12, rapidly developed pain just above the ankle; no swelling or redness; it was regarded as a sprain. The boy continued to be sick with high fever and prostration. On the third day a physician was called, who ordered alcohol applied, but the inflammation continuing, the doctor advised operation. This the parents could not afford. Another doctor was called who said that the boy could be

cured without operation. A diagnosis of erysipelas was made and treatment applied accordingly. An abscess pointed and was incised. Vaccines were injected for the septicema. The boy remained very ill. Then a secondary infection developed in the upper part of the tibia. Six weeks after the onset of the disease the boy was brought to the hospital and placed under surgical care. The whole diaphysis of the tibia was found necrotic, and was removed. This boy is crippled for life.

A fourth illustrative case is herewith included.

CASE 4.—Girl, aged 14, had done "sweat shop" work since she was 8 years old; fell in the dark and injured leg; two days later had pain at ankle and felt ill, but went to work. The pain became severe. She fainted in the shop and then went home. Next day had pain at wrist. High fever and delirium were present. Doctor, called on fourth day, made diagnosis of rheumatism and meningitis. Patient never came under surgical care. Died on seventh day.

This is not a discussion of chronic osteomyelitis, nor the tuberculous forms of bone disease, nor what can be done in the way of osteoplastic operations to remedy the resulting defects. The common form of acute infection only is under consideration.

These are but illustrative cases. They are not cited in a spirit of criticism. They are object lessons to all of us. They show the need of vigilance and the necessity for renouncing the old nomenclature, including such terms as "rheumatism," and seeking for the fundamental pathologic conditions underlying every symptom.

To recapitulate: Even in experienced hands the diagnosis of most surgical conditions may be difficult. Many surgical diseases recover without surgery. Some are made worse by surgery. But acute osteomyelitis is most easy of diagnosis from the very beginning. It invariably does badly unless treated surgically. Its treatment is so simple that surgery at its worst cannot do as much harm as the disease. In most surgical procedures skill is the important factor, but in acute osteomyelitis expedition is the one prerequisite for success.

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LEUKOCYTOSIS A DECEPTIVE SIGN IN ABDOMINAL HEMORRHAGES

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The conception of leukocytosis as an indicator of inflammatory conditions in the abdominal cavity should be altered to make an exception of abdominal hemorrhages. This diagnostic point seems to have escaped the attention of all writers with one or two exceptions. A distinction is to be made between the leukocytosis which occurs promptly after intra-abdominal hemorrhages and the posthemorrhagic leukocytosis which sets in after any severe bleeding and is generally considered as a regenerative phenomenon. Most writers on the blood and blood-forming organs maintain that the anemia resulting from hemorrhage acts as a chemical stimulation to the bone marrow and other erythropoietic apparatus.

A review of the works of authorities on the blood shows very little on this subject in a positive way. Numerous writers mention, however, that the presence of a leukocytosis in the differentiation between appendicitis and abdominal hemorrhage speaks for the for-

mer and excludes the latter. DeQuervain¹ makes the observation that an exploding extra-uterine pregnancy may cause a leukocytosis as high as 26,000, even without infection. Hoessli² reports three cases from the surgical clinic in Basel, and in a review of the literature up to the time of writing his paper (1914), found no other reference to this diagnostic point. This seeming lack of attention to the value in diagnosis of leukocytosis in intra-abdominal hemorrhage is the reason I wish to record the following case.

The patient, a woman, aged 39, was seen in May, 1914. She was well up to the day of illness, when she was seized with moderately severe abdominal pains, more pronounced on the right side. She was seen shortly after the onset of the pains. This first examination at 8 a. m. revealed slight rigidity of the abdominal wall, but without definitely increased rigidity on the right side.

Palpation of the abdomen was painful, with the greatest area of tenderness approximating the appendiceal region. The temperature was 99 F. and the pulse rate 90. There was slight nausea, but no vomiting. The white blood-cell count at this time was 20,000. None of the symptoms were severe and the condition of the patient did not cause any apprehension at this time. She was seen again at noon of the same day. The pains were not severe, but moderate in intensity and cramp-like. The temperature remained 99 and the pulse rate had increased to 100. The white count was now 22,000. A surgeon was called in consultation and a probable diagnosis of appendicitis made on account of the location of the pain, the abdominal tenderness, and the high leukocytosis. Ruptured extra-uterine pregnancy was discussed and excluded on account of the absence of the external appearance of hemorrhage, the lack of a very rapid pulse and the high white count. The patient had never had children, the previous menses were normal, and there was an entire absence of uterine bleeding between the regular periods. The patient was operated on the same afternoon and showed a ruptured tube with moderately severe, intra-abdominal hemorrhage. She left the operating table in excellent condition and without evidences of marked exsanguination. A white blood-cell count before operation showed a leukocytosis of 18,000. A postoperative pneumonia ensued and caused death the third day after operation.

The three cases which Hoessli reports gave white cell counts of 30,000, 15,000 and 19,000, respectively, before operation. None of these cases showed any other reason for the leukocytosis than the hemorrhage. Inflammatory processes were ruled out by very careful examination. The first question to be raised was the influence of normal pregnancies on the white blood cell count. Recent investigations by Naegeli have shown the absence of leukocytosis in pregnancy, especially in the first months which correspond to the period of extra-uterine bleedings. There are found only "high physiological values," which Naegeli refers to "increased vital processes." A distinct, neutrophilic leukocytosis is found at birth, which is explained by the tissue lesions and the hemorrhage. It is necessary also that a digestive leukocytosis as a factor in the above cases be excluded. Hoessli states that a digestive leukocytosis did not come in consideration in his cases, and in the case reported by the writer the initial count was made before breakfast.

The explanation of this posthemorrhagic leukocytosis was sought by Hoessli in an experimental way. Rabbits were chosen for experimentation with the stated reservation that the results may not be entirely

applicable to humans. It was possible to secure constant normal values, after a sufficient number of preliminary counts had been made to determine the daily variations, and also the result of digestion. The average daily counts in rabbits were found to be from six to ten thousand. Variable amounts of blood were then withdrawn from the rabbits and injected into the abdominal cavity or subcutaneously. The amounts of blood withdrawn were calculated to correspond approximately by weight with a hemorrhage of from 400 to 800 gm. in human beings. The animals were not anesthetized or otherwise narcotized, as A. von Lerber³ has shown that ether influences the blood picture and causes a leukocytosis. Sufficient care and precautions were taken in the controls, so that the results which were obtained could be ascribed in all probability to the hemorrhage. Hoessli conducted his experiments in series to determine various points.

The first series of experiments had for its purpose the determination of the effect of withdrawing blood from animals. The average, final results of this series showed that the number of the white cells decreased for the first six or eight hours. Later, there was some increase in the red cells and also of the neutrophils. The first decrease of the white cells is to be explained by the withdrawal of the blood and by the pouring of tissue juices into the vessels. The result is that of a temporary hydremia. This series of experiments corresponds to the conditions which produce the usual posthemorrhagic leukocytosis.

In the second series, Hoessli took blood from one animal and injected it immediately into the peritoneal cavity of another animal. There was a marked rise of the leukocytes in the first six hours, followed by a drop to normal by the next day. Hoessli ascribes the increase of the white cells to an irritation of the peritoneum and the peritoneal absorption of blood.

The third series of experiments more closely approximated conditions in human intra-abdominal hemorrhage. The blood was withdrawn from the animal and at once injected into the peritoneal cavity of the same animal. Here, likewise, there was a marked rise in the number of white cells during the first six hours, followed by a return to normal the next day.

In a fourth series, Hoessli withdrew blood from the carotids and injected it immediately into the abdominal wall of the same animal. He found that the white cells increased markedly in from nine to twenty-four hours and dropped back to normal by the fourth day.

These experiments will be found to harmonize very well with conditions in actual clinical experience. A sudden hemorrhage from a ruptured tube, an ovarian hemorrhage, and doubtless from other causes also, will cause in a short time a hyperleukocytosis which may reach figures higher than those to be expected in appendicitis. The leukocytosis in intra-abdominal hemorrhage will disappear in from twenty-four to forty-eight hours, but this period happens to cover the exact time in which the patient is first seen and in which there are diagnostic difficulties. In case the hemorrhage has lasted longer or is not seen until late, the white blood cell count will not present anything of value. The diagnosis at this time, however, is usually easy even from a hasty examination. When there has been a severe hemorrhage from which the patient is recovering, there will be found during the period of

1. DeQuervain: Des erreurs de diagnostic dans l'appendicite, Rev. méd. de la Suisse romande, 1913, xxxiii, No. 7 (cited by Hoessli).

2. Hoessli: Leukocytose bei Intra-peritonealblutungen, Mitteilungen a. d. Grenzgeb. d. Med. u. Chir., 1914, xxvii, 630.

3. Von Lerber, A.: Ueber die Einwirkung der Aethernarkose auf Blut und Urin, Inaug. Diss., Basel, 1896.

regeneration of new blood cells, the usual and above mentioned phenomenon of posthemorrhagic leukocytosis. The behavior of the white cells after operation is influenced by the anesthesia, and any possible leukocytosis could be due to the narcosis as well as the hemorrhage. It is difficult to give the duration of the leukocytosis after intra-abdominal hemorrhage because the patients are usually operated on as soon as the diagnosis is made and the subsequent counts are influenced as above stated. The morphologic blood picture does not show any change, either in the differential formula or in the sense of Arneth. The short course of the hemorrhage before operation is hardly sufficient for such a change in the blood picture.

It follows from these observations that when the clinical signs of a certain condition in question might be either from appendicitis or other inflammatory condition on the one hand, and intra-abdominal hemorrhage on the other, the white blood cell count is not to be relied on in the differential diagnosis. If the patient shows signs favoring hemorrhage and against inflammatory conditions, such as absence or near absence of fever and a quiet pulse, a high white count would be of real value in making the diagnosis.

SUMMARY

1. A leukocytosis should not be relied on as a differential point when the clinical signs demand the differentiation of appendicitis or other inflammatory trouble in the abdomen, and an intra-abdominal hemorrhage.

2. Leukocytosis due to intra-abdominal hemorrhage is to be distinguished from the posthemorrhagic leukocytosis which follows any severe bleeding.

3. Leukocytosis from intra-abdominal hemorrhage comes on within twenty-four hours and lasts until the second day.

4. The leukocytosis is ascribed to an irritation of the blood-forming organs by the absorbed constituents of the blood. The peritoneum may be a factor in the formation of white cells.

5. The morphologic blood picture is not changed.

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THE NORMAL DIFFERENTIAL LEUKOCYTE COUNT

A PROPOSED CLASSIFICATION OF THE WHITE BLOOD CELLS

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A cursory glance over the literature dealing with problems wherein differential blood counting is a feature, shows a lack of unanimity of nomenclature which vitiates much of the work. It is next to impossible to tell what one author means when he gives only four groups of white blood cells while it is equally impossible to place the cells when another author gives eight or nine groups. If differential counts are to be of any value in diagnosis (and I, for one, firmly believe that the value is underestimated), then there must be some uniform and simple classification which will fit a very large percentage of cases.

Some years have elapsed since Ehrlich's epoch-making discovery of the differences in leukocytes, and during those years some advances have been made. Chief among these was the introduction of the eosin-methylene

blue stains in polychrome combination first proposed by Romanowsky for the staining of the malarial parasite. The use of this stain in its various modifications has done more to advance the science of hematology than any other one method.

Those who hold that the Wright or Hastings stain is better than the Ehrlich are still looked on as hopeless iconoclasts. Just why there is this apparent prejudice in some quarters against the polychrome methylene blue stain is difficult to understand. Possibly faulty technic has been responsible for poor specimens and poor results. Cabot¹ puts the facts well in the following words: "This stain (Wright's) brings out all that Ehrlich's method does and besides this stains the blood plates, the granules of the mast-cells, the chromatin of malarial parasites and the basophilic granules in abnormal red cells—all points of value. (To this might be added that it shows beautifully all the so-called transitional cells but poorly shown by Ehrlich's method.) The only weak point of the Romanowsky stains is the deceptive resemblance between certain megaloblasts, certain lymphocytes and certain myelocytes. In perhaps 1 case in 100 this troubles a beginner, in perhaps 1 in 1,000 it troubles an expert; but in no case does this difficulty affect the essentials—the diagnosis, prognosis or treatment of the case."

In a recent book on "Bedside Hematology"² occurs this truly astounding and grossly inaccurate statement: "The transitional leukocyte is similar to the polymorph;—in health they are usually between 2 and 5 per cent."

Even so excellent a book as Emerson's on "Clinical Diagnosis" in the last (third) edition gives much space to the elaborate classification of Ehrlich (now of historical interest only), and gives his classification as a working basis for differential counting. This has been shown by Bunting³ and others to be inaccurate, at least for our population. In describing the cells for differential purposes Emerson⁴ says, "By small mononuclear is meant any non-granular cell smaller than a polymorphonuclear neutrophil. This group would include, therefore, all lymphocytes and the small transitionals and transparents of Uskov. As large mononuclears are classified any non-granular cells larger than a polymorphonuclear neutrophil with a round or oval nucleus, any cell within the same size limits, but with an indented nucleus, is called a transitional. The polymorphonuclears, both neutrophils and eosinophils, are clear enough. As a *Mastcell* is counted any polymorphonuclear cell without granules (Ehrlich's stain), or with blue granules if methylene blue is used." Imagine a student trying to classify the non-granular cells from such an enigmatic description.

In a recent article, Staines, James and Rosenberg⁵ have classified the leukocytes into polymorphonuclears, very small lymphocytes, larger lymphocytes, large mononuclears, transitionals, and have added all the mononuclears together in figuring a lymphocyte increase. This is manifestly wrong, as these cells are not all the same type nor have they all the same significance in diagnosis.

1. Cabot, R. C.: Modern Clinical Medicine, 1906, Ed. note, p. 296.
2. Ward, G. R.: Bedside Hematology, Philadelphia, W. B. Saunders Company, 1914, p. 36.
3. Bunting, C. H.: The Normal Differential Leukocyte Count, Am. Jour. Med. Sc., 1911, cxlii, 698.
4. Emerson, C. P.: Clinical Diagnosis, Philadelphia, J. B. Lippincott Company, Ed. 3, 1914.
5. Staines, M. E.; James, T. L., and Rosenberg, C.: Lymphocyte Increase and Altitude, Arch. Int. Med., Sept. 15, 1914, p. 376.

Steiger⁶ in an elaborate article divides, so it would appear, the large uninucleated cells into two groups, namely, "Grossemnonukleär," and "Webergansformen." These he separates in all his counts. It is not possible to grasp what characters place the cells in these two groups. If he is using the generally accepted classification of Ehrlich, then he should have difficulty in separating some of his large mononuclears from large lymphocytes. This does not appear to be the case. Many other examples from recent literature might be given which show the necessity for a uniform classification of the leukocytes of the blood. It is unnecessary to instance in this place the articles. They are to be found nearly every week in some journal.

To correlate what is good in the various classifications and to propose a logical one is the purpose of this paper.

ORIGIN OF LEUKOCYTES

There can be no rational method of classification which is not based primarily on the origin of the leukocytes and on their further differentiation by a staining method which stains every leukocyte so that it may be readily recognized and put in its proper place in the scheme.

The leukocytes of normal blood are of two main classes, granular and non-granular, and are derived, so far as recent research shows, from several distinct sources. A granular cell does not normally become a non-granular cell, nor does a non-granular cell of the blood become a granular cell. The granular cells, namely, polymorphonuclear neutrophils, eosinophils and basophils, are derived from the parent myeloblasts, their immediate predecessors being the granular myelocytes of the bone marrow. All hematologists are agreed on this point.

NON-GRANULAR CELLS

The non-granular cells, namely, the small and large lymphocytes, "transitionals" and large mononuclears, have not the same origin, and call for separate discussion.

Lymphocytes.—These cells have their origin in lymphatic tissue. Normally the particular lymphatic tissue is undoubtedly the lymph glands. Under certain pathologic conditions collections of lymph cells (potential lymph glands) seem to take part in forming these cells. They are increased, as a rule, in all diseases involving chronic inflammation of lymphatic tissue, chronic naso-pharyngeal inflammations, glandular tuberculosis, syphilis, etc. They are relatively numerous in the blood of young children and infants except during the first few days of life.⁷ They are classified usually in a percentage differential count as small and large. It is exceedingly doubtful if this be of any value. Opinion is growing that the small lymphocyte is the older form of the large lymphocyte. In every specimen of even normal blood one will find all gradations from the typical lymphocyte the size of a red cell with a small rim of protoplasm, to the cell the size of some polymorphonuclear leukocytes with eccentric nucleus and a large amount of clear, almost unstained protoplasm, which at times contains one or several meta-chromatic granules. These cells have, so far as we now know, the same significance in the blood picture.

The most important evidence bearing on this point is that furnished by the lymphatic leukemias, acute and chronic. Whether we believe with Ehrlich,⁸ Lazarus, etc., and recently Mallory,⁹ that lymphatic leukemia is a disease of the lymph glands, or with the school led by Neumann¹⁰ to which Pappenheim,¹⁰ Askanazy,¹⁰ Reed,¹¹ Blumer¹² and others belong that it is a disease of the bone marrow, is not essential to this argument. What is vital is that in acute lymphatic leukemia when the cells must be young, immature forms, the predominant cell is one larger than a red blood cell, having a nucleus round or slightly indented, with considerable protoplasm. This protoplasm is basophilic and stains lightly with the eosinate of methylene blue stains.

On the contrary, in the chronic lymphatic leukemia the type of cell is one so much like the small lymphocyte or normal blood that it cannot be distinguished from it. This cell has a deeply staining nucleus and a small rim of fairly well stained (even deeply stained) basophilic protoplasm. The nucleus is often indented. These cells have roughened edges, a somewhat knotty appearance and occasionally so little protoplasm is present as to give to the cell the appearance of bare nucleus. This picture would seem to indicate but one conclusion: the cells in the acute form are immature; those in the chronic form are mature, even to the point of degeneration.

There seems little doubt that these cells are derived from the same source, a parent lymphoblast in lymph tissue, although they show these differences in size and in staining reaction. The explanation seems to be the one given above, namely, that they are different ages of the same cells. This is borne out by the fact that all gradations are seen both of staining reaction, of size, and of amount of protoplasm.

Simon¹³ believes that the lymphocytes are derived from the large lymphocytes (lymphoblasts) of the germinal centers indirectly through a process of differentiating karyokinesis, and represent fully differentiated cells which are incapable of further development.

Reed¹¹ believed that there are two kinds of lymphocytes, one derived from cells in lymph tissue and one derived from a parent bone-marrow cell which on one hand might give rise to megaloblasts, on the other hand to myeloblasts. Blumer rather agreed with this in 1902. He thought that one can always separate two kinds of lymphocytes. This is not generally admitted now. The most generally accepted belief now is that the germinal centers of lymph glands produce the lymphocytes of blood. I believe that when there is rapid formation of lymphocytes, such as occurs in acute lymphatic leukemia under the stimulation of some toxin at present unknown, lymph tissue anywhere in the body may be niduses for the production of lymph cells.

So-Called Transitional Cells (Splenocytes, Monocytes, Simon).—These cells have been, and are even now, the rocks on which attempts at classification have split. They have been classed by some with "large lymphocytes," by others with "large mononuclears," by others as a separate group. In many specimens stained by Ehrlich's method they were not seen because they were so very lightly stained as often to escape recognition. They have nothing to do with any transi-

8. Ehrlich and Lazarus: *Anemia*, Ed. 2, p. 93-95.

9. Mallory, F. B.: *Pathologic Histology*, Philadelphia, W. B. Saunders Company, 1914.

10. See Note 11.

11. Reed, D. M.: *Am. Jour. Med. Sc.*, 1902, n. s., cxxxiv, 653.

12. Blumer and Gardinier: *Med. News*, 1903, lxxxiii, 833.

13. Simon: *Clinical Diagnosis*, Philadelphia, Lea & Febiger, Ed. 8.

6. Steiger, O.: *Klinik und Pathologie der Lymphogranulomatosis (Paltauf-Sternberg)* Ztschr. f. klin. Med., 1914, lxxix, 452.

7. Warfield, L. M.: *The Differential Leukocyte Count in the New Born*, *Am. Med.*, 1902, iv, 457.

tional stage between any varieties of leukocytes. Ehrlich¹⁴ himself recognized his error in supposing that they were a transition between myelocytes and polymorphonuclears. Uskov¹⁵ later complicated the classification. He gives a group of small and large transitionals. Nevertheless the name "transitional" sticks and conveys a false impression in regard to the origin of these cells.

There is still some slight difference of opinion concerning the origin of these cells. Mallory,¹⁶ after giving the incorrect percentage of these cells, 2 to 4 per cent., instead of 6 to 8 per cent., says, "They are derived from the endothelial cells lining blood, and to a less extent lymph, vessels by proliferation and desquamation. They also multiply by mitosis after emigration from the vessel into the lesions."

Adami and McCrae¹⁷ say that "a similar type of cell (large mononuclear) is seen in conditions of inflammation of the peritoneal cavity and here clearly some at least of these cells are of endothelial origin, derived from the lining endothelium of the serous surfaces. It is possible that the intravascular form originates from the vascular endothelium. The macrophages of the sinuses of inflamed lymph nodes are of this order."

Bunting¹⁸ believes that they arise from the endothelium lining lymph spaces and also from the cells of the germinal centers of lymph glands. Mallory believes that the cells he sees in the germinal centers have wandered there. The two views are not so divergent as it might appear at a casual glance. Both believe the endothelium of lymph spaces may produce them.

Simon¹⁹ is not clear in his differentiation of his large mononuclear leukocyte from a large lymphocyte and from "plasma cells." He says, "The large mononuclear leukocytes (his splenocytes, monocytes), like the small lymphocytes, probably develop indirectly from the large lymphocyte, and then age into the 'transition' forms which represent the final stage in their development. The former view, according to which the large mononuclear leukocyte develops directly from the small lymphocyte and later ages into the polynuclear neutrophil, has been abandoned. For the most part the large mononuclear leukocytes develop in the spleen (hence the term splenocytes)."

These transitional cells are motile with a slow ameboid movement. This can be seen in the fresh smear, more easily when a warm stage is employed and when there is a marked increase in the number of these cells. Every pathologist must have seen, especially in the eosin-methylene blue preparations, large mononucleated cells partly in and partly out of the capillaries, showing evidently the ameboid character of these cells.

The study of the cells in peritoneal exudation does not lead me to believe that the large cells found there, arising most probably from the endothelium, are the same cells as those which apparently arise from the endothelium of the capillaries. As a matter of fact these two kinds of endothelium present histologic dif-

ferences. While both are of mesoblastic origin, one comes to be the lining membrane of the coelum, the other forms the lining of blood and lymph vessels. To the former the name mesothelium is now given, while to the latter the term endothelium is limited. Cells derived from these two types of lining membrane differ. The blood cell is apparently derived only from the capillary or lymph space endothelium. In certain conditions in response to infective agents these cells occur in large numbers in lymph tissue and one is able to convince oneself of the endothelial origin of these cells. These cells are also very probably formed in large numbers in the capillaries and lymph spaces in the spleen.

It is in the lesions of typhoid fever particularly that one sees enormous numbers of these cells, many of which get into the blood stream, causing a considerable increase in the relative and actual numbers. In one case which ended fatally with hemorrhages I counted 46 per cent. of these cells and 48 per cent. of polymorphonuclear neutrophils. The lymphocytes were reduced to a very small percentage.

Bunting¹⁸ has shown that these "transitionals" are the distinctive cells in early Hodgkin's disease. Hultgen²⁰ and others have shown their importance in the early diagnosis of typhoid fever. For some years I have demonstrated to students the value of the increase in these cells as a means of differentiating typhoid fever from other fevers. True, the malarial fevers also show an increase in these cells. The parasite or the malarial pigment is here the determining factor. In Hodgkin's disease the enormous increase of platelets distinguishes the blood picture sharply from that of typhoid fever.

The diagnosis of typhoid fever can be made in the very first days by careful differential count at a time when the bacilli are not yet flooding the blood stream and long before the Widal reaction is positive. This cell is an important one and should be recognized and properly classified in order to give it the value which it undoubtedly has in diagnosis.

Large Mononuclear Cells.—There is still one other non-granular cell found in normal blood when stained with polychrome methylene blue stains. It corresponds to the cell known as Türck's irritation form. The origin of this cell is not certainly established. Pappenheim²¹ thinks that it is a plasma cell derived from lymph cells in response to chronic inflammation (irritation). Simon seems to confuse this cell with the so-called transitional cell. He speaks of their increase in typhoid fever. I have counted dozens of blood smears in typhoid fever without finding what I considered a plasma cell. I have never found more than 2 per cent. in a specimen other than leukemia. This cell stains so deeply both in nucleus and protoplasm that it has never been difficult to recognize it.

CLASSIFICATION

With this explanation of the origin of the cells of normal blood I propose the following classification as a working basis. This presupposes that the stain used is one of the modifications of Romanowsky's stain. Personally I confine my staining to the Wright and Hastings methods. These stains bring out every cell in the blood as well as the platelets, basophilic granula-

14. Ehrlich: Quoted by Emerson, see Note 4.

15. Uskov: Quoted by Emerson, Clinical Diagnosis, Note 4.

16. Mallory, F. B.: Pathologic Histology, Ed. 2, p. 23.

17. Adami and McCrae, Text-Book of Pathology, Philadelphia, Lea and Febiger, 1914, Ed. 2, p. 446.

18. Bunting, C. H.: The Blood Picture in Hodgkin's Disease, Bull. Johns Hopkins Hosp., 1911, xxii, 369. Bunting (personal communication) now believes that he has evidence which proves that the cells of the germinal centers of lymph glands produce these cells. He is inclined to doubt their origin from endothelium. His present view therefore is quite at variance with the views of others. In the event that he is correct, this would not alter the general scheme of classification here proposed or the value of the recognition of the "transitional" cells in clinical diagnosis.

19. Simon: Clinical Diagnosis, Ed. 8, p. 34. See Note 13.

20. Hultgen, J. F.: The Leukocytes in the Early or Pre-agglutination Diagnosis of Typhoid and Paratyphoid Fevers, Am. Jour. Med. Sc., 1911, cxlii, 253.

21. Pappenheim: Quoted by Simon, Clinical Diagnosis, Ed. 8, see Note 13.

tions, mast cells, etc. It is a classification which I have employed for several years and have found most helpful.

	Percentage
Polymorphonuclear neutrophils.....	50-60
Polymorphonuclear eosinophils.....	2-8
Polymorphonuclear basophils.....	0.4-2
Lymphocytes, mature.....	20-30
Lymphocytes, immature.....	5-10
Endotheliocytes.....	5-9
Large mononuclears.....	0-2

In counting, these would be abbreviated to pmn., eos., bas., lym., mat. and immat., end., l. monos. These are six varieties, three granular and three non-granular.

It will be noted that all cells which have their origin in lymph tissue are named lymphocytes. Instead of two separate divisions of lymphocytes, small and large, it is proposed to make one group of lymphocytes, dividing them, if one cares to separate them, into mature and immature forms. The cells grade so imperceptibly into one another, however, that it is difficult to separate them. Until we know more about the significance of an increase or decrease in the mature and immature forms it would seem best to separate them as is done in the proposed classification by bracketing them. It will then be possible to make comparisons on which future data may be based.

The name "transitional" is eliminated. It seems best to drop this name altogether, for it has now no significance. The retention of a descriptive name which conveys a meaning quite at variance with that which we now recognize as belonging to the cell, has been the source of endless confusion. This cell then from its probable origin is called endotheliocyte.

The large mononuclear cell is the cell known as Türck's irritation cell. This name is descriptive without committing one to give a definite place of origin to this cell.

The criterion of any cell is not so much its size as its staining reactions. One great difficulty in former classifications of the non-granular cells has been that the size of a cell was the basis for placing it into one or another group. The size has nothing at all to do with the grouping except in a general way. In the same smear one will find areas in which the spread is thick, medium or thin and the cells will be relatively small, larger or quite large. So much depends on the evenness of the smear in differential counting that an attempt should be made to develop a good, uniform technic. However, it cannot be too strongly emphasized that not the size but rather the staining characteristics form the basis of classification.

There are then three groups of non-granular cells. Bunting,^{3, 18} in recent articles, makes four groups, but admits that his small and large lymphocyte are the same cell. The former is an older form. He retains the name "transitional."

1. Lymphocytes (mature and immature). These cells vary in size from a cell about the size of a red blood cell to that of a polymorphonuclear leukocyte. When small, the nucleus is deep blue, rather evenly stained, showing in some well-tinted specimens a coarse, heavy meshwork of nuclear material with a lighter blue small amount of protoplasm around it. Larger cells show similar nuclei with a tendency to eccentric position in the cell. The protoplasm varies in amount, the color as the cell is larger, becoming fainter and fainter blue until a cell may be seen with a deeply staining nucleus and protoplasm scarcely at all

stained and containing several rod-like or coarse metachromatic granules. Oftener in the older forms the nucleus is distinctly indented, somewhat kidney shaped.

2. Endotheliocyte (old name, "transitional"). This cell has no particular size or shape. It is the largest cell in the blood and usually is considerably larger than the largest polymorphonuclear neutrophil. As it is ameboid, definite pseudopods are not infrequently seen which may give to the cells somewhat bizarre shapes. The staining is absolutely characteristic. The nucleus is large, stains a rather deep blue color, and has a spongy, open-work appearance. It never appears solid like the nucleus of the first group described above. A striking characteristic of the nucleus is its polymorphism. It may be of any conceivable shape or apparently be composed of several nuclei (megacarocyte?). Nuclei have been seen S-shaped, kidney shaped, horseshoe shaped, lobed, knobbed, ring shaped or perfectly round—in short, any shape. In some cases with marked increase in this cell and increase in number of platelets, almost bare nuclei are seen. The protoplasm is abundant, stains a much lighter blue, has a definite reticulated appearance and, at times, seems to be filled with fine deeper blue granules. Close examination reveals the fact that these are not true granules but are apparently the nodes of the cell reticulum. This pseudogranular appearance is common to all cells.

These cells do not stain in a fixed picture-pattern way in all smears from all bloods. Two smears stained side by side by means of the same technic will show minor differences in the color reactions of the cells. This should not be confusing. One should not expect every blood smear to look like the illustrations in textbooks on hematology. One must glance over every stained smear in order to determine what the general tinting of the various types of cells is. With this precaution there should never be any serious doubt as to the type of cell one encounters.

3. Large mononuclears. This is a cell usually somewhat larger than a neutrophil leukocyte. The cell is almost always oval in shape. The nucleus is round or oval, almost invariably eccentrically placed in the cell. It stains a very deep blue and has a more solid appearance than the endotheliocyte but not so solid as the small lymphocyte. The protoplasm is abundant and also stains a deep blue, almost as deep as the nucleus. Granular bodies are sometimes seen but these are evidently not true granules. This cell has been called in some classifications (Simon), plasma cell, and indeed this name might be applied to it except for reasons given above.

It is realized that some criticism will be made of the view taken here of the origin of the non-granular cells. There are differences of opinion but these do not seem to be so insuperable as to nullify a simplified classification. So far as we know at present most of the cells here described have certain rather definite significances in clinical diagnosis. The increase of polymorphonuclear neutrophils and of polymorphonuclear eosinophils is of great help in diagnosis. Likewise the increase in the lymphocyte elements gives us much information. So far as any one now knows, the separation of the lymphocytes is of no real value. It is the total increase of all cells of this type which has a meaning. Possibly it may be found that in certain conditions there is a preponderance of the immature forms which has some special diagnostic meaning. By separating them, as is done above, investigators will be able to compare

their counts with those of other investigators and new facts in diagnosis may thus be discovered.

To give a name and a position to the endotheliocyte is in line with the importance of this cell in blood diagnosis. It is urged, therefore, on those working with stained smears that they adopt the proposed classification, always reserving the right to modify it or to simplify it as knowledge of the origin of the white blood cells becomes fixed and definite.

However, for the present at least, we may have a classification which is based on the best modern conceptions and which will enable us to compare results with one another, a situation which has been hitherto absolutely impossible.

141 Wisconsin Street.

RADIUM IN THE TREATMENT OF KELOIDS

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The introduction of radium furnishes us with a therapeutic agent of great value in the treatment of keloids. Unfortunately, one is not always able clinically to differentiate pure keloids from those mixed with scar tissue.

Pure keloids, especially those of recent formation and in young children can often be resolved with "selective" doses of radium rays, that is, with an amount of raying that causes little or no inflammatory reaction.

Keloids mixed with scar tissue are more resistant to radium, but even these can generally be made to disappear by using doses that cause more or less destructive action.

The exact dose necessary in individual cases is difficult to state, but after some experience with different



Fig. 1.—Keloid following burn on right great toe. From photograph taken May 27, 1914.

radium applicators is obtained, an approximate estimate of the amount of raying necessary can often be given, especially if the clinical type of keloid is clear.

Pain, which often radiates from the keloid, is usually relieved at the same time with the resolution of the tumor. This is fortunate as it is often pain, which may be of an excruciating character, that brings the patient for relief. Sometimes relief is sought for cosmetic reasons alone, and sometimes because the keloid is in an inconvenient situation.

In upwards of a dozen keloids of various types which I have treated with radium, the results have been superior to those obtained by other methods.

The apparatus and technic employed vary somewhat with the type of lesion. With keloids of considerable size, the varnish applicator is by far the best instrument to use. For linear keloids, such as may follow an operation incision, the radium tubes are very convenient, although the varnish applicators can be used

by screening off the healthy tissue on each side of the keloid.

In practice the theoretic use of purely selective doses, which may cause the keloid to disappear, must often give way to the more rapid method of destructive doses.

The general principle of using a sufficient dose to produce a slight but not an excessive reaction is the one I usually follow. Repeated and strong reactions are usually unnecessary and are liable to be followed by telangiectases, which detract very much from the cosmetic appearance of the tissues of repair.

In favorable cases the site of the keloid may become almost like the normal skin both in color and texture. In other cases it may be smooth and white and some-



Fig. 2.—Appearance of toe shown in Figure 1, after about twelve hours' radium treatment. From photograph taken Jan. 30, 1915.



Fig. 3.—Keloid on back situated between the spine and lower angle of right scapula. From photograph taken April 4, 1914.

times it may be redder than normal. In no case has there been an absolute resistance to the action of the radium.

A brief history of the following illustrative cases will show the method of treatment and the results obtained.

CASE 1.—(Referred by Dr. J. R. Buchbinder.) In a girl, aged 15, a keloid developed after a carbolic-acid burn near the metatarsophalangeal junction of the right great toe (Fig. 1). The keloid, which was of bluish-red color, covered an area of about 4 square centimeters and was elevated about 2 cm. above the level of the surrounding skin. It caused great inconvenience from its situation so that a thick piece of felt fenestrated to admit the keloid was worn to prevent



Fig. 4.—Appearance of keloid shown in Figure 3, after about six hours' radium treatment. Note removal of lower half of keloid. From photograph taken Sept. 30, 1914.

pressure of the shoe. A quarter-strength radium applicator screened with $\frac{1}{10}$ mm. of lead was used. Between May 27 and June 4, 1914, this was applied for six hours in fractional doses of an hour each. This series of treatments was repeated in about six weeks. The keloid completely flattened out at the end of four weeks more after having undergone very slight inflammatory reaction. At present only a slight wrinkling of the skin marks the site (Fig. 2), complete involution having persisted.

CASE 2.—(From the Chicago Policlinic.) A large keloid on the back (Fig. 3) between the spine and the lower angle of the left scapula of a woman 45 years of age had followed a burn with a flat iron. The tumor was deep red in color and its surface was traversed by several large venules. It was about 15 cm. long and 4 cm. wide and was elevated about 2 cm. above the general level of the skin. Excruciating burning pain of paroxysmal character was complained of and this had brought the patient for relief. Between April 6 and 22, 1914, eight treatments of twenty minutes each were given to the lower half of the keloid with a quarter-strength radium apparatus unscreened. Moderate reaction followed which subsided in about four weeks. Between May 27 and July 3 certain areas that had not involuted completely were given three hours exposure in fractional doses with quarter-strength and half-strength applicators screened with $\frac{1}{10}$ mm. of lead. This resulted in complete involution. Since the photograph was taken which shows the removal of the lower half of the keloid (Fig. 4), the remainder has been treated with a similar result. The pain radiating from the keloid was completely relieved.

59 East Madison Street.

PRIMARY CARCINOMA OF THE LIVER

OPERATION FOR RECURRENCE OVER SEVEN YEARS
AFTER PRIMARY OPERATION

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To THE JOURNAL of the American Medical Association, May 29, 1909, I contributed an article entitled: "Primary Carcinoma of the Liver with Report of a Patient Who Remained Well over Two Years after Operation." A summary of the history follows:

History.—Mrs. J. A., aged 37, was a housewife. Her parents and one sister were alive and well. The patient was married when 15. Menstruation began when 16; always regular, but painful. She had leukorrhea, dating from marriage; and menstrual pains were present until the cervix was dilated and uterus curetted seven years later. At that time a benign cyst was removed from beneath her tongue. The patient had typhoid fever when she was 24; when 32, she had double salpingitis and local peritonitis, accompanied by severe gastritis, from which she recovered with local treatment. Prior to this peritonitis she suffered from occasional "bilious" attacks, but subsequent to it they became frequent (two or three a week), consisting of nausea, vomiting of food and bile, headache and general prostration. These attacks persisted intermittently for a year; then at times she noticed distention (gaseous) and had some pain in the right hypochondrium. The pressure of her clothing was distressing and excited vomiting. During 1905-1906 she had frequent "sinking" spells while reclining. There were no chills, rarely

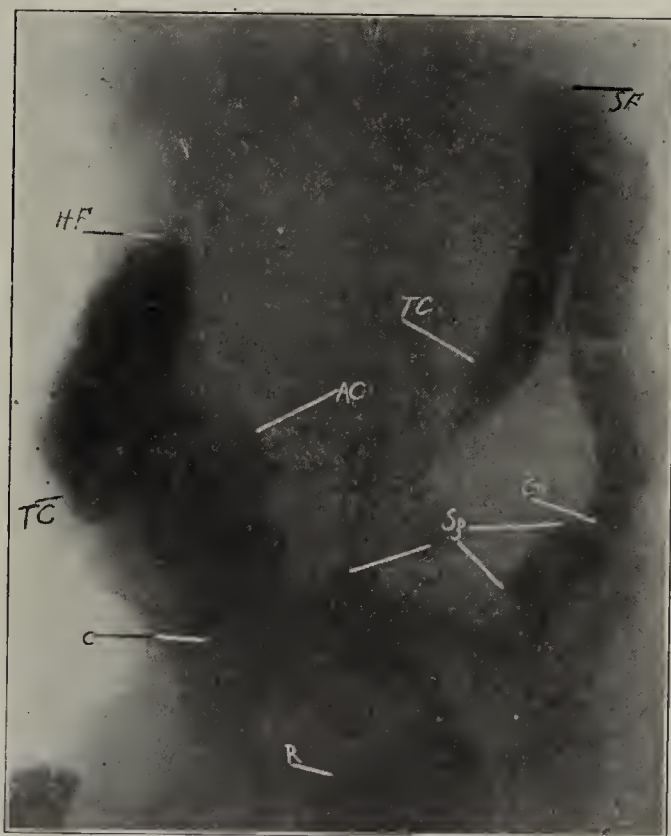


Fig. 1.—Roentgenogram showing displacement of and pressure on transverse colon by carcinoma of liver. C, cecum; H, hepatic flexure; T, transverse colon.

fever, and never any jaundice. The bowels were regulated with laxatives. The distention increased slowly and weakness was progressive, although combated by various methods, including antiluetic treatment.

Examination.—Abdomen: To inspection there was a marked prominence in the right hypochondrium. On palpation a firm oval tumor was felt extending from the right costal margin downward an inch below the navel and slightly beyond the

midline, moving with respiration. On percussion flatness was present over the area occupied by the tumor, but there was a zone of tympany just below the costal arch. The upper line of liver dulness was normal. A tentative diagnosis of tumor of the kidney or liver was made.

Operation.—Sept. 17, 1906, at the Polyclinic Hospital. Gas-ether anesthesia. A vertical incision was made from tip of eighth right rib to level of umbilicus. A tumor presented so large that its limit could not be defined without enlarging opening by a transverse incision from its center to the right midaxillary line. It was not evident that the tumor was in the right lobe of the liver. The fundus of the gallbladder felt normal, but the size of the tumor precluded palpation of the bile ducts. The surface of the tumor was markedly congested and traversed by a network of large veins. One spot imparted the feel of a tense cyst, confirmed by the aspirating needle withdrawing bloody fluid. The peritoneum was then protected by gauze pads and the tumor incised, about 12 ounces of bloody, odorless fluid escaping. Many trabeculae were broken down with the hand, and great quantities of soft, degenerated tissue removed with a dull spoon from the walls of the cavity, which was about the size of a large grape fruit. Rubber drainage-tubes were inserted and the cavity loosely packed with gauze. The dis-

charge from the wound was very large in amount, dark and offensive, containing much detritus (necessitating many irrigations daily), and soon assumed the offensive permeating odor characteristic of cancer. After the tenth day the discharge slackened quite abruptly, and the patient was removed to her home on the eighteenth day; the sinus closing four weeks later.

Pathologic Examination.—Dr. F. M. Jeffries of the Polyclinic Laboratory mounted sections of the tissue from the wall of the cavity and reported Sept. 22, 1906. "The tissue from the liver of Mrs. A. received from you the 19th inst. is carcinoma. It is largely necrotic and, I should judge, of a considerable degree of malignancy."

For more than six and one-half years after this operation, namely, from September, 1906, until the spring of 1913, the patient enjoyed excellent health. Previous to the operation her weight was 110 to 120 pounds, but during the six months thereafter it rose to 150, and then remained between 140 to 150 pounds. Her complexion was ruddy and her skin fair.

There was an occasional dragging pain at the site of the wound, presumably due to adhesions, and a hernia admitting three fingers, readily kept in place by ordinary corsets. By deep pressure over the wound the hand detected a hard nodular painless mass, moving with the liver in respiration.

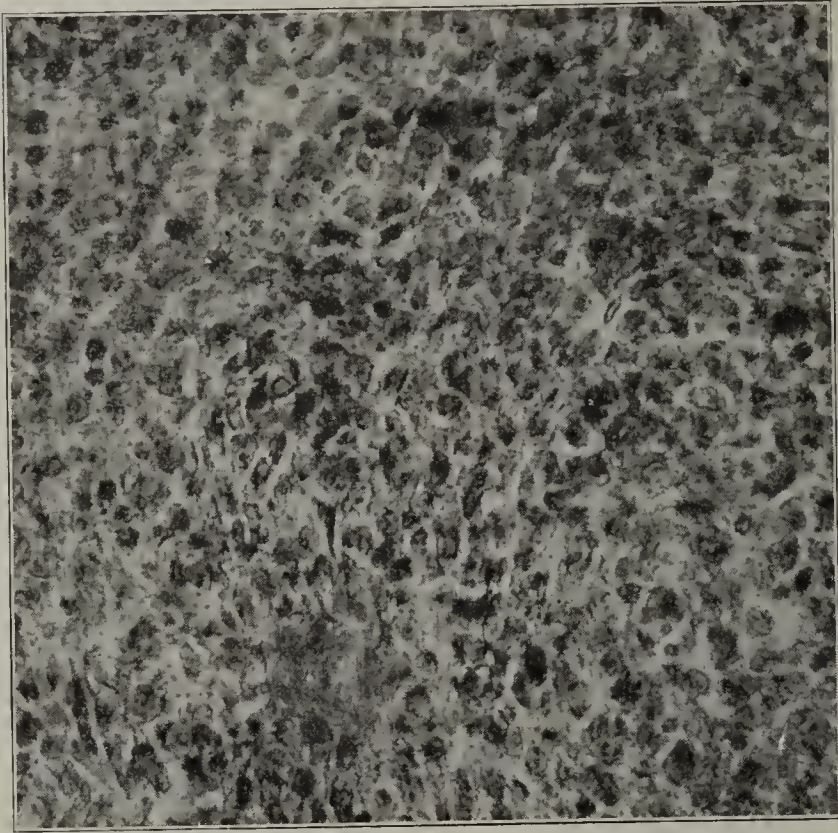


Fig. 2.—Primary carcinoma of liver. From photomicrograph.

CASES OF CARCINOMA OF LIVER, OPERATIONS AND RESULTS DURING YEARS 1909-1914*

Reported by	Sex	Age	Duration of Disease, Months	Tumor	Ante-operative Diagnosis	Operation	Result
Terrier and Auvray..... Rev. de Chir., 1898, xviii, p. 403.	♂	Non-pedunculated anterior border, right lobe, size of a fist, weight 270 gm.	.....	Intrahepatic ligature and removal with cautery.	Recovered, but three months later had recurrence, probably pelvic.
Bidewell, L. A. West London Med. Jour., 1911, p. 126.	♂	64	3	Pedunculated left lobe.	Growth, anterior surface stomach.	V-shaped excision. Vessels tied. Wound sutured.	Death: Seventh day, bronchopneumonia. Necropsy: No hemorrhage, no infection, no metastases.
Hargrove, H. B. New Orleans Med. Jour., Feb. 1909, p. 632.	♀	50	....	Hard tumor of right lobe. Weight 394 gm. Histology: "Carcinomatous; of scirrhus variety."	Omental tumor.	"Tumor was tied off of liver substance." No drain.	Five years, seven months. "Good health and no return."
Klose, H. Beitr. z. klin. Chir., 1911, lxxiv, p. 1.	♂	45	6	Solid, smooth, fist-sized. Embedded in left lobe. Weight 1,570 gm.	Tumor of liver of lesser curvature of stomach.	Left lobe removed, tamponade of liver wound.	Death: Fourth day. Necropsy: Acute endocarditis, no metastases.
Sehlimpert, H. Monatsch. f. Geburtsh. u. Gynäk., 1913, xxxviii, p. 306.	♀	32	6	Goose-egg sized, cystic, left lobe. Basal-cell type carcinoma.	Tumor of stomach or liver.	Excised through sound tissue.	Healed in three weeks. Four years later slight pain and tenderness over liver scar.
Castle, O. L. Surg., Gynec. and Obst., April, 1914, p. 477.	♂	10½ Months	5½	Pedunculated, margin of right lobe. Weight 651 gm. Microscopic, parenchymatous, adenocarcinoma.	Sarcoma of kidney.	V-clamping of pedicle. Interrupted catgut coapted base of pedicle over gauze, which acted as drain. No evidence of metastases.	Died: Sixteenth day, acute gastro-enteritis. No necropsy. First case reported in which complete surgical excision was done in an infant.
Yeomans, F. C. THE JOURNAL A. M. A., May 20, 1909, lii, p. 1741.	♀	37	12+	Pedunculated, right lobe. Size grape fruit.	Probable tumor of liver.	Incised cavity, everted and packed.	Operated for recurrence seven years after primary operation. Died, embolism? Necropsy denied.

* In this table the sign ♂ stands for male, ♀ for female sex.

This remained the same size and doubtless was the cicatrix in the liver.

Later History.—Oct. 9, 1913, she reported as having had "attacks of exhaustion" during the past six months. Six weeks before (August 25), she fell down stairs, striking her right shin and side. Four weeks later there developed a severe continuous pain, dragging and throbbing in character, in the right loin, which required opiates for its relief. This pain disappeared in about six weeks.

Examination now showed, for the first time, a hard, tender, oval tumor about 2 by 4 inches on the site of the old scar tissue that was always palpable by deep pressure beneath the wound of the operation. This mass moved with the liver in respiration. Her weight was now 126½ pounds; hemoglobin, 90 per cent.; urine, negative for albumin, sugar and microscopic elements.

A roentgenogram (Fig. 1) on Nov. 14, 1913, by Dr. Quimby, after an enema of bismuth, showed "cecum and ascending colon dilated. The first portion of the transverse colon passes downward and to the right to the outer side of the ascending colon and then turns inward and crosses the abdomen. The pressure of some structure external to it squeezed the greater portion of its contents out of that part extending from the ascending colon to the left of the median line. There is a large soft structure within the abdomen which projected to the right of the ascending colon. The part visible was about 12 cm. in diameter. Radiographic diagnosis: A tumor-like mass lying principally in the right half of the abdomen, extending from below the iliac crest upwards to about the level of the first lumbar vertebra. It displaces and presses upon the right transverse colon."

Second Operation.—Dec. 3, 1913, at Polyclinic Hospital, under ether anesthesia, a 6-inch vertical incision in the line of the old scar disclosed a tumor the size of a grape fruit. This was enucleated from its fibrous capsule by blunt dissection with slight difficulty, except its posterior attachment to the old scar tissue, which had to be cut. Bleeding was moderate, and easily controlled. A rubber tube was inserted, gauze packed about it, and the wound closed on each side of the tube. Time of operation, seventy minutes.

Patient was returned to her room in excellent condition, but one hour later developed sudden dyspnea, gave a few frantic gasps and died, probably from embolism, though this could not be proved as no necropsy was permitted.¹

Dr. Jeffries' report was the following:

Macroscopic: A mass of seminecrotic structure, 5 inches long by 2 inches thick. Cut section (Fig. 2) revealed indefinite structure studded with numerous small abscesses. A histologic study of tumor mass reveals a growth of unusual character. In many areas it would appear to be a mixed cell sarcoma, but there are other areas consisting of a fibrous stroma forming alveoli filled with epithelial like cells not associated with blood vessels. The latter structure leads us to make the diagnosis carcinoma and we conclude that the tissue which appears to be sarcomatous is in reality inflammatory only, or that we are dealing with a fibrous mass that has undergone inflammatory changes. A considerable degree of necrosis prevents an accurate survey of the histologic structures, but the presence of bile pigment would suggest its origin from the liver.

In looking up the literature five years ago I found nine cases of primary carcinoma of the liver reported, in which there had been operation. Of these one patient died three days after operation, four had recurrences in two, five and seven months, and eight years, respectively, three were alive and well three, three and one-half, and seven years, respectively, and one was reported well, the period of time after operation not being stated.

The results of these cases and the seven others since reported up to 1914, making with my own case sixteen in all, shows: Death in 4 patients, from various causes,

within sixteen days after operation; recurrence in 6 patients, from two months to eight years after operation; alive and well, 6 patients, from three to seven years after operation.

As pointed out by Eggel² from a pathologic study of 163 necropsies, primary carcinoma of the liver occurs in three forms: (a) Massive, which most frequently involves the right lobe; (b) infiltrating, of very rare occurrence, and (c) nodular, usually one primary growth with several smaller nodules, the usual primary type.

The prognosis is hopeless in all except single and primary growths. Even in the latter the diagnosis is usually wrong. The tumor before operation has been mistaken for hepatic abscess, hydatid or other cyst of the liver; tumor of stomach, colon, mesentery, pancreas or kidney; gall-stones, aneurysm of aorta, fibroid of uterus or ovarian cyst. The only hope for improvement in results lies in the direction of earlier operative exploration in patients with tumors in the right upper quadrant in whom no primary growth can be found elsewhere in the abdomen.

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CHRONIC ENTERIC INTUSSUSCEPTION DUE TO INTESTINAL TUMORS

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MOBILE, ALA.

The rather uncommon occurrence of intestinal invagination caused by tumors, and the interesting pathology of one of the cases, suggest the recording of these two histories.

Intussusception, subsequent to intestinal growths, is caused, as Treves suggests, by the excitation of an intense peristalsis at the point of attachment of the tumor and not by the tumor preceding and, as it were, drawing on the intussusceptum. The tumor usually forms the apex of the intussusceptum, as in the instances here reported. The lateral implantation of these growths, and the fact that all the invaginations were of the ascending variety, would lead to the view that the portion of intestine bearing the tumor prolapsed inward toward the intestinal lumen, excited energetic peristalsis and was then "swallowed" by peristaltic waves from above. The invagination increased by more and more of the sheath passing into the intussusceptum. This would accord with Hochenegg's view that carcinoma can produce invagination only when polyplike, that is, when the tumor distinctly protrudes and acts as an intraluminary body. The same mechanism obtains in invagination due to Meckel's diverticulum.

Weller Van Hook and Allen B. Kanavel¹ cite the following cases of intussusception caused by tumors.

Weiss in his study of the literature refers to sixteen instances. Two instances were papillomata of the rectum with subsequent intussusception of the colon. Wagner was able to palpate a pedunculated fibroma in the case of an intussusceptio ileaca at the apex of the intussusception. Poltauf demonstrated a case of polyposis of the stomach and intestines with consecutive intussusceptio ileocaecalis. Treves reported a case in which three polypi caused three separate invaginations. Marchand described a subserous lipoma of the cecum that formed the starting point of an invagination

1. This case was reported and specimen shown before the Surgical Section of the New York Academy of Medicine, Jan. 6, 1914.

2. Eggel, Hugo: Beitr. z. path. Anat. u. z. allg. Path. (Ziegler's) 1901, xxx, p. 506.

1. Van Hook, Weller, and Kanavel, Allen B.: Keen's Surgery, iv, 660.

ileocaecalis. Deichert describes a case of lymphocarcinoma of the digestive tract with multiple intussusceptions, while Luboff mentions a solitary lymphocarcinoma located at the point of the intussusceptum. A melanotic carcinomatous metastasis was described by Marchand as the cause of an intussusceptio jejunalis, the recurrence having taken place in the intestinal mucosa.

Moynihan² notes a case, cited by Morrison, in which an intussusception of the ascending colon was produced by a "rounded polypus of the size of a large walnut, which sprang from the antimesenteric border."

CASE REPORTS

CASE 1.—*Intussusceptio ileaca due to adenopapilloma of intestinal wall.*—Man, aged 26, with unimportant family and past history, was suddenly seized in November, 1910, with severe cramping pains in the left lower abdominal quadrant. The pain was strictly localized; there were repeated attacks of vomiting, never fecal in character; there was no fever. The attack lasted several hours and then suddenly subsided.

During the next two months he had several such attacks, each sudden in onset and as suddenly subsiding. In 1912 the condition recurred and he had severe attacks, with nausea and vomiting, every few days for a period of seven months. Since 1912 he has felt perfectly well, except for obstinate constipation, until early in June, 1914, when the cramps again returned. For the past ten days the cramps have been most severe. Starting in the left iliac region they travel toward the right iliac fossa and then upward toward the liver. He feels a "hard lump" in the locality of the pain; is nauseated and vomits. Ingestion of food seems to initiate an attack and after vomiting he is often relieved. The attacks cease rather suddenly, and he notes a disappearance of "the lump" in the abdomen at the same time. The vomitus is usually recently ingested food, and has never been distinctly fecal. Constipation has become severe and now approaches obstipation.

Examination.—The patient was a well-nourished negro man. The heart and lungs were normal. The Wassermann test was negative. There was no occult or free blood in the stools. In the left hypochondriac and lumbar regions and especially in the iliac region, one noted well-marked peristaltic waves. These were slow and downward in character. On palpation a rounded, firm and slightly tender mass was felt. The mass, variable in size at different times, was freely movable and was absent entirely between the attacks of pain, but invariably returned in the left lower quadrant, with onset of the pain, and growing larger, extended from the left lower quadrant upward toward the splenic area. Assuming its greatest size, the mass was about 6 inches long and from 3 to 4 inches in thickness. Rectal examination, digital and proctoscopic, was negative.

Operation.—A left rectus incision revealed in the left iliac fossa a tumor mass which, being delivered from the abdo-

men, proved to be an ileac intussusception 6 inches in length, located at about 8 feet from the cecal end of the intestine. The invagination was easily reduced, and at its apex was felt a hard tumor mass within the intestine, and the mesenteric glands corresponding thereto were enlarged. Six inches of the intestine, containing the tumor, were resected, and a lateral anastomosis performed. The patient made a rapid recovery, leaving the hospital on the tenth day, and to date has had no further trouble.

Pathologic Report.—The tumor is a "papillary adenoma with no invasion of the wall of the gut beneath the new growth" (Fig. 1).

CASE 2.—*Intussusceptio ileaca and jejunalis due to papillary adenoma of intestinal wall. Multiple.*—Man, aged 20, with negative family history and unimportant past history except for a mild attack of grip in 1913, had been apparently well and at work until three months ago, when he began to have "indigestion"-cramps, full feeling and swelling in the abdomen. These symptoms gradually became less severe and frequent, and now

the attacks occurred several times a day. A typical attack started with a severe cramp low in the left side of the abdomen, and he could feel a mass in the same area. The mass and pain slowly extended upward and toward the umbilicus and persisted for a few minutes or for several hours. When the mass disappeared the pain subsided and he was comfortable until the next attack. Constipation seemed to increase the frequency and severity of the attacks. Ingestion of food had no effect on the attacks. The patient had lately lost considerable weight.

Examination.—The patient was a thin negro man. The head and chest were negative. There was no adenopathy. Between attacks the abdomen seemed normal. There were no tenderness and no masses to be felt, but with onset of the pain there was muscle spasm, and a mass was felt in the lower left abdominal quadrant. Rectal examination was negative. Blood and Wassermann were negative.

Operation.—A left rectus incision revealed in the upper third of the ileum an intussusception of about 4 inches of the intestine. When the invagination was reduced, its apex was found to correspond to a scarlike stricture involving about half the circumference of the intestine and produced by a papillomatous tumor of the intestinal lumen. Three inches of the intestine, containing the tumor, were resected and a lateral anastomosis performed. About 3 feet proximal to the first a second invagination was found. This involved about 6 inches of the upper ileum. The entire area was excised and the intestine reunited by end-to-end suture. The pathologic condition of this was similar to the first intussusception, except that the apex contained two papillomas.

The largest invagination was found about 2 feet below the jejunoduodenal junction. It involved 3 feet of the intestine, and being reduced with difficulty, its apex was formed of a section of intestine 16 inches long containing six papillomas (Fig. 2). This section—16 inches—was resected and reunited



Fig. 1.—Papillary adenoma of the intestine.



Fig. 2.—Polyposis of the intestine.

end to end with a Murphy button. A fourth invagination was located still higher in the jejunum, but was easily reduced, and as the patient was suffering somewhat from shock, no resection was attempted.

The abdominal wound healed perfectly and the patient was walking about in apparently excellent condition in fourteen days. On the fifteenth day he suddenly developed signs of pulmonary embolism and died in two hours.

Necropsy.—There was a small, well-walled-off abscess at the root of the mesentery of the upper end of the jejunum caused by leakage from the end-to-end (suture) anastomosis. The stomach presented no gross lesions. The upper portion of the duodenum was the site of a compound partly pedunculated new growth, each unit of which was mushroom shaped, rather firm, yellowish white, the surfaces of some ulcerating. These tumors occurred single or grouped in twos and threes, all through the duodenum, extended into the jejunum and at varying distances through the small intestine to the ileocecal valve. The lymphoid tissue in solitary and agminate areas was hyperplastic; the lymph nodes of the mesentery were moderately enlarged. At the junction of the duodenum and jejunum there was an intussusception, the lower portion entering the upper for a distance of about 5 cm., and at the apex was one of the tumor masses; just below was the line of suture at which another invagination was relieved and where the leakage occurred; at two other points in the small intestine were the traces of operative intervention, one by a Murphy button, which was free in the lumen, the other by lateral anastomosis. Death occurred from pulmonary embolism, intussusceptions and an abdominal abscess.

Pathologic Report.—There were multiple adenoma and adenocarcinoma of the small intestine, with metastases to mesenteric glands.

AN ADAPTATION OF FRANK'S SEGMENT CAPSULES FOR CLINICAL USE

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It is generally recognized by clinicians and physiologists alike that the graphic apparatus in current use for recording the form of the pulse beat introduces considerable inaccuracy. It is therefore of general importance to recognize that we possess in the segment capsules of Frank a form of recording apparatus

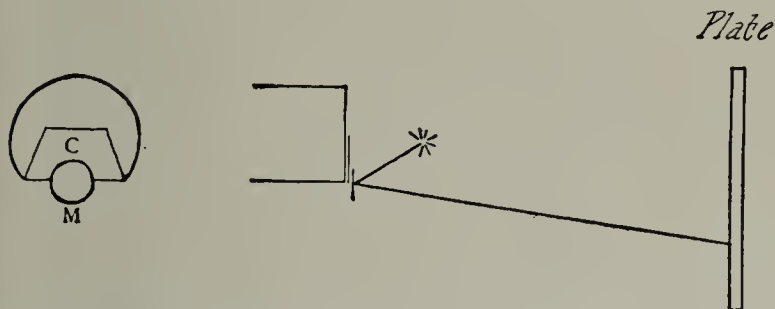


Fig. 1.—Diagram showing principle of apparatus: C, piece of celluloid; M, mirror.

that may be trusted to reproduce faithfully the pressure and volume changes actually existing in the veins and arteries and, in addition, one which is adapted to record directly the apex beat and heart sounds.

The use of this valuable apparatus has received little encouragement from clinicians and physicians, partly because the details of its operation are not sufficiently understood, and, partly, because it has not been available for bedside work. It seems desirable therefore to describe briefly, yet accurately, the principle and operation of these capsules and an arrange-

ment which makes their use at the bedside practical in hospital wards. This practicability has been demonstrated by their use at intervals during the past two years in the wards of Bellevue Hospital.

ADVANTAGES AND CONSTRUCTION OF THE SEGMENT CAPSULES

It was apparent to Frank that the recording Marey tambour which is the model after which all polygraphs are constructed, is the chief cause of inaccurate tracings. This is due, in a large measure, to the great mass, magnification and friction of ponderable levers.

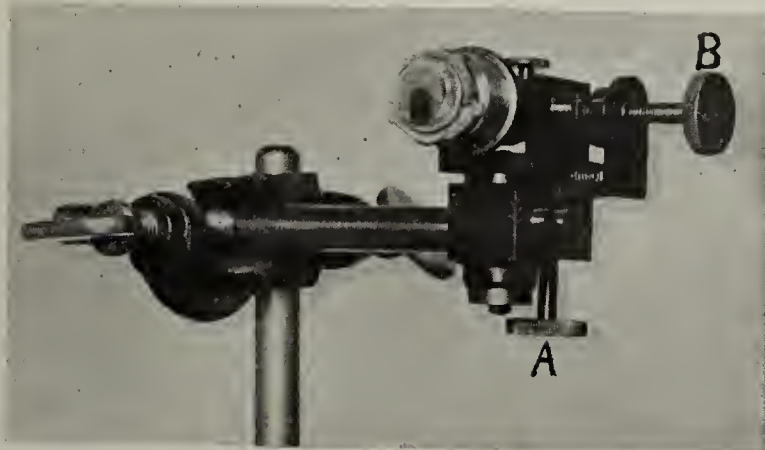


Fig. 2.—Mounting of capsules.

The segment capsule was therefore devised to furnish a recording mechanism in which the lever is without weight, is not impeded or modified by friction and yet permits a greater magnification of the membrane movement without deleterious effect on the system.

This ideal set of conditions was attained by flattening one side of the recording tambour so that a segment of the circle is cut off; hence the term "segment capsule" (Fig. 1). Over this capsule is stretched, under slight tension, the thinnest rubber dam obtainable. On the rubber is cemented a small trapezoidal piece of thin celluloid (C) so that its broad side exactly pivots on the chord side of the circle. On this, in turn, is cemented a tiny mirror (4 mm. in diameter and 0.2 mm. in thickness) so that its diameter also exactly pivots on the chord side (M). If this is carefully accomplished, movement in one plane only is possible.

On this mirror is focused a band of light, the image of which is reflected at a distance of 1 meter on a moving bromid film (Fig. 1). It is readily comprehended that this beam of light constitutes a lever without weight or friction.

In order to obtain lateral and vertical movements of the reflected band, a convenience necessary to throw light exactly into the camera slot, the capsules are mounted, as shown in Figure 2, in miniature cannon carriages allowing an upward movement by screw A and a lateral movement by screw B.

The apparatus is adapted for hospital use by the arrangement shown in Figure 3. Three segment capsules, A, B, C, are mounted by their cannon cartridges on an upright rod. Each one is connected with a receiving cup suitable for the pulsation to be studied. Three bands of light are provided from a single source of illumination after the clever method suggested by Seemann and Frank. The band of light from a Nernst filament is projected by three lenses, D, E, F. The alignment is such that the angle between the band projected on and reflected from the capsule mirrors is as

acute as possible. Immediately in front of the Nernst filament the pendulum of a clock (*H*) swings at the rate of four times per second, giving a simultaneous time record on each tracing.

The movements of the reflected beams are photographed on a moving film in a photokymograph (*P*). I use a modified and improved form of the Edelmann apparatus. It has recently been described in detail.¹ It is actuated by a small motor shown in Figure 3 at the end of the table. The apparatus in common with Frank's photokymograph, can be used in an undarkened room, the slot being so protected that only the rays from the Nernst light affect the films. The entire

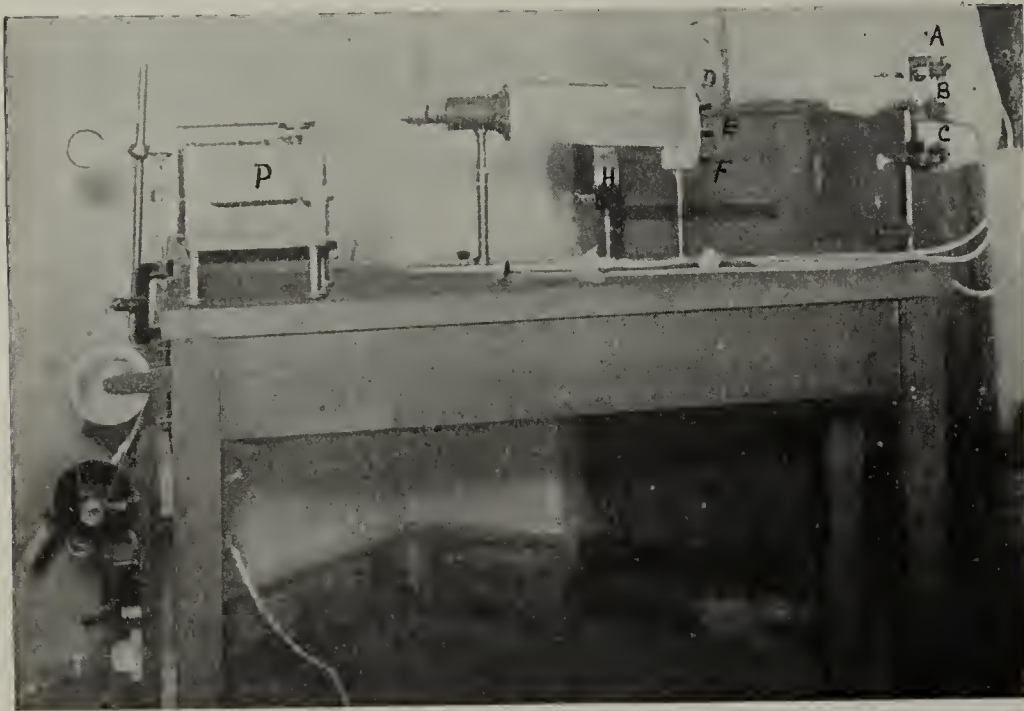


Fig. 3.—Adaptation of apparatus for hospital use.

apparatus can therefore be wheeled about the ward and records obtained without a transfer of patients from their beds. When not in actual use the apparatus is covered by a large hood, as a protection against meddling in the wards.

NATURE OF THE IDIOSYNCRASY TO EGG-PROTEIN IN HUMAN BEINGS*

PRELIMINARY NOTE

JACOB BRONFENBRENNER, PH.D.

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In previous communications we have shown that the combination between the immune serum and its specific antigen in vitro is followed by the autodigestion of the serum.¹ Thus the assumption of Abderhalden that in the Abderhalden test placenta is digested is not correct and the dialyzable substances appearing during the reaction originate from the serum and not from placenta. It was shown also that the properties of the products of such autodigestion of the serum

are toxic for homologous animals and in all respects resemble anaphylatoxin.² We have also shown that autodigestion of serum occurring in vivo as a result of specific interaction between the antibody of the serum of the sensitized animal and the antigen is the cause of experimental anaphylaxis.³

Moreover, our experiments have suggested that the phenomena of asthma, eclampsia, epilepsy and of a number of different idiosyncrasies which symptomatically very closely resemble anaphylaxis may be actually identical with this phenomenon.⁴

Through the courtesy of Dr. Edwin Zugsmith of this hospital and through the intelligent collaboration of the patient and her parents we had the opportunity in the last few months to make an extensive study on a case of a young girl, 17 years of age, who is subject to asthmatic attacks and severe gastro-intestinal disturbances following the ingestion of small quantities of egg-protein. This peculiarity has been noticed in the patient since very early childhood and accordingly all the food containing egg in any form was carefully eliminated from her diet by Dr. Zugsmith.

Last December, owing to the ingestion of a very small amount of egg in the form of pastry, the patient went through an attack and shortly after was the subject of our study. In order to see, as we suspected, whether the attack was of anaphylactic nature we tried by means of the Abderhalden test to discover any specific antibody in her blood. Freshly drawn serum of the patient was subjected to the Abderhalden test with coagulated egg-white as substratum. The result of this examination has shown beyond any doubt that her blood contained specific antibody against the egg-protein.

As further examinations would require large amounts of blood, we preferred in the later examinations to modify this technic by injecting a small amount of the patient's serum in guinea pigs, thus passively sensitizing them against egg-protein, and subsequently repeated the Abderhalden test, using the serum of these guinea pigs. These tests have confirmed our previous findings of the specific antibody against the egg-protein. The passive transmission of the antibody to the guinea pigs has given us also the opportunity to make other tests with this serum. Thus, by combining in vitro the serum of passively sensitized guinea pigs with the boiled egg-white, we have obtained anaphylatoxin which, in doses of 0.5 c.c., killed guinea pigs of 250 gm.

We have been able also to demonstrate the phenomena of the diminution of the antitrypsin in the serum during the Abderhalden reaction similar to that which we had found previously in the test for pregnancy.⁵

In this case the changes in the antitryptic index were of especial importance, since in at least two out of a number of guinea pigs tested when the serum alone contained ninhydrin-reacting substances,

1. Wiggers, Carl J.: Studies on the Pathological Physiology of the Heart, Arch. Int. Med., Jan. 15, 1915, p. 77.

* From the Pathological and Research Laboratories of the Western Pennsylvania Hospital.

Just as this communication was being completed, our attention was called to the article by Dr. A. A. Eggstein, appearing in THE JOURNAL A. M. A., Feb. 27, 1915. Although we do not agree with all the conclusions drawn by this author, we are glad to notice that most of his results are confirming our findings of the last year.

1. Bronfenbrenner, Jacob: Proc. Soc. Exper. Biol. and Med., October, 1914, p. 7.

2. Bronfenbrenner, Jacob: Proc. Soc. Exper. Biol. and Med., November, 1914, p. 48.

3. Bronfenbrenner, Jacob: Jour. Exper. Med., to be published.

4. Bronfenbrenner, Jacob: Pennsylvania Med. Jour., October, 1914, p. 20.

5. Bronfenbrenner, Jacob: Mitchell, Jr., and Titus: Biochem. Bull., January, 1915.

the Abderhalden test gave conflicting results, whereas the determination of the antitryptic index by the standard method was not influenced by the presence of these ninhydrin-reacting substances in the serum and showed a consistent diminution of antitrypsin during the experiment entirely comparable to the antitryptic index obtained in other examinations. It seems, therefore, that the diminution of antitryptic index may not only be useful as an additional indicator in the Abderhalden reaction, but in some cases it may give even more reliable results.

In concluding these notes we wish again to call attention to the fact mentioned previously, that inasmuch as the phenomena clinically resembling anaphylaxis are due to the toxic effects of the products of autodigestion of the patient's serum, the control of this autodigestion may give a clue to the treatment of the condition.⁴ We have already a number of facts in our possession which point to the possibility of preventing anaphylaxis by means of stopping the autodigestion through the injection of antitrypsin or by allowing the digestion to go beyond the point at which its products are toxic. In fact, successful use of normal serum in the treatment of eclampsia, according to our experiments, can be explained by the fact that in introducing excess of normal serum one increases markedly the amount of antitrypsin in the body, thus stopping autodigestion in vivo as we have done it in vitro.⁶

SUBDIAPHRAGMATIC INFLAMMATION

WITH A SYNDROME OF PHYSICAL SIGNS AND
SPONTANEOUS RECOVERY WITHOUT
SUPPURATION *

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Localized suppurative processes just beneath the diaphragm, while perhaps uncommon, are not rare. Picqué in an admirable monograph, in 1910, reviews the subject of subdiaphragmatic abscess. He particularly emphasizes a point originally elaborated by Leyden, which has not received sufficient attention, namely, that subdiaphragmatic abscess is actually within the thorax and suggests the term subdiaphragmatic pyothorax. Picqué shows clearly that in subdiaphragmatic abscess the signs and often the symptoms are those of pyothorax taken in its usual sense, meaning above the diaphragm. From an anatomic and physiologic point of view, it is clear that there may well be little difference in physical signs between a localized collection of pus above the diaphragm pushing the diaphragm down, and a similar collection of pus immediately below the diaphragm, pushing the diaphragm up.

Picqué gives the prognosis of inflammatory processes below the diaphragm as absolutely bad without surgical interference. This would seem to be true of the frank suppurative inflammatory process which is the usual condition. On the other hand, one occasionally sees at the post-mortem table extensive adhesions over the liver without evident cause.

Recently I have had the opportunity of observing four cases which all gave a similar syndrome of physical signs and a similar roentgenogram. All four were considered at first to be suppurative processes. All, however, recovered spontaneously. These cases indicate that there are inflammatory processes of infectious origin situated below the diaphragm which do not necessarily go on to suppuration. At any rate they recover spontaneously. The signs might well be interpreted as having their origin above the diaphragm, and it is to the Roentgen ray that we owe the ability definitely to decide that the process is below the diaphragm. While, of course, the statement of Picqué that subdiaphragmatic inflammation is a direct indication for surgical procedure holds true in a large proportion of cases, yet apparently there is a group of cases of subdiaphragmatic inflammation not hitherto recognized that recover spontaneously. This group of cases seems to form a clinical entity. The last two cases of this series were recognized clinically. The diagnosis was made by the clinical signs. It is probable that on account of the difficulty of differentiating processes above the diaphragm from those below the diaphragm without the use of the Roentgen ray, this group is larger than at first appears. The roentgenogram is that of subdiaphragmatic abscess.

The differentiation of this particular group of cases from the usual type of subdiaphragmatic abscess must be made on clinical evidence.

The following cases were observed during two services of six months on the west medical service of the Massachusetts General Hospital and represent the clinical material from about fifty beds.

CASE 1.—E. A. (W. M., 190725), a housewife, aged 40, entered the hospital Aug. 16, 1913. Family history and past history were negative.

Present Illness.—Three days before entrance the patient had fever and nausea of sudden onset, some slight pain in right lower chest, and a day or two later developed a very slight cough. She was referred to the hospital with the diagnosis of lobar pneumonia.

The routine physical examination was negative except for the chest. The lungs showed scattered râles. At the right base behind, below the angle of the scapula, there was dullness, distant bronchial breathing and increased fremitus. No Grocco's sign. Temperature 101, pulse 120, respirations 35. Urine examination negative. White count at entrance 15,000. The smear showed a polynuclear leukocytosis. Examination of the sputum, which was scanty, showed only a few organisms. Temperature remained about 100, she had rather more cough. The white count rose slowly to 43,000.

One week after entrance, examination showed dullness beginning at the angle of the scapula, changing to flatness at the right base. The line of dullness followed the "S" shaped curve of Ellis. The dullness at the base showed two characteristics that have been constant in the series: 1. Dullness by light percussion was high, reaching to the angle of the scapula, but the dullness by heavy percussion began 2 inches lower. The examination of the chest in other conditions showed no such discrepancy. 2. On deep breathing there was well-marked descent of the border of dullness. Both of these phenomena are, of course, only indicative of a high diaphragm. There was a definite Grocco's sign on the left. On auscultation, friction sounds were heard at the right base with diminished breathing, which in places showed a prolonged, high-pitched and rather intense expiration. Tactile and vocal fremitus were diminished. Both the dullness and the flatness descended with respiration.

At this time the patient was roentgenographed. Dr. Holmes reported from observation of plates and fluoroscopic examination that the lungs were normal and the diaphragm

6. Bronfenbrenner, Jacob: Jour. Exper. Med., 1915, xxi, No. 3.

* From the West Medical Service of the Massachusetts General Hospital.

1. Picqué, R.: Rev. de chir., 1910, xlii, 183 and 577.

unusually high on the right. The interpretation was of some pathologic process below the diaphragm, probably abscess. Exploratory puncture of the chest showed a few cubic centimeters of cloudy fluid. Examination of this fluid showed albumin 3.5 per cent., smear of the sediment showed neutrophils 65 per cent., basophils 35 per cent., no organisms, culture on blood serum showed no growth.

A tentative diagnosis of subdiaphragmatic abscess was made. In view of the high leukocyte count and the physical signs the patient was transferred to the surgical service for operation. Dr. Whittemore did a preliminary resection of the rib and placed packing against the pleura on August 25, expecting after the interval of a few days to perform the secondary operation. The temperature, pulse, respiration and leukocytosis came to normal within the next few days and the patient was without symptoms. At the time of the removal of the packing, Dr. Whittemore inserted a needle through the diaphragm and withdrew a few cubic centimeters of bloody fluid. Culture on blood serum showed numerous colonies of colon bacilli. The patient made an uneventful recovery and was discharged well, Sept. 7, 1913. The roentgenogram at discharge was of course complicated by the operation but showed that the diaphragm had returned to essentially its normal position.

It is of particular interest in this case that all the symptoms pointed to a pulmonary lesion. Furthermore, a small amount of fluid was obtained from the pleural cavity. While it cannot be stated positively that the fluid obtained was above the diaphragm, yet every precaution was taken not to go through the diaphragm.

Piqué and others refer to the presence above the diaphragm of a sterile fluid, the result of irritation on account of a process below the diaphragm. The presence of the colon bacillus in fluid obtained by puncture through the diaphragm after operation may or may not be of significance. It seemed evident that the progress of the case was uninfluenced by operation. Neither the history nor the physical findings gave any clue to the origin of this infection.

CASE 2.—W. H. (W. S. 190588), a woolen weaver aged 50, entered the west service under the charge of Dr. H. Williams, Aug. 9, 1913. Family history and past history, negative.

For two years the patient had had a left inguinal hernia which had become incarcerated in the scrotum. Dr. Williams operated on him on August 10, and did a usual radical operation for hernia. Before operation his physical examination, including blood and urine, was entirely negative. His convalescence was uneventful, the wound was solid and clean.

On August 28, eighteen days after the operation he had diarrhea. The temperature rose to 103, with an irregular range, slowly coming to normal after eight days. There was little change in his pulse or respiration. He had no pain and no cough. The diarrhea ceased after two days. He had a leukocyte count of 22,000 on August 29. He was seen in consultation on August 29, and daily thereafter.

Examination showed dulness, increasing to flatness, beginning at the right scapula with no abnormal dulness in the front of chest. The dulness and flatness both descended with inspiration and showed the discrepancy noted in the previous case between light and heavy percussion. A definite Grocco's sign was present on the left. After roentgenography and fluoroscopic examination Dr. Holmes reported negative lungs, a very high diaphragm on the right. The interpretation was of some pathologic process beneath the diaphragm which moved with respiration. The signs slowly cleared up, the temperature and white count came to normal. He had at no time any symptoms, except those of malaise. There was never any pain and no cough. He was discharged well Sept. 4, 1913. His physical examination at that time was negative and the roentgenogram showed a diaphragm in the normal situation.

Obviously the most interesting feature of this case was the operation eighteen days before the onset of the acute infection. I cannot satisfactorily associate the two although it seems likely that there is some association. In this case there was complete absence of symptoms except the two-day diarrhea and the usual symptoms of fever.

CASE 3.—T. M. (W. M. 190652), an Italian peddler aged 48, who had lived in Massachusetts for twenty-seven years, entered the hospital Aug. 13, 1913. He was referred to the hospital with a diagnosis of "fluid in the chest." Family history good.

Twenty-five years ago the patient had a fever which lasted for about three weeks. When closely questioned he was under the impression that his chest was tapped at that time but he does not know which side and his statements were very vague.

Present Illness.—On July 6, a little over five weeks before entrance, he first began to have pain all over right chest. July 8, he went to bed on account of this pain and fever. He remained in bed until August 6, after which he did not feel feverish and his only complaint was dull pain in the right chest. There was no cough, no vomiting.

Physical examination was negative except for the chest. The heart was negative. Right clavicle more prominent than left; the right chest moves little with respiration. There was slight dulness all over the right chest. There was a semicircular area of flatness about 8 cm. in diameter arching up from the lower border of the right lung in the posterior axillary line. This area of flatness descended with inspiration. The dulness varied with the force of percussion. Over this area we found the breathing vary from normal to very feeble, with absent vocal and tactile fremitus. A "moist-leather" sound was heard over the right lower chest. Abdomen negative. Temperature 98, pulse 80, respiration 25. Wassermann negative, urine negative, whites 7,000; smear negative. From roentgenogram and fluoroscopic examination Dr. Holmes reported a very high and rather rigid diaphragm on the right, descending somewhat with inspiration, corresponding approximately to the physical signs. Lungs negative. Interpretation, some pathologic process below the diaphragm. He was kept under observation for twelve days. He had no elevation of temperature, leukocytosis or other symptoms. The moist-leather sound disappeared from the chest, the examination otherwise was the same and the roentgenogram ten days later showed no change. He was discharged well.

The supposition in this case is that the diaphragm had been fixed in its abnormal position. It is possible, of course, that this condition had persisted since his attack of fever twenty-five years before. The case is included as being somewhat similar to the other cases and suggestive of the same process.

CASE 4.—J. V. (W. M. 197861), a laborer, aged 45, born in Italy, living in Massachusetts for twelve years, entered the hospital Sept. 26, 1914. History through interpreter. Family history negative. The patient had not been ill for twenty years except ten months ago when for one month he had diarrhea.

Present Illness.—Fever and weakness for three weeks. Burning sensation rather than real pain in lower right front of chest in which region (eighth space and axillary line) he was tapped twice by his local doctor, "once dry, once blood." No cough, no gastric symptoms, no chills.

The physical examination showed dulness to flatness with diminished to absent breathing, voice and fremitus at right pulmonary base. Constant dry râles probably pleural. Dulness varied enormously with difference in percussion and with respiration. Slight Grocco's sign. In front slight dulness at fourth space varying a little with change of position. Heart negative. Abdomen rigid and tender in right upper quadrant. Rectal examination negative. Examination otherwise negative. Temperature 103, pulse 100, respiration 28.

Urine negative. Hemoglobin 80 per cent., whites 55,000, polynuclears 91 per cent. At entrance the right chest was tapped and 125 c.c. of yellow fluid obtained. Examination of the fluid showed specific gravity 1.016, albumin 4.5 per cent., cells 43,600 per cubic millimeter, polynuclears 68 per cent. No bacteria. No growth on various culture mediums. Some of the fluid was injected into a guinea pig which showed nothing at necropsy November 2. Blood culture negative. Wassermann negative. Echinococcus fixation test negative. The stools on several examinations were negative for blood, ova and amebae. The temperature, pulse and respiration slowly drifted down and were normal after October 19. The signs increased and on October 3, it was noted that the spasm persisted in the right upper quadrant of the abdomen. There was a definite bulging of the lateral chest wall on the right over the usual situation of the liver, the interspaces were obliterated and there was a curious boggy feel over this situation. The right side measured 42.5 cm., the left 39.5 cm. This bulging slowly disappeared and had disappeared on October 28. At that time the right side measured 41.5 cm. and the left side 40 cm. The interspaces were then normal and there was no bulging and no spasm or tenderness. The physical signs, however, showed the evidence of a high diaphragm on the right, even at discharge. Roentgenographic examinations were made September 28, October 3 and October 9. The examination on September 28 showed a high diaphragm on the right, moving very little with respiration. The angle between the diaphragm and the chest wall was hazy. The lungs were negative. The interpretation by Dr. Holmes was of probable subdiaphragmatic abscess. The two subsequent roentgenograms showed that the diaphragm was still high. It was the opinion of the roentgenologist that the diaphragm was probably fixed in that position by the inflammatory process.

The points of special interest in this case are (1) the signs referable to the abdomen, namely, the persistent rigidity and tenderness in the right upper quadrant; (2) the presence, as in Case 1, of a sterile fluid above the diaphragm apparently secondary to the process below the diaphragm; (3) the rather definitely localized signs of inflammation causing bulging of the chest wall, obliteration of the interspaces and change in palpation; (4) the persistence of the high diaphragm after the attack as in Case 3.

DISCUSSION

The four cases presented show certain differences, but on the whole seem to fall naturally into a single group. The lesion in each case was below the diaphragm on the right side. The important distinguishing feature is the spontaneous recovery. So far as I know similar cases have not been previously described. It seems probable that other cases have been diagnosticated as lesions above the diaphragm and have escaped notice. It is only by the Roentgen ray that the diagnosis can be positively made. This study contributes very little to the etiology. The finding of colon bacilli in one case is of doubtful significance. One case occurred eighteen days after operation, but the connection is not clear. Three cases occurred spontaneously. It seems obvious that the condition must be of infectious nature.

In all the cases the preliminary diagnosis was a lesion of the lungs or pleura. In two cases the symptoms were largely pulmonary. In one of these two cases and in another case a sterile exudate was demonstrated above the diaphragm. In this respect again these cases resemble the cases of subdiaphragmatic inflammation which go on to suppuration. In the three cases seen in the acute stage there was an active leukocytosis, 55,000 per cubic millimeter being recorded in one case. No patient had chills. The

temperature was irregularly elevated and tended to fall gradually. The duration of the fever was from eight days to four weeks.

The physical signs were primarily those of a high diaphragm on the right. The important features of the signs which were constant were the discrepancy of dullness according to the force of percussion, the descent of dullness with inspiration and the presence of Grocco's sign on the opposite side. The signs and the roentgenographic observations were closely parallel. In two of the cases the diaphragm remained high after the disease had run its course and in the other two the diaphragm returned to its normal position.

While these cases were under observation there was an opportunity to study a case of perinephritic abscess verified by operation. In that case there was also dullness at the base of the lung which varied with respiration and also with the force of percussion. However, there was no Grocco's sign. There was considerable costovertebral tenderness. Repeated roentgenographic examinations failed to show a high diaphragm and did not correspond to the percussion findings.

One case of presumable liver abscess, not verified, however, by operation or necropsy, showed signs that were at first confusing. However, both the Roentgen ray and the clinical signs showed that the diaphragm was high on both sides. There was no Grocco's sign. This patient had chills and a very irregular temperature. Jaundice and ascites finally developed before the fatal termination. Of course, in this series of cases the lesion is directly over the liver. It does not seem probable, however, that the liver is involved.

In several cases of large abdominal tumors which have pressed up the diaphragm, somewhat similar physical signs were found, including a Grocco's sign on the opposite side of the chest. The roentgenogram also shows a high diaphragm. Some of these cases were mistaken at first for abnormal conditions above the diaphragm. These cases, of course, are differentiated by the absence of fever, leukocytosis, acute signs and the presence of abdominal masses.

A search of the records of the Massachusetts General Hospital shows that suppurative processes below the diaphragm are not rare. I was able to find two cases which presented sufficient evidence to warrant their inclusion in this group. I saw neither case.

CASE 5.—E. M. (156665), a Hebrew, aged 37, entered Dec. 11, 1907. Family and past histories were negative. His symptoms were indefinite, the main symptom being abdominal pain for three months. His examination was recorded as negative. His urine and blood were negative. The temperature was slightly irregular, the maximum being 102. He complained of some pain in the right chest. He left the hospital on December 31. He was seen in the out-patient department and his right chest was strapped for pleurisy. He reentered the hospital Jan. 28, 1908. At that time he had no fever and considered himself well. Examination, however, showed increasing dullness below the angle of the scapula on the right with diminished to absent breathing in the same situation. Exploratory paracentesis just below the angle of the scapula gave "a few cubic centimeters of pus." A culture from this pus on blood serum showed no growth. The roentgenographic report was "a bulging of the right diaphragm. Lungs negative." He was operated on and the pleural cavity explored but found to be normal. He had an uneventful convalescence and was discharged well. He reported again April 7, 1909, a little over a year later. He considered himself well since discharge. The physical examination at that time was negative. There was no roentgenogram.

It seems probable that the pus obtained by puncture came from below the diaphragm in view of the negative exploration of the pleural cavity. It is evident that not sufficient reliance was placed on the roentgenographic examination.

CASE 6.—W. M. (160988), an American waiter, aged 31, entered the hospital Nov. 4, 1908. Family and past histories were negative. He used alcohol to excess and was drunk at time of entrance. For one week he had had dull pain in the right lower chest. No other complaint.

Physical examination was entirely negative except for some epigastric tenderness. His temperature was 101, pulse 120. Urine negative. Leukocyte count 19,000. Blood culture negative. The temperature steadily averaged 101, drifting to normal on December 2. The leukocyte count varied between 13,000 and 19,000. On November 12, eight days after entrance it was noted that there was dulness at both bases behind, left more than the right. "The dulness on the right begins at the angle of the scapula, on the left an inch and a half above the angle of the scapula, changing into flatness below the angle of the scapula. Breath sounds and fremitus are diminished on the right and diminished to absent on the left." The roentgenographic examination showed that the diaphragm was exceptionally high and was higher on the left than on the right. The diaphragm moved slightly on the right but was fixed on the left. The right lung was entirely clear; there was evidence of pleural thickening on the left. The case was an extremely puzzling one. Exploratory punctures were made on both sides just below the angles of the scapulae but without result. The signs entirely cleared up and he was discharged well Dec. 11, 1908, with the diagnosis of presumable subdiaphragmatic abscess which had spontaneously absorbed.

The striking feature in this case in contrast to the other cases is that the signs were on both sides and were more marked on the left. In all the other cases the signs were limited to the right side. There is no reason to presume that the lesion may not be present on the left side as well as on the right.

These two cases are included merely to show the probable frequency of the condition. Case 5 suggests how other cases are overlooked. In Case 5 the condition was considered to be a pleural empyema, despite the roentgenographic evidence. It seems probable that there are a goodly number of obscure cases diagnosed as pleural inflammation which the Roentgen ray might definitely prove to belong to this group.

CONCLUSION

This small group of cases presents a syndrome of signs and roentgenographic findings of which the most plausible interpretation seems to be that an inflammatory process of unknown etiology may be situated below the diaphragm, which does not go on to suppuration but which recovers spontaneously.

Science as a Balance-Wheel.—Thinking and doing are for the time out of balance. Science has the power to restore and maintain the balance by breathing more of its spirit into practical life, and if an instrument to guide this work is needed—if it is right for men of science to have a confession of faith—I know of none more inspiring than the words that Huxley used in defining his own life purpose. To promote the increase of natural knowledge and to forward the application of scientific methods of investigation to all the problems of life to the best of my ability, in the conviction which has grown with my growth and strengthened with my strength, that there is no alleviation for the sufferings of mankind except veracity of thought and of action, and the resolute facing of the world as it is when the garment of make-believe by which pious hands have hidden its uglier features is stripped off.—Ross G. Harrison, *Science*.

HEREDITARY ANIRIDIA AN INTERESTING FAMILY HISTORY *

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PHILADELPHIA

The case history here presented, together with the striking family history of heredity, is regarded of sufficient interest for publication.

George McL., aged 27, was referred to my Wills Hospital service, Nov. 2, 1914. The right eye had been lost from some unknown cause in childhood and presented a shrunken stump. If his statement is to be accepted, he had recently suffered a sudden and serious impairment of vision in the left eye, but the "vision had never been good." So far as he knew, the eye had not been subjected to any accident. Inspection revealed an aphakial eye with entire absence of the iris. No rudimentary trace of that membrane could be discovered. The retina was detached, and ruptured from before backward, the site of rupture being to the nasal side of the vertical meridian in the lower half of the globe. The vitreous was fluid and well filled with freely floating shreds of opacity which appeared gray by oblique illumination. When these were allowed to subside, a faint or much blurred view of the upper posterior portion of the fundus could be had with the electric ophthalmoscope. In this portion of the fundus the retina did not seem detached and with it he could with difficulty count fingers and see to walk about the ward. The lens was not in situ, and no trace of it could be discovered in the vitreous chamber.

It seems probable that the sudden loss of vision was due to the separation of the retina. The fluidity of the vitreous body, the floating exudate, the condition of that portion of the fundus still possible to study, the dilatation of the anterior ciliary vessels, and the general external discoloration of the anterior segment of the ball, all point to a long standing uveal disease.

It was discovered that in July, 1914, a cousin of the patient had been under treatment in the hospital, also with aniridia. Inquiry revealed the fact that the condition was prevalent in the family. The patient's mother had double aniridia, and he had a son and daughter both of whom were aniridic in both eyes. I am indebted to Dr. Carson, then the junior house surgeon, for the following remarkable history of transmission of an ocular anomaly through four generations. The patient belongs in the third generation. The condition of the eyes of John F., Sr., and his wife, is not known, but their son John F., Jr., had double aniridia, his wife having normal eyes. From this stock there were 117 descendants, 234 eyes. In the first generation, therefore, the male progenitor had double aniridia, that is, two aniridic eyes.

In the second generation there were four males and nine females, all of them suffering from double aniridia, giving a total of twenty-six eyes with this abnormality of development.

In the third generation, to which the patient belongs, there were thirty-two males and thirty-one females. The patient had but one eye in which the presence of the aniridia could be demonstrated, the other eye having been lost in childhood, and there were four individuals, eight eyes, in which the condition was not known. The remaining fifty-five eyes had no iris. Of the thirty-one females, with sixty-two eyes, all had aniridia. The total number of eyes in the third generation was 117.

In the fourth generation there were nineteen males known to have aniridia and two eyes known to have cataract; and twenty-three females with forty-four aniridic eyes, the condition of two eyes not being known. That is to say, in this generation there were forty-two individuals with seventy-six eyes in which the iris was absent, the condition of the remaining eight eyes not being known.

As an illustration of the persistence of a hereditary anatomic anomaly, I know of no more striking history

* Read before the College of Physicians in Philadelphia.

FAMILY OF MR. JOHN FURNE, JR., AND DESCENDANTS, SHOWING ANIRIDIA.*

[illegible]

* In this table the sign + indicates aniridia; 0, no abnormality in eye; ?, condition of eye not known. Figures after names indicate approximate ages.

† Patient in Wills Hospital, July 9 to July 28, 1914 (Dr. Fisher).
‡ Patient in Wills Hospital, Nov. 2, 1914 (Dr. Risley).

than is furnished by this family. We are familiar with the unfailing transmission of mental defects to the descendants of the feeble-minded and criminal classes, but it is open to question whether an anatomical anomaly like aniridia can be regarded fairly as an analogous condition.

Any effort to explain the essential nature and cause of aniridia would, in the present state of our knowledge, lead to unprofitable speculation in the realm of embryology, or the mechanical explanation of Mendel's law of heredity as set forth by De Vries. I can conceive no explanation for the ectodermic and mesodermic structures composing the iris failing to develop beyond the scleral ring after the formation of the choroid and ciliary portion of the uvea. It is of interest to note that the lens is usually present and transparent, and in a case of aniridia reported by Dr. Reuling,* he was able to demonstrate that the range of accommodation was not impaired.

SUMMARY

One son. 2 eyes (aniridic).

Second generation; male, four: 8 eyes; female, nine: 18 eyes.

Third generation (patient belongs here); male, thirty-two: 55 eyes (condition of four individuals not known); female, thirty-one: 62 eyes.

Fourth generation; male, nineteen: 32 eyes, 2 eyes cataractous; female, twenty-three: 44 eyes (condition of two eyes not known).

2018 Chestnut Street.

POSSIBLE TUBERCULIN REACTION IN THE BREAST-FED CHILD AFTER DIAGNOSTIC DOSE TO THE MOTHER

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SPRINGFIELD, ILL.

Tuberculin, both in diagnosis and in treatment, has suffered so much through the recklessness and carelessness of those who have not given sufficiently serious thought to its use, that those who have come to have even limited confidence in this very potent agency feel that they must protect its reputation by placing every safeguard about its employment. While pharmaceutical houses are making the administration of tuberculin attractively simple and easy, those who would not see it discredited must sound constant warning and urge that it be used always with the utmost caution.

On the other hand, while recognizing the dangers of the injudicious use of tuberculin, we must scrutinize the reports of untoward results, that the agent shall not suffer from faulty observation and erroneous conclusions or be the victim of simple coincidence.

Most of us recall the case cited by H. L. Barnes,¹ in which he had intended using tuberculin, but decided not to do so. Two days later, the patient died of hemoptysis. Had the tuberculin been administered as originally proposed, the hemoptysis and death would have been charged to it. In a like case, reported by Frazer and Biggs,² paraplegia developed the day

before he was to have received tuberculin. The suspicion which would have arisen had the paraplegia developed two days later is not difficult to conjecture.

In my own experience in private, dispensary and sanatorium work, it had not occurred to me as hazardous to employ tuberculin for diagnostic purposes in nursing women. I had used it guardedly in this way from time to time and had witnessed many pronounced reactions without the slightest disturbance in the infant, although I am convinced that in three instances, at least, the breast-fed infants were clinically tuberculous at the time the mothers were given the test.

The following case is interesting in that it suggests one of two things: That, possibly, greater care should be exercised in the use of tuberculin in diagnostic dose in the nursing mother, or that the element of coincidence should be taken fully into consideration in interpreting unfortunate complications which may occur after tuberculin has been used.

F. L. P., aged 6 months, was the apparently healthy child of F. P., a man aged 30, suffering from open pulmonary tuberculosis, and of M. L. P., a woman aged 30, who had been in poor health since the child's birth.

Physical examination of the mother elicited nothing on which a definite diagnosis could be based; but, in addition to her poor health, it was ascertained that her father had died of tuberculosis and that one brother and two sisters were supposed to be tuberculous.

In view of the necessity for removing the child from the breast in case the mother was tuberculous, a tuberculin test was decided on. A 1 per cent. dilution of old tuberculin, amounting to 1 mg., was given intradermally. This was followed by marked local reaction with some slight systemic reaction.

A day later, the nursing child, who was under the care of the family physician, was reported to have developed bronchitis or bronchopneumonia and, about a week after the injection of the mother, there were reported definite meningeal symptoms.

When I visited the infant, on the invitation of the family physician, I found evidence of extensive pulmonary involvement and of meningitis. The temperature was about 103 F., the face pale, the head thrown back and the neck rigid and there was conjugate deviation of the eyes. The posterior cervical glands were equally enlarged on either side and an isolated gland, the size of a small English walnut, was found under the sternomastoid muscle on the left.

Auscultation of the chest showed scattered mucous râles and tubular breathing over the left side. The liver extended two fingers' breadths below the costal margin.

The child died about ten days after the test had been given to the mother.

Assuming the tuberculous infection of this child, who had been cared for frequently by a father who was suffering from open pulmonary tuberculosis, and considering the great infrequency of any effect on the child from the reaction on the part of the mother, it seems highly probable that the relationship of the test and the child's acute illness was purely one of coincidence; and this is supported by the fact that, for two or three weeks prior to the acute illness, the child had been indisposed, the indisposition being attributed to "teething."

The literature on the effect on the breast-fed child of tuberculin test of the mother is very meager; but what there is of it seems to confirm the conclusion of coincidence in cases of this kind. Schlossmann³ reports the injection of forty-nine nursing mothers

* Reuling: *Am. Jour. Med. Sc.*, January, 1875.

1. Barnes, H. L.: *Boston Med. and Surg. Jour.*, 1908, clix, 331.

2. Frazer and Biggs: *Bull. Univ. of Penn., Med. Dept.*, March, 1901.

3. Schlossmann: *Monatschr. f. Geburtsh. u. Gynäk.*, 1903, xvii, 1311.

followed by more or less reaction in eighteen, or 36.8 per cent. of cases, and in none of these was the child affected in any way.

While there is no question but that toxins as well as immune substances may be transmitted through the milk, it seems hardly probable that, in this case, sufficient tuberculin could have reached the child to cause the slightest disturbance. It seems much more likely that, in this unquestionably tuberculous child, the acute illness, terminating in miliary tuberculosis, meningitis and death, had already begun, perhaps at the advent of the disturbance attributed to teething, two or three weeks before the test was given to the mother. The reasonable assumption is that the terminal disease was due to the dissemination of antigen from the large gland found under the sternomastoid muscle.

However, in our present incomplete knowledge of the action of tuberculin and its possible far-reaching effects, every case which may suggest further study and the employment of greater caution is worthy of serious consideration. Likewise, it is important, by the citation of such cases as this, to avoid unwarranted conclusions as to baneful influences of a diagnostic agency without which the early diagnosis of tuberculosis would be infinitely more difficult if not impossible.

ONE SOURCE OF INFECTION IN CLEAN
SURGICAL CASES *

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The occurrence of a group of several cases of infection in strong patients after simple clean operations somewhat over a year ago brought this subject acutely to my attention. The cases to be reported are of patients operated on by Dr. P. Y. Tupper in five of the large private hospitals of St. Louis, in which I acted as first assistant. Whereas theoretically no such thing as an aseptic operation is possible, practically good asepsis prevents infection in the overwhelming majority of a competent surgeon's non-infective cases. Our results were not satisfactory to us, but where was the practical error in our asepsis chain?

TABLE 1.—INFECTIONS NOTED DURING THE PERIOD
BETWEEN NOVEMBER, 1909, AND DECEMBER, 1913*

Hospital	Chronic Appen- dix		Pelvic Non-sup- purative		Hernia		Thyroid		Breast		Non- classi- fied	
1.....	3	58	2	27	1	25	0	7	0	17	1	9
2.....	0	16	2	14	1	13	0	5	0	7	0	4
3.....	0	13	0	9	0	10	0	2	0	4	0	0
4.....	0	9	0	6	0	5	0	1	0	3	0	5
5.....	0	10	0	1	0	2	0	0	0	2	0	2

* In this and the following table the left hand column of figures represents cases of infection; the right hand column the number of operations.

To obtain a clearer understanding of the real state of affairs it was determined to tabulate our results according to hospitals. Many cases unquestionably have a minor infection, characterized by slight tenderness and induration of the wound, which subsides in a few days of rest without further disturbance. Our standard of infection was that the local evidence of infection plus fever kept up after the normal post-

* From the case records of Dr. P. Y. Tupper, for whose permission to publish this report my thanks are hereby acknowledged.

operative reaction, and was only relieved by the discharge of pus. Secondary infection of the wound was eliminated from the series (1) by excluding all cases having active pus foci elsewhere, as in such cases there is always a possibility of metastatic infection; (2) by not removing the dressing of clean cases until the union was firm; (3) by the exclusive use of absorbable ligature in such cases. It was determined to exclude from this consideration all drainage cases, except uncontaminated blood, because they do not yield themselves to an exact classification as to the presence or absence of an extrinsic infection.

Hospital 1 showed 7 infected cases out of 141, approximately 5 per cent. Hospital 2 showed 3 infected cases out of 59, again approximately 5 per cent. Hospitals 3, 4 and 5 showed no infected cases out of 39, 28 and 17 cases, respectively.

While in general, of course, we realized that our results varied in the different hospitals, the actual tabulations proved a surprise. This series includes all cases, so that in some instances acne, poor general resistance or even errors in operative procedure may have been responsible for the infection. For example, our first infection in an interval appendix operation at Hospital 1: The incision was median and disclosed a very firmly bound down cecum which presented, at that stage of our development at any rate, great technical difficulties. The further clinical course suggested hemorrhage with secondary infection and after a critical stormy period posterior drainage gave relief. However, as the original wound became infected, this case is included in the series for the sake of completeness; but many of the infections tabulated were in normal strong patients with no theoretic excuse to offer. That the other infections were all mild in character, that no thromboses, fascia sloughs or severe secondary hernias resulted is no extenuation, but simply a matter of good fortune. For the surgeon has no control over the extrinsic infections and eventually those of a serious type will appear.

As the class of cases and the operators were the same in the different hospitals, the working hypothesis of some error in operating-room technic seemed justified. Up to this stage we had worked on the assumption that we ourselves were to blame, realizing, however, the other possibility. The essentials of our asepsis have remained unchanged throughout. These as we interpret them are:

The use of rubber gloves in all major cases (for the past year a heavier grade of gloves has been found not to interfere with our work, and as they give better wear, are much more satisfactory); keeping our hands out of pus, more especially of a fresh virulent type; and wearing long-sleeved gowns and a mask over the mouth and nose. The skin of our hands is kept in normal condition by the liberal use of soap and warm water, and the sparing use of the chemical germicides. Our patients are prepared by shaving, and, just before operations, by ethereal soap, washed off by weak mercuric chlorid, and are painted with dilute iodine, which is in turn washed off with alcohol. The same knife that makes the skin incision in normal skin is used throughout the operation, as, practically, we do not believe that the normal skin or mucous membrane bacteria are sufficiently virulent to cause clinical infection of the wound. While, theoretically, infection might be so caused, practically we believe this theory is used as a mask to cover other serious errors of technic.

The nursing corps and the house-surgeons were naturally constantly changing in the various hospitals throughout the years tabulated, without any appreciable change in our general results. So that even though we might have been at first so tempted, it is illogical to attribute our infections to the changing personnel. The error must be sought deeper. Further general impressions of carefulness and carelessness in the operating room service differed markedly from our tabulated results. For while Hospital 3 gave the impression of great care and yielded ideal results, Hospital 2, which was extra careful and fussy, yielded most indifferent results. Further, Hospital 4, which is busy, rushed, short of help and apparently careless, showed no case of infection.

The preparation and care of sponges and dressings in all hospitals was fairly uniform and apparently satisfactory, and at any rate no difference sufficient to account for our results showed up. But when the preparation of the instruments was considered, we found that whereas all hospitals boiled most of our instruments for about twenty minutes under pressure, our knives and scissors were boiled only in Hospitals 3, 4 and 5. Hospitals 1 and 2, in which all our infections occurred, used a carbolic-acid-alcohol method of knife-scissors sterilization. Here was the first lead that promised to account for our troubles, and, frankly, the first time we realized that our knives and scissors were not being boiled at all the hospitals. We trusted to the technic of the various operating rooms on the theory that they would work at best advantage with the least possible interference.

Was this fact a real lead or simply a remarkable coincidence? For everybody knows the common comparison with statistics and, further, out of the ordinary coincidences invariably receive publication. If this non-boiling of knives and scissors was really a big factor in our infections (not the only one we are frank to admit) then the boiling of these instruments would be followed by an improvement in our results. The following table shows our results from that time to date.

TABLE 2.—NUMBER OF INFECTIONS NOTED FROM DECEMBER, 1913, TO FEB. 15, 1915

Hospital	Chronic Appendix		Pelvic Non-suppurative		Hernia		Thyroid		Breast		Non-classified	
1.....	0	11	0	5	1	4	0	2	0	4	0	1
2.....	0	12	0	10	0	3	0	0	0	7	0	3
3.....	0	3	0	4	0	3	0	0	0	4	0	4
4.....	0	0	0	1	0	1	0	0	0	1	0	1
5.....	0	5	0	1	0	0	0	0	0	0	0	2

Since this change in our technic we have had only one infected case and that one excusable, for the patient was a fat anemic man, obviously a poor risk. Our incidence of infections fell from 3.5 per cent. as shown in the first table to 1.1 per cent. in the second series.

Granting the completeness and honesty of this report, only two conclusions are possible—either a most remarkable series of coincidences, or in general surgical practice unless special precautions are taken, knives and scissors must be boiled.

On quizzing the nurse in charge of the operating-room in Hospital 4, she replied, "Yes, we boil knives and scissors! If the surgeon requests the solution method, we boil them first and then use his pet method.

It works out better!" I am not quoting this as a model of hospital discipline, but as the mature opinion of an intelligent observer.

Is this subject a live topic for discussion before the surgeons of to-day? My observation has shown that many surgeons of St. Louis, consciously, and some unconsciously, use an insufficient knife-scissors sterilization process, and after all St. Louis mirrors fairly the surgery of the world. Consequently I feel justified in taking up the generally accepted facts back of the problem.

Why do many surgeons object to the boiling of their knives? The main objection is that the boiling dulls the edge, and this certainly holds true if the blade-edge is jumbled against the other instruments in the process of boiling. The knife and the scissors should be wrapped in gauze and boiled separately from the other instruments for about three minutes. Let me emphasize that this process will not take the place of a preliminary sharpening of the knife, but, on the other hand, it will not materially affect the sharpness of the edge. This procedure would not protect against the danger of spore-infection, which would require either longer boiling under pressure or a preliminary treatment of the knife with the free halogens, chlorine, bromine or iodine. As the spore diseases, tetanus, anthrax, etc., are unusual in an ordinary operating-room, practically this more strenuous sporicidal effort is but rarely necessary.

Alcohol and carbolic acid, however, the enthusiast's object, kill the ordinary infective germs certainly within the time limits allowed. This is perfectly true, but it must not be forgotten that it only holds true if the germicide actually reaches the bacteria. If in practice there is any dried body-fluid or grease on the knife, then these germicides fail to penetrate and are consequently powerless. If the knife is mechanically perfectly clean and the grease is removed by some solvent, then the carbolic-acid-alcohol method is theoretically and presumably practically perfectly satisfactory. Some very delicate instruments, which boiling would injure, justly depend on these chemical methods. On the other hand, for ordinary surgical work, the much simpler process of boiling does dissolve off grease and secretion, so that the blade gets the full germicidal effect.

A last word in regard to the germicidal power of alcohol. In spite of unanimous scientific proof, the general surgical world has not yet learned that 50 per cent. alcohol is a much stronger germicide than 100 per cent. The chop logic still holds sway that if 50 per cent. is good, then 100 per cent. is better. As a matter of fact, absolute 100 per cent. alcohol is not a germicide at all and a 50 per cent. solution is very much more effective than the commonly used 95 per cent. solution, and half the price.

On these clinical and theoretic considerations rests my contention that the general surgeon's knife should be boiled.

Wall Building.

The Engineer and Health Departments.—No state can be considered abreast of the times until its state health department has a division or bureau of public health engineering, charged with the duties of advising and supervising in matters relating to water supplies, sewerage systems, the disposal of garbage and trade wastes, the control of industrial hygiene, and the sanitary control of public buildings.—*Public Health Reports*, Feb. 5, 1915.

New Instruments and Suggestions

BLOOD TRANSFUSION SIMPLIFIED BY USE OF NEW METHOD AND APPARATUS

HENRY W. ABELMANN, M.D., CHICAGO

The chief object of the method and apparatus is to provide a way and means by which the transfer of blood can be accomplished by one person in a simple, safe and reliable manner. The principles involved to prevent the coagulation of blood (sodium citrate and petrolatum) are nothing new. Their joint application, however, combined with the employment of technic and apparatus, constitutes a very definite and new principle which makes the successful transfusion of blood possible.

METHOD

Preparation of Syringe.—After the syringe has been sterilized, petrolatum (heated to the liquid state) is taken up through the needle so that the inner surface of the syringe is coated. This coating facilitates the easy sliding of the piston and renders barrel and plunger air tight. After the syringe has been prepared in this manner it is filled with 5 c.c. of a 1.5 per cent. sodium citrate in 85 per cent. sodium chlorid solution, which excludes air from the lumen of the needle and syringe. The petrolatum coating and the solution prevent the coagulation of blood. The syringe is now ready for use.

Preparation of Patient and Donor.—The flexor surface at the bend of the elbow is sponged with 95 per cent. alcohol and then a moderately tight tourniquet is placed around the arm to distend the veins.

Aspiration of Blood.—The transfusion needle is thrust into the most prominent of the donor's veins. As soon as the barrel is filled with

blood, the tourniquet is removed and the needle withdrawn. Then 5 c.c. of the solution are taken up and the syringe laid on the tray provided for this purpose and the needle removed.

Injection of Blood.—The hypodermic syringe fitted with the transfusion needle and filled with 10 m. of the solution is taken and the needle is thrust into the most prominent vein of the recipient. As soon as the needle enters the vein, the blood pressure will push the plunger outward, which is a sufficient proof to the physician that the needle is in the lumen of the vein. The tourniquet is now quickly

removed and the contents of the hypodermic syringe emptied into the vein. Now the hypodermic syringe is disengaged, and the one filled with blood is connected and its contents injected into the recipient's vein.

If more than 120 c.c. of blood is to be transferred, the needle is left in the vein until two or three syringes are filled with blood. These are placed on the tray and injected in turn into the recipient's vein. With the transfusion of more than 360 c.c. of blood, larger syringes are necessary or else assistance is required. Although the method is practicable in all cases in which transfusion of blood is advisable,

it is particularly applicable in the treatment of those diseases which require the administration of small and repeated doses to bring about the best results.

APPARATUS

The apparatus consists of a box containing the syringes, transfusion needles and solution cup (Fig. 1, A). It is sufficiently compact to be carried in a coat pocket. The box is of aluminum, and is therefore light in weight and easily kept clean. The extension cover of the container (Fig. 1, B), is utilized as a syringe tray, its construction being such that when employed for this purpose it has stationary syringe-holding portions accommodating as many as three syringes, holding them in properly spaced relations and preventing them from rolling away (thus avoiding breakage). They also serve in keeping the transfusion needles and pistons in the sterilized field (thus avoiding contamination). The syringe-holding

portions also prevent the piston from sliding, which obviates the inadvertent dripping of blood or the entrance of air into the syringe. The extended portion of the cover can serve as a drip pan, and is telescopically engaged with the remainder of the cover.

The syringes preferably are all glass.

The transfusion needles (slip-joint and interchangeable with the

syringes) are provided with a guide which serves to indicate the correct position of the cutting edge of the needle and as a gripping portion, which lends ease and control to the operation, and also by means of which it can be handled without the danger of contaminating the needle. The needle is attached to the syringe by means of a rubber tube. By using the flexible connection between needle and syringe, it is possible to hold the syringe in various positions and at the most convenient angle without affecting the position of the needle, thus minimizing the possibility of traumatizing the vein (Fig. 2, B).

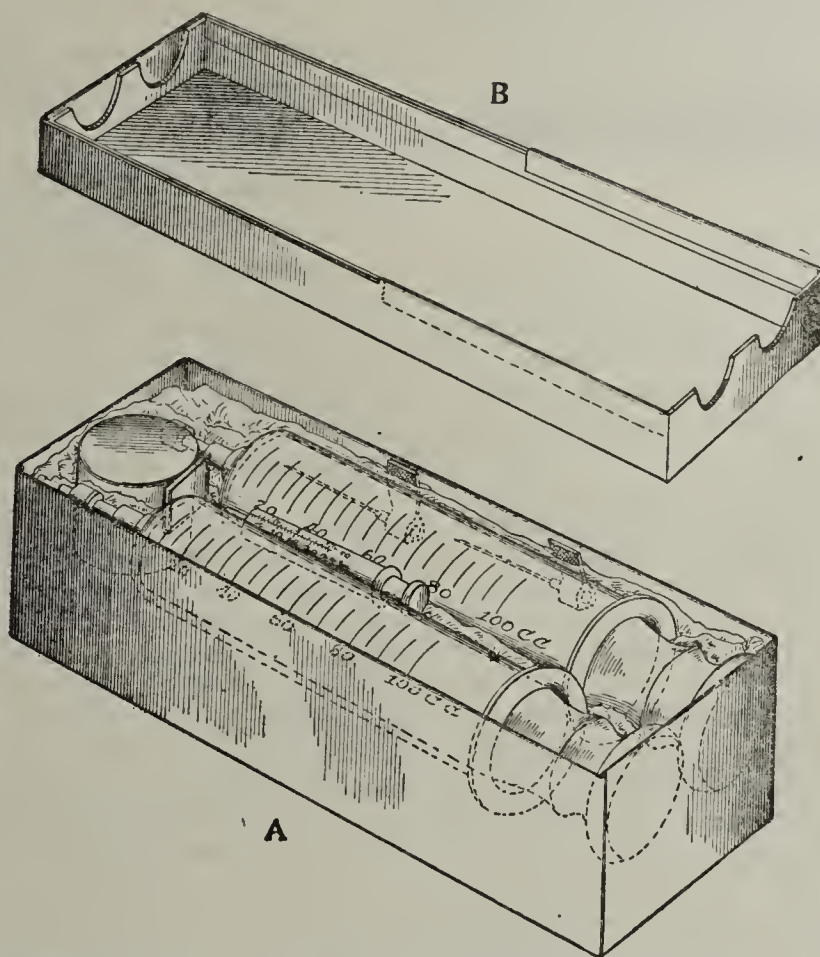


Fig. 1.—A, transfusion case packed, which can be carried in the coat pocket; B, cover for case which, when extended, serves as syringe tray (Fig. 2 A).

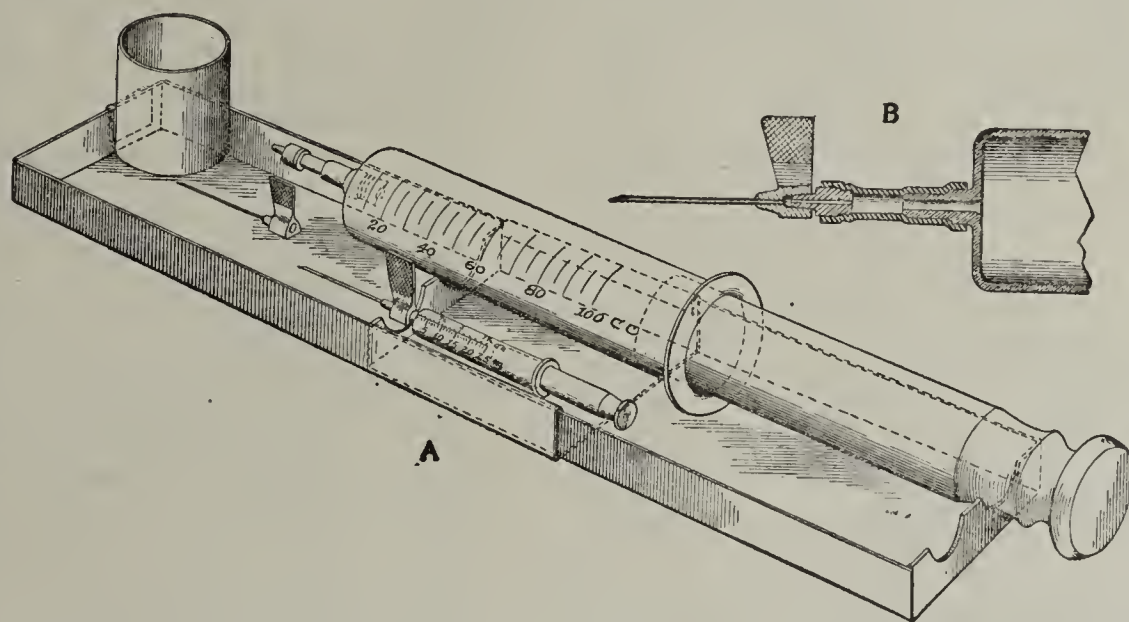


Fig. 2.—A, box cover extended, serving as syringe tray and drip pan; B, longitudinal section of syringe.

A NASAL DRESSING FORCEPS

OTIS ORENDORFF, M.D., CANON CITY, COLO.

For a long time I have felt the need of a delicate nasal dressing forceps with a curved tip, and with the assistance of F. A. Hardy & Co. I have evolved the instrument illustrated herewith. This can be used in many places in the nasal cavities when one wishes to pack or sponge or remove a dressing or débris around the corner. It can be held with the tip vertical when used in the superior cavities, as in the Mosher operation, or can be turned at any angle to the right or the left when reaching around a convex septum, and will also be found a convenient instrument in turbinate work.



Nasal dressing forceps.

It is annoying to have a piece of loose tissue or packing slip out of the line of vision and yet to know exactly where it is and still be unable to reach it with a straight tip forceps. Workers in kindred fields, gynecologists, oculists, and dentists, have instruments similar to this one in constant use and could not get along without them.

The dominant idea in the construction is that of lightness so that the sense of touch, so essential in working in regions out of sight, is preserved to as great a degree as possible.

A CONVENIENT OFFICE SCREEN

WILLIAM H. DEADERICK, M.D., HOT SPRINGS, ARK.

A dressing room in an office of limited space is ordinarily impossible. Panel screens occupy valuable room and are always in the way when not in use. I have recently devised a curtain screen which has proved very convenient.

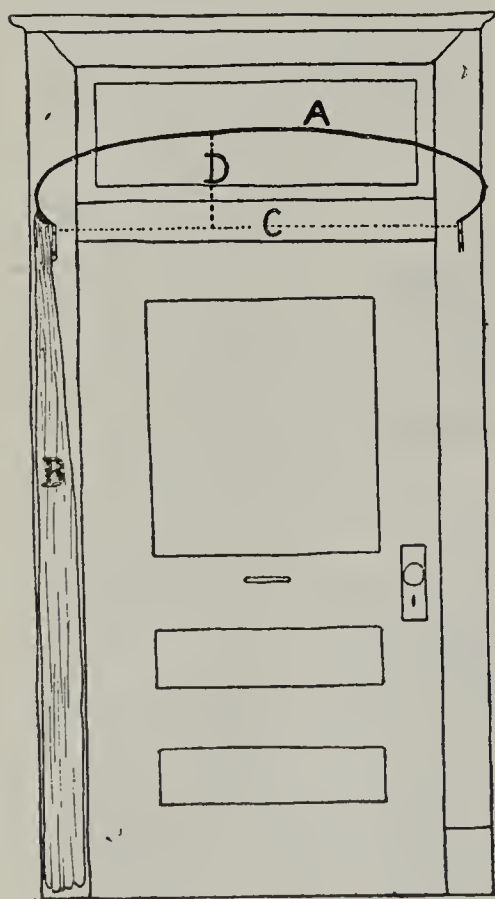


Fig. 1.—Curtain screen not in use, showing the various parts.

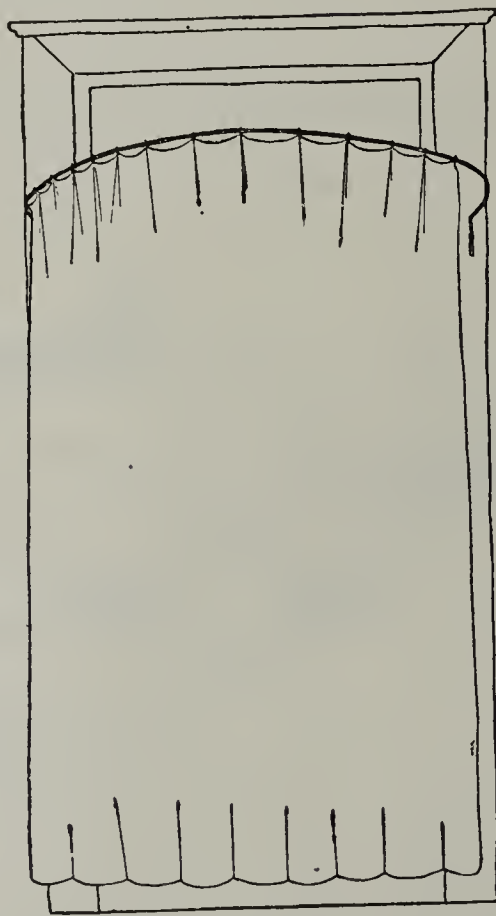


Fig. 2.—Curtain drawn.

It consists of an iron rod, *A*, $\frac{3}{8}$ inch in diameter, curved in semicircular fashion, with the ends bent downward at right angles and flattened and bored to permit fastening to the door facing in a plane perpendicular to the door. To this is hung by rings a sheet, *B*, long enough to reach almost to the floor and wide enough to extend around the rod. The

distance *C* is governed by the width of the door and is measured from center to center of the door facing. The distance *D* should be about 3 feet. The screen does not interfere at all with the use of the door.

The advantages of this screen are:

1. Its shape permits complete concealment of the patient from any part of the room.
2. Its location at the door utilizes space which could not otherwise be used.
3. It is simple and cheap.

PREVENTION OF INFLAMMATION FROM LEAKAGE DURING INTRAVENOUS INJECTION OF SALVARSAN AND NEOSALVARSAN.

CHARLES A. MOBLEY, M.D., ROCK HILL, S. C.

Genito-Urinary Surgeon to the Fennell Infirmary

As is well known, during the intravenous administration of salvarsan, there occurs occasionally a leakage into the perivascular tissues. This may result from several causes.

1. The needle while entering the lumen of the vein may transfix the posterior wall of the vessel. When the flow of salvarsan is started the fluid distends the vein and may be forced out of the posterior vein injury.

2. In the use of the syringe method too much force may be applied in forcing the fluid into the circulation and a back leakage about the needle may result.

3. Even after having made a successful puncture, during the manipulation of adjusting the apparatus to the needle, its correct position in the vein may be changed. The first intimation of this fact is usually an exclamation of pain from the patient and the appearance of a swelling about the needle.

4. A diseased condition of the vein wall may, at times, account for the "kicking back" of the solution about the needle.

5. Not getting the needle point far enough into the lumen of the vein usually causes the solution to be extravasated.

There are probably other causes of this painful accident, but the preceding are the most common.

The result of the extravasation of solutions of salvarsan and neosalvarsan about the vein vary with the strength of the solution employed and the amount extravasated, from a painful, indurated swelling of slight extent, which disappears after a few days without further trouble, to an actual necrosis with the formation of a slough. The latter takes weeks to heal and is commonly followed by an extensive formation of scar tissue.

To prevent this injury I have devised the following technic: Do not allow assistant to remove tourniquet from about arm, but merely have him loosen same until it is certain that the solution is being successfully introduced. If a swelling appears or the patient complains of pain an extravasation has occurred. Immediately have tourniquet tightened, at same time withdraw needle, and with the free hand stroke vein with a firm pressure from tourniquet to within a short distance of point of needle entrance into vein. Hold the fingers at this point until a considerable hematoma is formed by blood flowing out of the hole in the vein into the surrounding tissues. Allow this hematoma to remain for a space of from fifteen to forty-five seconds, then have assistant place finger over the hole in vein (not hole in skin), and next proceed by a kneading

process to milk out the fluid blood, forcing the hematoma out through the hole in the skin made by the entrance of the needle. This can be so successfully done that no trace of the hematoma will persist, not even slight discoloration. Lastly, put on a pad of gauze and hold with adhesive tape. Needless to say, speed in the performance of this maneuver is essential.

A NEW STAY STITCH FOR DEEP WOUNDS

EDMOND BONNOT, A.M., M.S., M.D., ST. LOUIS

This stitch is new to me, as I have never seen any description of it before. If such, however, has been used or devised previously, I apologize to the author. It is a great improvement on the ordinary method of closing a deep wound, especially of the abdomen.

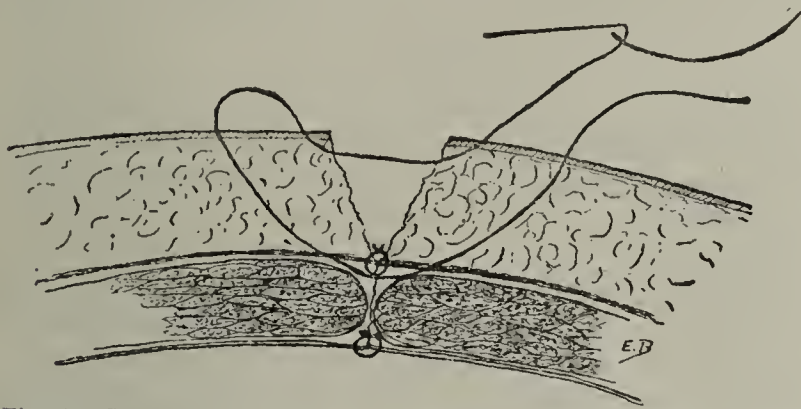


Fig. 1.—Showing silkworm gut introduced after deep fascia is closed with cat-gut.

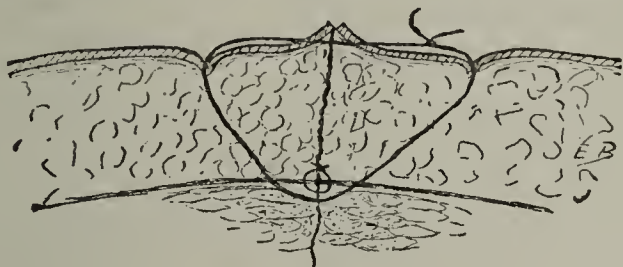


Fig. 2.—Showing skin everted, knot tied to the side of wound, and approximation of the parts.

This stitch, ordinarily speaking, is a mattress suture on the side, the deep layers being closed in their anatomic relations with catgut as usual. Silkworm-gut is used on a large curved needle which is inserted about an inch from the edges of the wound through and including the edges of the deep fascia, and out on the other side at the same distance from the wound. The needle is then passed back through the skin one-fourth inch from the edges and tied to one side of the wound (Figs. 1 and 2).

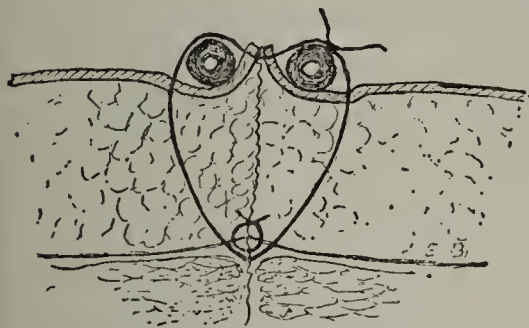


Fig. 3.—Showing rubber or glass tube on each side of wound.

The advantages are:

It gives complete support.

There is eversion of the skin edges.

Accurate approximation of the edges is obtained.

The knot to one side of the skin line facilitates the use of skin clips or other skin-closing material.

It lessens the scar, and with a rubber or glass tube on each side, may be left as long as desired without cutting the skin or causing cross scars (Fig. 3).

3329 Park Avenue.

AN AUTOSEROSALVARSAN APPARATUS

MODIFIED FROM THE M'CASKEY APPARATUS AND USING THE SWIFT-ELLIS TECHNIC

A. W. STAHL, M.D., DENVER

I have modified the McCaskey apparatus for autoserosalvarsan treatment, which was described in *THE JOURNAL*, May 30, 1914, p. 1709, so as to make it less complicated and more easy to sterilize and to operate. There are no rubber corks to become destroyed by heat or to loosen and allow leakage. The tubing and needles can be retained in original position throughout the procedure, and sterility is thereby insured. I find it convenient to enclose each needle in a

separate small test tube before sterilizing, and to remove the test tube just before using the needle.

The apparatus consists of a graduated inverted U tube of glass, constricted at its lower extremities to receive $\frac{1}{4}$ -inch rubber tubing, and supplied at the side of its upper rounded portion with an outlet to which is attached a short rubber tube fitted with a cotton plug.

The rubber tubes attached to the lower extremities are each supplied with a clamp, 1 inch from the U tube, and are also fitted with short pieces of glass tubing near their lower extremities. The one rubber tube is 8 inches long and terminates in an intravenous needle. The other rubber tube is 3 feet long and terminates in a connection for the intraspinal needle. Both of these terminals are enclosed in small glass test tubes. The intraspinal needle is also placed in a test tube fitted with a cotton plug.

DIRECTIONS FOR USING THE APPARATUS

Place 20 c.c. of normal salt solution in the intraspinal arm of the inverted U tube and sterilize entire apparatus at 20 pounds steam pressure.

Give patient intravenous salvarsan in the usual way. Wait from one-half to three-quarters of an hour and then insert the intravenous needle of the apparatus into the patient's vein. Loosen the clamp on the intravenous tube and produce suction through the upper outlet, filling the intravenous arm of the inverted U tube to 50 c.c. Then clamp the rubber tube again and remove the needle from the vein.

Place the apparatus in an ice box over night to allow the serum to separate. The blood clot will adhere to one side of the tube, and the clear serum can be gently and gradually poured over into the intraspinal arm by tipping the apparatus. The amount and proportion of serum and salt solution in the intraspinal side of the tube can be varied as desired from 100 per cent. serum to 50 per cent. serum or less. Mix the serum with the salt solution and place the apparatus in a water bath, heating to 56 C. (132.8 F.) for half an hour. Cool to the temperature of the body, and the salvarsanized serum is now ready for use.

Insert the intraspinal needle, withdraw the spinal fluid, and then being sure that all air is out of the intraspinal

tubing, connect the needle with the apparatus and allow the serum to enter the spinal canal. Gravity is the only pressure needed as a rule, or pressure may be applied through the upper outlet of the inverted U tube.

The advantages of this apparatus are:

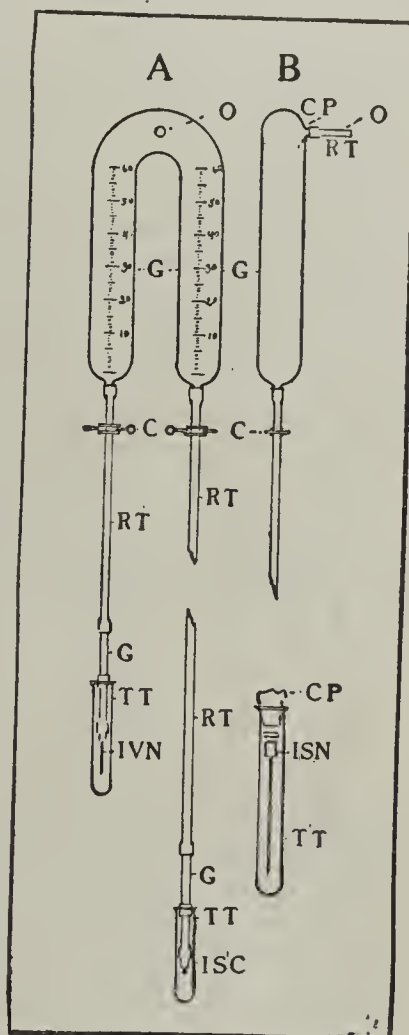
1. The entire apparatus is sterilized at once and remains sterile throughout the procedure.

2. The blood, serum and salt solution do not come in contact with unfiltered air at any time.

3. The apparatus has no rubber stoppers or sliding glass tube.

4. The apparatus is not complicated and is easy to operate.

506 Metropolitan Building.



Autoserosalvarsan apparatus: A, front view; B, side view; G, glass; C, clamp; O, outlet; RT, rubber tubing; CP, cotton plug; TT, test tube; IVN, intravenous needle; ISN, intraspinal connections; ISN, intraspinal needle.

TIME-SAVING FORCEPS*

CARLETON DEDERER, M.D., LOS ANGELES

Elimination of waste time alone has been the deciding factor in many an operation. Much time is lost in operations by the accidental catching and tangling of ligatures in the handles of artery forceps.

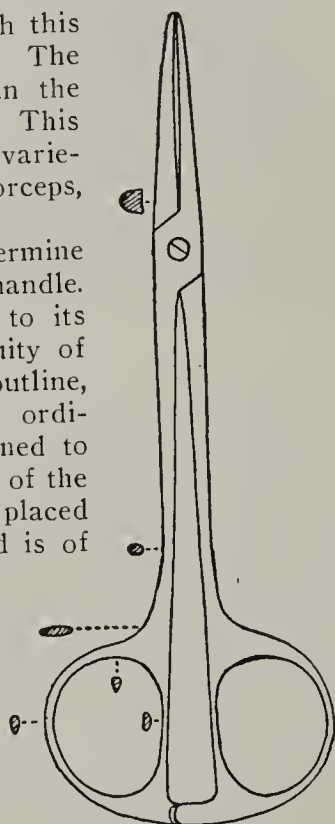
Here is a pair of forceps in which this troublesome accident cannot occur. The portions of these forceps other than the handle have no distinctive design. This form of handle is applicable to other varieties of forceps, such as Kocher forceps, Kelly forceps and others.

There are two features which determine the character of the outline of the handle. Each ring of the handle is joined to its corresponding lever arm by continuity of structure, having a cantilever outline, thereby occluding the acute angle ordinarily found when each ring is joined to its lever arm. The snapping portion of the forceps which holds them shut is placed at the extremity of the forceps, and is of such shape that it gives to the end of the forceps at the handle a semielliptic outline.

This sample, which I have had made, fulfils all the mechanical requirements, except that it is a little too heavy, owing to the failure of the instrument maker to adhere to the cross-sections as laid down in the working drawing. All instruments for handling tissues should be as light as is compatible with their intended use.

If this design of forceps meets the approval of the profession, there is no reason why they could not be made in large quantities as cheaply as those of the ordinary design.

602 Hollingsworth Building.



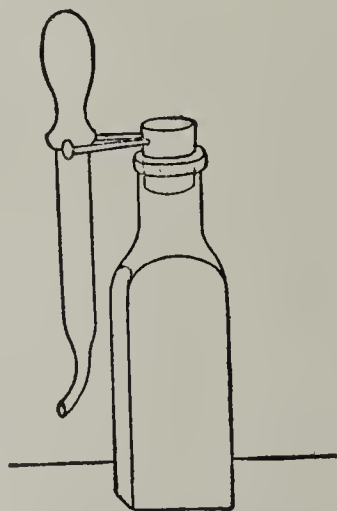
Time-saving forceps, showing cross-sections.

MEDICINE PIPET HOLDER

H. S. REYNOLDS, M.D., NEW HAVEN, CONN.

Various holders and bottle attachments for medicine pipets have been devised, but are seldom available when needed.

An efficient holder can be improvised in about ten seconds' time by the use of two common brass pins. The pins are inserted deeply into the cork, parallel with each other and nearly in contact. They will possess spring enough to hold securely an ordinary medicine pipet as shown in the accompanying illustration.



Medicine pipet holder made of two pins.

* Read before the Los Angeles County Medical Society, Feb. 4, 1915.

Race Suicide and Politics.—

"As long as more than 600,000 infants die in this country each year from easily preventable causes no woman may be blamed if she hesitates to enter on the duties of motherhood," asserted C. W. Stiles before the Knife and Fork Club of Kansas City in a recent address on hookworm and the other diseases of the South. As a remedy he said further, "When their husbands take the public health service out of peanut politics and make it reasonably certain that every healthy child born has an opportunity to live and thrive, then the women may be called to account about race suicide."

Special Article

PRACTICAL PHARMACOLOGY*

(Continued from page 1242)

XV

LOCAL ANESTHETICS

COCAIN

Cocain is the only alkaloid of therapeutic importance obtained from coca. There are, however, other bases present in the leaf which probably add materially to its action, but which have not been studied.

The use of coca by the natives of Peru was mentioned by Pizarro in the sixteenth century, and at a very early date remarkable tales were told of the feats of physical endurance which the natives performed while using it. These stories were often considered as mere travelers' tales, but they have been amply verified, and the following interesting account of the endurance of coca-chewers is given by Lloyd of Cornell University:

We started across the Paramo, as the lofty summit of the Andes above the timber line is called. On this trip the dozen Indian porters who carried our cargoes all consumed coca unceasingly while on the march. After eating a simple breakfast of ground corn porridge, they would start with their heavy packs, weighing from 75 to 100 pounds, strapped to their backs. All day long they traveled at a rapid gait, over steep mountain spurs and across mucky swamps at an altitude that, to us, without any load whatever, was most exhausting. On these trips the Indians neither rested anywhere nor ate at noon, but incessantly sucked their wads of coca throughout the entire day.

The first investigation of cocain worth mentioning appears to have been made in 1860, when Woehler isolated cocain. The local anesthetic action of coca when chewed with ashes (as the natives use it) was observed a little later, and was shown to be due to cocain. Nothing came of these observations, however, until Koller, now of New York, introduced cocain into medical practice in 1884. For some years it was very expensive and its use was limited to ophthalmic practice. Its costliness, its toxicity and other disadvantages have served as a stimulus in the search for substitutes, and many synthetic preparations have been introduced, but none of these has attained the popularity of cocain, though some have certain special fields of usefulness.

While cocain is used therapeutically almost exclusively as an anesthetic, its action on the central nervous system is of importance because of the frequency with which poisoning occurs through its abuse and through accident or overdosage.

Cocain stimulates the centers in the same general order in which they are depressed by morphin, but the motor areas, which are not depressed by morphin, are actively stimulated by cocain; this results in circus movements in some animals. The stimulation is followed by depression of the same areas, but the stimulation and depression are not at all uniform, so that one usually observes evidences of mixed stimulation and depression of the various centers during cocain poisoning.

* This is the fifteenth of a series of articles on useful drugs—on practical pharmacology for the general practitioner. As soon as completed, these articles, elaborated by additional subjects, will be published in book form.

Cocain causes a notable rise in the temperature, supposedly through its action on the heat-regulating mechanism.

The respiratory center in the medulla is stimulated, causing an increased rate, with little change in the depth at first. Later the stimulation gives place to depression, and with large doses the respiration becomes shallow, while the rate may be increased still further. If convulsions result, the respiration is arrested, and, as after strychnin convulsions, may fail to be reinstated, or there may be a gradual respiratory failure, with Cheyne-Stokes respiration and progressive slowing and diminished volume until death.

The vasomotor centers are stimulated by cocain, causing a great rise in blood-pressure, which may be so extreme as to demand treatment after large doses. It should be noted that this excessive rise in the blood-pressure is quite apart from the local vasoconstrictor actions which follow the local application of the drug, for in the latter case it is present in very much greater concentration than it can be after the absorption of non-fatal doses into the general circulation.

In discussing the peripheral actions of cocain we must distinguish between the local effects of relatively large amounts—that is, where the drug is in relatively high concentration in small areas—and the effects following the systemic application. The latter will be discussed first. Cocain stimulates the sympathetic nerve-endings after its systemic application, in which case the amount which comes in contact with the nerve-endings is insufficient to cause paralysis. The degree of the stimulation of the nerve-endings differs widely in different parts of the body. The accelerator nerve of the heart is stimulated prominently, causing an increase in the heart-rate; this tends to augment the rise of blood-pressure, owing to stimulation of the vasomotor centers.

The sympathetic endings in the pupil are stimulated, causing dilatation of the pupil; this is much more pronounced when the cocain is dropped into the eye.

The action of cocain on the sympathetic endings appears to render them more excitable to normal or other stimuli, even when the dose is insufficient to induce any visible effect alone. Thus if an amount of cocain equal to 0.3 mg. (1/200 grain) per kilogram of body weight be injected into the veins of a dog it will cause no rise in the blood-pressure, but if a dose of epinephrin, which is without effect on the blood-pressure of a normal dog, be injected intravenously immediately after the administration of the cocain, the blood-pressure rises sharply, because the vasoconstrictor endings are now more excitable than normally. The action of cocain is manifested on the pupil and probably elsewhere in the body in the same way. After the systemic administration of cocain the effects on the sympathetic endings elsewhere in the body are of minor importance, probably because the vasoconstrictor action, which results in a diminished supply of blood to the part, masks the action on the other sympathetic endings.

Cocain increases the capacity for muscular work through its lessening the sense of fatigue after its systemic application, but since it depresses the nerves with which it comes into contact in *sufficient concentration*, cocain injected directly into the muscle to be tested diminishes its capacity for work.

The local application of cocain to mucous membranes causes constriction of the vessels, resulting in

blanching, presenting a bloodless field for operations and causing stoppage of the secretion of the mucous glands through the interruption of the circulation.

This local vasoconstriction is useful in several ways. In addition to presenting a bloodless field, the interruption of the circulation delays the absorption of the cocain into the general circulation, thus intensifying and prolonging the local anesthetic action, and since the intensity of systemic action depends partly on the concentration in which the cocain enters the circulation, the slow absorption lessens this action while permitting the elimination of a part of the drug. Intense local vasoconstriction may follow the use of concentrated solutions, and the prolonged local action occasionally causes gangrene. This can be avoided by using dilute solutions, but their action is so slow and weak that the same object is attained better by using moderately dilute solutions of cocain with enough epinephrin to cause a sufficient degree of vasoconstriction.

When cocain is applied to mucous membranes or injected subcutaneously the nerve-endings are paralyzed, the sensory before the motor. If the solutions are applied to nerve-trunks these are also paralyzed, and here, too, the sensory fibers are paralyzed before the motor. The nerve-endings and trunks are not paralyzed when cocain is taken internally or injected intravenously, because it does not reach those structures in sufficient concentration. An apparent exception to this rule has been demonstrated for the serous surface of the intestine of the dog; pinching the intestine does not cause pain after the subcutaneous injection of a moderate dose of cocain.

The difference in the degree of concentration in which the drug reaches the nerve-endings of trunks after systemic and local application is appreciated when one remembers that the amount used for local application to an extremely small part of the body is equal to that which can be injected safely into the entire body, and which is probably distributed through a large portion of it.

When cocain is applied to the tongue it abolishes the sense of taste for bitter substances more readily than those for sweet and sour, the taste for salt being unaffected. Yerba santa affects the sense of taste in the same way. The sense of smell is abolished by the local application of cocain to the nasal mucous membrane.

Cocain is absorbed rapidly from the gastro-intestinal tract and from the subcutaneous tissues when the local vasoconstriction has passed away, or if the solution injected is too dilute to cause this constriction of the vessels.

It is probably destroyed in the body in part, but a part is excreted in the urine unchanged, the elimination being slow after poisonous doses have been taken.

Acute fatal poisoning by cocain is comparatively rare, considering its wide-spread use. The fatal dose is probably about 1 gm (15 grains), either by mouth or subcutaneous injection, but a much smaller amount may be fatal when it is injected directly into the spinal canal, because of the facility with which it may ascend to the medulla and paralyze the respiratory center. Death is reported to have followed the injection of 0.02 gm. (1/2 grain) in this way in each of two cases.

Severe symptoms of poisoning may follow very much less than the average fatal dose.

The habitual use of cocain is common, and extreme measures have been adopted in some states, notably New York, in the effort to abolish the illegal traffic in the drug. The sudden withdrawal of cocain from one who has been accustomed to its use by subcutaneous injection causes such severe suffering and dangerous collapse that special provision must be made for the care of the habitués when stringent and effective laws are passed abolishing the sale of the drug except for legitimate therapeutic uses. Those who use it as a snuff are said to withstand the sudden withdrawal without serious consequences.

The treatment of cocain addiction requires special measures and does not demand discussion here. The treatment of acute cocain poisoning is similar in general to that of poisoning by other alkaloids—removal from the stomach, if possible, precipitation, elimination and administration of physiologic antagonists; there is no specific remedy for the drug when it has entered the circulation. Excessively high blood-pressure may require relief by means of the nitrates, 3 minims being inhaled from a handkerchief. Hydrated chloral or chloroform may be required to control the excitement and convulsions, but ether is probably preferable, because it is not so dangerously depressant, and its action can be controlled to accord with the different stages of cocain action better than hydrated chloral or chloroform.

Artificial respiration should be employed if there is any sign of respiratory failure.

Solutions of cocain are decomposed on prolonged boiling with the liberation of benzoic acid and methyl alcohol, but they may be sterilized with insignificant loss by boiling for a short time or by maintaining them at a temperature of 80 C. for an hour on each of two successive days. A solution recently prepared with proper caution with sterile salt solution is practically sterile. The solution decomposes on standing, and only freshly prepared solutions should be used.

THERAPEUTIC USES

The therapeutic uses of cocain depend almost exclusively on its anesthetic and astringent actions when applied to mucous surfaces, to painful ulcers, or when injected subcutaneously, and it is obvious that it is capable of affording relief in a wide range of conditions which it is unnecessary to discuss in detail.

When applied to mucous surfaces it causes anesthesia and intense blanching, due to vasoconstriction; hence it is applied to the conjunctiva, the nose, throat, urethra and other surfaces for the relief of pain, to facilitate examination or to allay congestion. It must be remembered that absorption takes place readily from any of these surfaces after the primary blanching, and sometimes immediately after the application. Death has followed the injection of a small amount of cocain into the urethra, though its injection into the bladder appears to be less dangerous, provided that dilute solutions are used.

The application of cocain in dilute solution or powder to the nasal mucous membrane relieves the congestion and facilitates the passage of instruments, but epinephrin is probably preferable. Cocain may be applied to ulcers when swallowing is painful, as in laryngeal tuberculosis, or it may be injected into the sheath of the laryngeal nerve, though this is not commonly advisable. Sometimes cocain is applied to itching piles and to the vulva, but it is better to employ

phenol ointment, which does not give rise to a habit in such chronic conditions, for it must be remembered that absorption and systemic effects may follow the use of cocain in any of these conditions. The application of strong solutions to the gums and to carious teeth is said to be especially dangerous, and at most very small amounts of weak solutions should be used for that purpose.

Cocain is sometimes used to facilitate the swallowing of the stomach-tube, and to allay nausea of local origin in the stomach, but it is not advised for either of these purposes, because of the difficulty of applying enough of the solution to cause diminished sensation over such large surfaces without using toxic doses. It will be of very little use in allaying nausea of central origin, though it may diminish the stimulus from the stomach which acts on a hyperexcitable center.

Cocain is useful in securing a bloodless field in cutting operations on mucous membranes and operations of small area, but it is obviously unsuited for this purpose in major operations involving large areas. It is also especially effective in controlling capillary hemorrhage.

It is frequently used as a mydriatic because it induces insensibility to pain. The mydriasis is not so complete as with atropin, but the cocain is said to enhance the action of other mydriatic alkaloids, and a small amount of atropin may be used at the same time if desired. Cocain does not cause paralysis of accommodation or the loss of reaction to light. The action is induced mainly through the local *stimulant* action on the sympathetic endings, but in part through the central action when absorption occurs. It is remarkable that atropin and cocain, which are so closely related chemically, should produce mydriasis through opposite kinds of action on different structures.

Cocain is sometimes injected intraspinally to produce insensibility to pain in the lower parts of the body, but while those who have become expert in the technic of its use in this way report satisfactory results, it is not suited for general practice because of the grave dangers which it involves.

Attention has been called to the fact that shock may result from severe and extensive injuries to nerves during surgical operations under ether or chloroform. Cocain causes complete paralysis of the nerve-trunks if applied to them or to the nerve-endings, and thus prevents the passage of impulses through the nerves. In this way the danger of shock during operation may be lessened, even when it is necessary to combine the local anesthetic action of cocain with a general anesthetic, such as ether.

Wine of coca has been used as a general tonic, but there seems to be no indication for the use of such a preparation. Of course, any wine of coca must contain cocain, otherwise it is not wine of coca.

DOSAGE

The dose of cocain hydrochlorid for internal administration is said to be 0.03 gm. ($\frac{1}{2}$ grain). This, however, must be considered rather as a guide to the limits of safe administration than as any indication of the amount required for systemic effects, for even when taken orally for the relief of pain in gastric ulcer or to allay nausea and vomiting, it is used for its local action, and a systemic effect is undesired. It stimulates the psychic and other centers, including that of respiration, but we have safer and better drugs for

those purposes. On the contrary, when it is applied locally or taken internally it is desirable to delay absorption so far as possible.¹

The amount of cocain administered at any one time should be limited to 0.06 gm. (1 grain), unless its absorption can be prevented.

It is used in solution containing from 1 to 2 per cent. for the relief of pain and in 4 per cent. solution where it is necessary to induce complete anesthesia, as in cutting operations. Anesthesia of the mucous membrane and other parts of the eye which are subjected to cutting may be induced within ten minutes; this lasts about fifteen minutes and then disappears, so that the time allowed for operation is brief.

It is difficult to produce anesthesia of the nose, throat and larynx, and strong solutions are sometimes employed, but these are not devoid of danger. In laboratory experiments on dogs it was found to be impossible to produce complete anesthesia of the esophagus by applying dilute solutions, and when stronger solutions were used absorption occurred to such an extent that toxic symptoms invariably resulted. One difficulty encountered was due to the presence of an abundant secretion of mucus, which interfered with the direct application of the cocain. This difficulty may be overcome in part by the application of atropin in suitable cases.

Solutions varying from 0.5 to 4 per cent. are used for subcutaneous injection; but Schleich suggested the use of solutions of different strength (and containing morphin, without sufficient reason) for the infiltration method. This consists in injecting a relatively large amount—up to 200 c.c. (6 fluidounces)—of a solution of 1:10,000 in physiologic saline through a fine needle and permitting it to permeate the tissues about the region to be operated on. Relatively smaller amounts of solutions of 1:1,000 may be used in the same way. The pressure of the solution on the nerves assists in the anesthetic action. The solution is injected into—not beneath—the skin at first, and then into the underlying tissues successively. This method is painful when inflammation exists, and in such cases it is preferable to inject the solution around the trunk of the nerve which supplies the region to be incised, thus blocking impulses. It would be preferable to inject the solution directly into the sheath of the nerve-trunk, but it is difficult to do this without first exposing the nerve; hence it is better to inject the solution so that it will lie around the nerve-trunk.

Solutions containing from 0.005 to 0.03 gm. (from 1/12 to 1/2 grain) injected into the lumbar subdural space produce loss of perception of pain in the parts supplied by the afferent nerves of that region, while the sense of touch and the capacity for voluntary movement are retained. With large doses there is a total paralysis of the regions involved soon after the pain sensation is lost.

It is essential that the solution be prevented from penetrating along the spinal canal to the medulla, for should even a small amount of cocain reach the medulla death from paralysis of the respiratory center may result.

Aside from the danger of systemic effects with this method, there is also the disadvantage that muscular relaxation does not occur.

The intravenous injection of cocain has been recommended by Bier for local anesthesia in small areas. It is necessary to apply tourniquets above and below the seat of injection to prevent the passage of the cocain into the general circulation; the difficulties of the method of securing local anesthesia are evident, and it has the disadvantage of all intravenous injections. It is distinctly contra-indicated for general practice.

MATERIA MEDICA

Cocaina.—Cocain, U. S. P.

An alkaloid obtained from several varieties of coca, employed in medicine usually in the form of:

Cocainae Hydrochloridum.—Cocain Hydrochlorid, U. S. P.

The neutral hydrochlorid of the alkaloid cocain occurs as colorless crystals or a white crystalline powder, permanent in air, odorless, having a slightly bitter taste, and producing on the tongue a tickling sensation followed by numbness of several minutes' duration. Cocain hydrochlorid is very soluble (1:0.4) in water and freely soluble (1:2.6) in alcohol. It is incompatible with alkalies, sodium borate and zinc sulphate. It decomposes on standing even in sterile solution.

COCAIN SUBSTITUTES

The toxicity of cocain, together with minor disadvantages, such as its instability when boiled or allowed to stand, has served as a constant stimulus in the search for suitable substitutes; among the more useful of the agents which this search has brought forth are novocain, stovain, alypin, tropacocain, orthoform-new, and others which are described in New and Non-Official Remedies.

Novocain is less toxic than cocain, but the anesthesia which it induces is more fleeting; this may be overcome by the injection of epinephrin with the novocain. Novocain is not irritant and is gaining in popularity for very short operations, especially among ophthalmologists. Stovain is about equal to cocain in anesthetic activity, but it causes dilatation of the vessels, and where a bloodless field or the astringent action of cocain is required it must be combined with epinephrin. Alypin is closely related to stovain, over which it has no obvious advantage. Solutions of these drugs and of tropacocain may be boiled without causing decomposition, but this does not constitute any great advantage over cocain. Orthoform-new resembles cocain in its anesthetic actions, but it is insoluble; hence it is suited mainly for application to painful ulcers; in fact, it is sometimes used for diagnostic purposes in cases of suspected gastric ulcer. When relief is afforded in such cases it is taken as evidence that the pain is due to ulcer.

OTHER MEASURES FOR INDUCING LOCAL ANESTHESIA

Magnesium sulphate has been used intraspinally for the production of anesthesia, but it is not recommended.

The injection of pure water under sufficient pressure causes anesthesia of the tissues, but it is too painful for general use.

Sensory endings in the skin may become depressed as the result of overstimulation, or irritation, by drugs, such as chloroform, which are often used in the form of liniments, and diminished sensation in the region over an abscess before it bursts is probably the result of overstimulation.

1. It is possible that the systemic action of cocain might be useful in enhancing the effect of epinephrin in shock, but the technic of its use for this purpose has not been studied.

Protracted immersion of a painful part in warm water lessens its sensibility to pain, and the application of heat results in vasodilatation, which is later followed by vasoconstriction when the part is exposed to cold. The cells of tissues imbibe water during immersion and this lessens the sensitiveness to pain; such protracted immersion is especially useful in allaying itching.

Anesthesia can be produced by freezing, either by immersion in a freezing mixture of salt and ice, or, more conveniently, by spraying with a volatile substance, such as ethyl chlorid or rigolene (light gasoline).

With care the freezing with ethyl chlorid spray may be accomplished with little pain, but it is suitable only for small areas and for short operations, such as opening abscesses.

Menthol is applied externally for the relief of neuralgia and certain forms of headache, the cones or pencils affording a convenient means of application. It is sometimes inhaled for the relief of rhinitis and sore throat, or it may be dissolved in 100 parts of liquid petrolatum and applied locally. An ointment containing from 1 to 2 per cent. of menthol may be used for the relief of itching.

It is sometimes used internally for the relief of gastric pain, but it is not especially effective.

The dose is 0.06 gm. (1 grain).

Pusey of Chicago introduced solid carbon dioxid into therapeutics in 1907. When liquid carbon dioxid is allowed to escape from a cylinder into a cone it forms a snow that may be collected and formed into pencils that must be handled cautiously. When it is pressed for a few seconds against the skin the latter is frozen, and this is followed by vesication, but not by necrosis.

Pencils or crayons of carbon dioxid snow are used for the removal of capillary nevi, warts and moles, and in the treatment of recurrent ulcer, lupus vulgaris and in many other conditions.

Its employment requires a special technic that does not require further discussion here.

Phenol is actively anesthetic, and the ointment of phenol is especially useful for the relief of painful ulcers. The application of an aqueous solution to parts in which the circulation is impaired is attended with serious danger of gangrene, and numerous instances of the loss of fingers and toes from this cause might be cited. The official phenol ointment does not have this disadvantage.

Eriodictyon (yerba santa) abolishes the sense of taste for bitter substances; hence it is used as a sirup to mask the taste of quinin and other bitter substances.

(To be continued)

Securing Better Birth Registration.—Miss Julia C. Lathrop, chief of the Children's Bureau at Washington, has appealed to the Federation of Women's Clubs in Minnesota for improved birth registration. A test of the thoroughness of registration has been suggested consisting in taking the names of 100 "sure-enough, live babies" and then looking up the official records of birth registration. In Duluth this test was applied and it was found that one baby in six lacked official record, leaving it open to all sorts of legal troubles and questions of citizenship, etc., later. Sixteen counties in Minnesota are now organizing to make this test through the public health committee of the federation, and organizations have been completed in Blue Earth, Polk, Steele, Crow Wing and Mower counties. All women are appealed to for aid.

Special Article

TYPHOID IN THE LARGE CITIES OF THE UNITED STATES IN 1914

For two years past THE JOURNAL has published statistics showing the mortality from typhoid fever in those cities of the United States having over 100,000 population.¹ There were fifty such cities in 1910, and by 1914 ten others (Hartford, Conn., San Antonio and Dallas, Texas, Salt Lake City, Utah, Trenton and Camden, N. J., Springfield and New Bedford, Mass., Tacoma, Wash., and Reading, Pa.) had been added to the list, making a total of sixty cities considered in the present summary. One of these (Hartford, Conn.) was included in our tables for 1912 and 1913. The estimated increase of population has in a few cases caused a regrouping.²

TABLE 1.—DEATH RATES FROM TYPHOID IN CITIES OF GROUP 1 (OVER 500,000 POPULATION)

	Deaths from Typhoid per 100,000 Population		Average 1911-1914	Average 1906-1910
	1914	1913		
New York	6.2	6.9	8.5	13.5
Chicago	7.1	10.4	8.9	15.8
Philadelphia	7.4	15.6	12.4	41.7
Cleveland	8.3	13.4	10.5	15.7
Boston	9.1	8.4	8.7	16.0
St. Louis	11.1	16.8	13.4	14.7
Detroit	13.0	27.2	19.4	21.1
Pittsburgh	13.8	18.0	17.3	65.0
Baltimore	22.4	23.4	24.2	35.1

The excellent showing made by the city of New York in 1913 has been further improved on, and the rate for 1914 (6.2) falls below the low rate of the previous year, and again makes a new low typhoid record. The careful typhoid studies carried out in New York are evidently bearing fruit. The prohibition of bathing in the polluted water surrounding Manhattan Island is unquestionably a justifiable measure, and has probably prevented some typhoid deaths. It is, however, in the opinion of some sanitary authorities the effective control of the milk supply practiced in New York that is more largely responsible than any other factor for the remarkable reduction in typhoid fever in that city. Whatever the cause, it should not escape notice that in the largest city in the country the average death rate for 1913 and 1914 was less than one-half the average for the years 1906-1910.

Chicago, also, achieves a new low record, and probably for much the same reasons as New York. There is no doubt that, wherever careful watch is kept of the development of typhoid cases, budding epidemics may be checked and sources of infection discovered and eliminated. In Chicago, for example, it is stated that an instance of dual water connection was disclosed through the investigation of a small group of cases among the employees in a building adjacent to

1. Typhoid in the Large Cities of the United States, special article, THE JOURNAL A. M. A., May 31, 1913, p. 1702; May 9, 1914, p. 1473.

2. The number of typhoid deaths has been sent us by the local officer of health, and the rates have been calculated on the basis of population estimates made according to the method of the U. S. Census Bureau. It may perhaps be noted that the figures kindly furnished us by the municipal officials include the deaths of nonresidents as well as residents occurring within the city limits. In some instances this undoubtedly gives an exaggerated impression of the amount of typhoid fever in a community, but at present statisticians are agreed that "the attempt to eliminate the deaths of nonresidents would often result in an understatement of the true mortality" (Bureau of the Census, Mortality Statistics, 1912, p. 13). The rates as given in the present article have been recalculated on the basis of midyear populations. We have also made some other corrections from additional data furnished us. In practically all cases the differences are fractional and do not materially influence the conclusions previously drawn.

the Chicago River. Late in the year a disproportionately large number of cases occurred in the district served by a particular pumping station of the public water supply, the wells of which were being repaired. As in New York, so in Chicago, the general pasteurization of milk has probably played a large part in the great typhoid reduction of the past five years.

Perhaps the most astonishing improvement in this group is that of Philadelphia, which from being one of the most dangerous cities in the United States, so far as typhoid is concerned, has become one of the safest. As is well known, the inauguration of water filtration is largely responsible for this. Recently the extension of the filtration system has still further bettered the situation. A new sedimentation basin in construction at the Torresdale filters will throw an additional safeguard around the filtration process. The city authorities have recently drawn attention to a significant difference in distribution of typhoid fever within the filtered water area. In the South Philadelphia district the number of cases of typhoid fever has averaged about twice as high in proportion to the population as in other sections of the city. This is attributed to the lack of sewerage facilities in that district, which is said to contain an unusually "concentrated area of unconnected, unsewered houses." If this section of the city can be put on a par with the rest and some other projected forms carried out, New York and Chicago will have to look to their laurels.

Detroit for the first time is included with the cities of over 500,000 population. In our previous summaries we have called attention to the excessively high typhoid rate in Detroit and have pointed out the probable connection with the public water supply. This view has been accepted reluctantly by some citizens of Detroit, although the opinion expressed in our articles has been confirmed by well-known experts like McLaughlin and Phelps after an independent examination. We still read in the Detroit papers, "The outstanding fact is that no great calamity has yet befallen." So might an unimaginative Damocles have argued to himself at the banquet table long ago in Syracuse. Fortunately the Detroit officials themselves have not been altogether content with the water situation and have taken the precaution of treating the water with hypochlorite of lime. According to one statement, the dose of hypochlorite was increased from 5 pounds per million gallons "administered intermittently and ineffectively" in 1913 to from 6 to 8 pounds per million gallons, "administered regularly" in 1914. If this was the case, it is tempting to conclude that the lowering of the typhoid rate in Detroit in 1914 was due in part at least to the chemical disinfection of its water supply. At all events, water can hardly be ruled out impatiently as an impossible source of typhoid infection in Detroit, past, present or future. A filtration plant is being discussed by some officials. One argument against water purification, said to have been advanced, that it "would cost \$2,000,000 to filter the water while it would cost only \$50 to kill the true source—the infected cow," may be mentioned here for the edification of sanitarians.

Cleveland, where the water supply has been carefully chlorinated under expert supervision throughout the year, shows a gratifying decrease over 1913. Boston is the only city in the group to show a higher rate in 1914 than in 1913, the increase apparently being due in part to a milk-borne epidemic in Jamaica

Plain. Baltimore, in spite of local difficulties, continues to reduce its typhoid rate, and for the third year in succession makes a new low record. But why should Baltimore be content with always bringing up the rear? Pittsburgh and St. Louis have both cut well under their 1913 rates. St. Louis had a little flurry over its water supply in the summer, but the alarm then expressed over the reported finding of colon bacilli in the tap water was not followed by any well-defined water-borne epidemic.

TABLE 2.—DEATH RATES FROM TYPHOID IN CITIES OF GROUP 2 (300,000 TO 500,000 POPULATION)

	Deaths from Typhoid per 100,000 Population		Average 1911-1914	Average 1906-1910
	1914	1913		
Seattle	4.6	4.8	6.5	25.2
Cincinnati	6.0	6.3	7.9	30.1
Newark, N. J.	6.3	7.8	7.8	14.6
Milwaukee	7.9	11.1	15.8	27.0
Los Angeles	8.0	13.3	12.0	19.0
Minneapolis	11.0	12.3	11.5	32.1
Washington	12.7	16.3	18.5	36.7
San Francisco	12.9	16.5	14.7	27.3
Buffalo	15.8	15.1	16.8	22.8
New Orleans	21.5	16.8	20.7	35.6

Group 2, like Group 1, shows an almost uniform improvement, Buffalo and New Orleans being the only cities in which the 1914 rate has not dropped lower than the 1913. In Buffalo the increase is slight, but in New Orleans the 1914 typhoid death rate rose above the four-year average. Seattle, now included in Group 2, leads the group with a very low rate, as for the previous two years it had led Group 3. Newark, Milwaukee, Los Angeles, Minneapolis, Washington and San Francisco all made new low records, and Cincinnati almost equals (6.0) her banner year of 1910 (5.7). Washington makes a fine showing, and like New York, Chicago, Philadelphia, Richmond and some other cities, furnishes an excellent example of the results that may be obtained through well-directed typhoid studies. Other cities with a large negro population and high summer temperature are invited to take notice. The average Washington rate for 1906-1910 was higher than the Baltimore rate; in 1914 it was little more than half the Baltimore figure. Milwaukee

TABLE 3.—DEATH RATES FROM TYPHOID IN CITIES OF GROUP 3 (200,000 TO 300,000 POPULATION)

	Deaths from Typhoid per 100,000 Population		Average 1911-1914	Average 1906-1910
	1914	1913		
Portland, Ore.	6.6	7.7	12.2	23.2
Jersey City	6.7	10.4	7.7	12.6
Rochester, N. Y. ...	10.3	10.1	10.6	12.8
Denver	10.5	12.5	13.3	37.5
Providence, R. I. ...	10.5	9.9	10.7	14.3
St. Paul	10.5	8.2	9.7	18.3
Columbus, Ohio. ...	13.1	19.0	16.5	40.0
Kansas City, Mo. ...	16.5	21.3	18.5	35.6
Louisville, Ky.	20.6	21.7	21.7	52.7
Indianapolis	21.8	24.3	22.6	30.4

affords an impressive illustration of the value of hypochlorite treatment of infected water supplies; the 1911-1912 average was 22.2, while the 1913-1914 average was only 9.5, the lowest in forty years. The local statisticians have a fair field for reckoning the cost of the bleaching powder needed to save a human life, to say nothing of the hundreds of typhoid cases that have been prevented. The new low record in Los Angeles may be connected with the partial utilization during the year of the new water supply from the Owens River aqueduct. If so, further improvement in that city may be expected from the more general distribution of water from this new source.

The cities in Group 3 show relatively little change from the 1913 rates. Kansas City makes a somewhat better showing for 1914 than for 1913, but does not get back to the rate for 1912 (12.7). Denver shows a good decrease. Columbus, now in this group, betters to some extent its 1911 figures. The somewhat increased rate in St. Paul may perhaps be due to an "accident" or "blunder" on October 20, by which the deadly dual water connection led to a brief water contamination in the neighborhood of the Union Stockyards. Whatever the cause, the rate was the highest in four years. Louisville continues slowly to lower its typhoid rate; intensive studies would probably accelerate the process. For the second year Indianapolis brings up the end of the list. Do the residents of this city realize that typhoid rates above 20 are becoming almost as rare and inexcusable as rates above 40 were ten years ago? Indianapolis' average for 1911-1914 is not creditable.

TABLE 4.—DEATH RATES FROM TYPHOID IN CITIES OF GROUP 4 (125,000 TO 200,000 POPULATION)

	Deaths from Typhoid per 100,000 Population		Average 1911-1914	Average 1906-1910
	1914	1913		
Worcester, Mass.*..	3.7	5.7	4.8	11.8
Omaha	5.9	6.8	17.7	40.7
Oakland, Calif.....	6.4	9.0	9.2	21.5
Paterson, N. J.....	8.1	6.7	10.1	19.3
Scranton, Pa.....	9.1	6.4	9.1	31.5
Fall River, Mass...	10.3	10.4	13.7	13.5
Syracuse, N. Y.....	10.6	12.9	13.9	15.6
Spokane, Wash.....	12.7	7.1	18.7	50.3
Richmond, Va.....	13.1	19.1	16.4	34.0
New Haven, Conn.	13.8	11.2	18.2	30.8
Toledo, Ohio.....	36.3	41.5	33.2	37.5
Atlanta, Ga.....	38.9	16.5	36.4	58.4
Birmingham, Ala...	40.2	35.8	...	...
Memphis, Tenn.†...	...	29.9	...	35.3

* We regret that our figures for the Worcester typhoid mortality during 1912 and 1913 were at fault. The data on which we based our statements were furnished us by a Massachusetts health official, but from records of the local authorities it appears that these were not correct. We take pleasure in calling attention to Worcester's excellent record for the years 1911-1913.

† In spite of repeated efforts we have not been able to secure the number of deaths from typhoid fever during 1914 in Memphis.

Group 4, like Group 3, affords a record mainly of steady progress. Worcester, Omaha, Oakland, Syracuse and Richmond make new low records, and only Toledo and Atlanta exceed the 1911-1914 average. Atlanta, however, shows a really alarming increase compared with the preceding year.

Toledo maintains its mysteriously high rate. All published reports of the Toledo public water supply are highly favorable; the purification plant is properly constructed and carefully operated, and the bacterial efficiency is apparently unusually high. At the same time it must not be forgotten that the raw water treated at Toledo is badly contaminated and that its adequate purification calls for unrelenting vigilance. There is a tendency to place the responsibility for the high Toledo rate on surface wells, but if surface wells are at fault to the extent indicated by the mortality records, the conditions in this respect in Toledo must be quite different from, and much worse, than those in other Northern cities. A justifiable uneasiness is felt in Toledo over this situation, and investigation should be pushed until the cause of the excessive typhoid prevalence is discovered and remedied. Birmingham suffers from much too high a typhoid rate for any progressive city. There is some reason for believing that the water supply—controlled by a private company—is not beyond reproach. An attempt has been made by the city to declare void the franchise of the water company on the ground that the

water furnished is impure. The establishment of a municipal waterworks has also been discussed. Richmond shows a most gratifying typhoid decrease and is quite in the same class with Washington. The success of these two cities in reducing typhoid fever should prove a stimulus to Nashville, Birmingham and Atlanta, now among the greatest sufferers in the United States from this preventable disease. Scranton shows a somewhat increased, but by no means alarmingly high, rate; the city authorities are evidently not altogether at ease about the water supply, judging from a warning, issued in November, to boil the water. Omaha has a splendidly low rate (5.9) to follow so closely on the epidemic of 1911 (44.9).

TABLE 5.—DEATH RATES FROM TYPHOID IN CITIES OF GROUP 5 (100,000 TO 125,000 POPULATION)

	Deaths from Typhoid per 100,000 Population		Average 1911-1914	Average 1906-1910
	1914	1913		
Cambridge, Mass...	1.8	9.1	4.6	9.8
Bridgeport, Conn..	3.4	5.3	4.9	10.3
Camden, N. J.....	5.8	9.9	3.9	...
Tacoma, Wash.....	6.7	10.1	11.6	...
Dayton, Ohio.....	9.2	15.0	15.1	22.5
New Bedford, Mass.	9.8	8.3	14.3	16.1
Lowell, Mass.....	9.8	9.9	8.8	13.9
Salt Lake City....	11.8	15.1	14.7	...
Trenton, N. J.....	14.9	21.0	26.3	...
Albany, N. Y.....	17.5	27.3	20.1	17.4
Hartford, Conn....	17.7	11.4	15.3	19.0
San Antonio, Tex.	18.2	20.7	32.1	...
Springfield, Mass...	21.8	20.4	19.3	...
Grand Rapids, Mich.	26.7	16.5	25.7	29.7
Reading, Pa.....	28.0	58.0	35.9	42.0
Dallas, Tex.....	35.2	...	...	...
Nashville, Tenn....	47.3	36.0	41.5	61.2

Nine cities (San Antonio and Dallas, Texas, Salt Lake City, Utah, Trenton and Camden, N. J., Springfield and New Bedford, Mass., Tacoma, Wash., and Reading, Pa.) are included for the first time in Group 5. For the most part they do not fall below the average of the group, though Springfield, Reading and Dallas do not make a very meritorious showing. Eleven out of sixteen cities in this group had a lower rate in 1914 than in 1913. Cambridge establishes the unequalled record of 1.8, the best yet achieved by any large American city, except Camden, which reported no typhoid deaths in 1911 and 1912. Albany, after the flood-caused outbreak of 1913, returns in 1914 to what seems to be its "normal" rate, but a rate which,

TABLE 6.—TOTAL AVERAGE TYPHOID DEATH RATE (1910-1914)

	Total Population (49 Cities) Estimated by U. S. Census Bureau Methods)	Typhoid Deaths	Typhoid Death Rate per 100,000
1910.....	20,244,499	3,910	19.31
1911.....	20,768,055	3,203	15.42
1912.....	21,291,611	2,611	12.26
1913.....	21,815,167	2,723	12.48
1914.....	22,338,723	2,283	10.22
	Total Population (57 Cities)		
1910.....	20,996,035	4,114	19.59
1911.....	21,545,014	3,391	15.74
1912.....	22,093,993	2,775	12.56
1913.....	22,642,972	2,892	12.77
1914.....	23,191,951	2,408	10.38

nevertheless, is nearly three times as high as that in New York City, and must be deemed too high for a city with a good water supply. Hartford is said to have suffered from a milk-borne outbreak in 1914, and exceeds considerably the 1913 rate. Springfield, Mass., becomes conspicuous by having the highest rate of the eleven large New England cities both for 1914 and for the 1911-1914 average. This city is thought to have a

good water supply. Grand Rapids makes a curious lapse for a city which installed a water purification plant in 1912 and appeared to profit by it in an immediate typhoid reduction. What is the explanation?

Nashville, Tenn., had the highest typhoid rate in 1914 of any city in our tables, but this is perhaps not a final statement, as Memphis has not been heard from. Fifteen cities (New York, Chicago, Boston, Seattle, Cincinnati, Newark, Jersey City, St. Paul, Worcester, Oakland, Scranton, Cambridge, Bridgeport, Camden, Lowell) had an average typhoid rate of less than 10 for the years 1911-1914, Oakland and Camden³ joining the cities mentioned last year.

The year 1914 is noteworthy for another considerable diminution in the typhoid rate in the total population here reviewed. A rate of but a little over 10 for nearly one-fourth of the population of the country is highly encouraging. While the nine cities that have just topped the 100,000 population mark raise the typhoid average somewhat, they do not appear to be very much worse than the larger cities. In 1914, 41 cities had a lower typhoid rate than in 1913 and 17 a higher; 24 cities had a death rate under 10 in 1914 as compared with 19 in 1913. The following cities had a death rate under 5: Cambridge, Mass., Bridgeport, Conn., Worcester, Mass., and Seattle, Wash.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

STANDARD RADIUM SOLUTION FOR DRINKING.—

A solution of 2 micrograms of radium element and 1.3 milligrams of barium chloride per bottle of 60 Cc.

Actions and Uses.—See Radium. In view of the small barium content it is claimed that the physiologic action of barium may be ignored.

Dosage.—See Radium. The manufacturers recommend that from 60 to 180 Cc. (one to three bottles) of Standard radium solution for drinking should be taken daily, during or after meals.

Manufactured by the Standard Chemical Co., Pittsburgh, Pa. (The Radium Chemical Co., Pittsburgh, Pa.) No U. S. patents or trade-marks.

One gram of crystallized barium chloride is added to 40 liters of distilled water and the solution allowed to stand for a day; then 1,600 micrograms of radium element in the form of a solution of 60 per cent. pure radium chloride is added. This solution, after analysis by the emanation method to confirm its radium content, is then delivered into the bottles by means of an automatic pipet delivering 50 cubic centimeters of the solution, which contains, as stated, 1.3 milligrams of barium chloride and 2 micrograms of radium element. The bottles are then filled almost full to the stopper with distilled water.

The amount of radium may be determined by the "Emanation Method" of Rutherford and Boltwood as described in Rutherford's "Radioactive Substances and their Radiations," Cambridge, 1913, p. 659.

STANDARD RADIUM SOLUTION FOR BATHING.—

A 5.2 per cent. barium chloride solution containing radium chloride equivalent to 4.20 micrograms (0.0042 milligrams)

of radium element per bottle of 200 Cc. colored with fluorescein.

Actions and Uses.—See Radium. The barium in the Standard radium solution for bathing is said to have no effect, the radium chloride and the radium emanation being the only essential ingredients.

Dosage.—See Radium. Each 200 Cc., contents of one bottle, contains 4.20 microcuries (10,000 Mache units). When added to a bath containing 150 liters (40 gallons) the concentration of radium emanation in the bath will be about 70 Mache units per liter of bath water.

It is recommended that the patient, after entering a bath of about 90 degrees F., remove the stopper from the bottle of Standard radium solution for bathing and pour out the contents, holding the neck of the bottle just above the surface of the water in the tub to avoid loss of radium emanation. It is advised that the patient remain in the bath at least twenty minutes or, if possible, thirty minutes, and afterward remain in the bath room an hour if possible, the room being kept tightly closed.

Manufactured by the Standard Chemical Co., Pittsburgh, Pa. (The Radium Chemical Co., Pittsburgh, Pa.) No U. S. patents or trade-marks.

The solution is made up by dissolving barium chloride containing suitable amounts of radium in distilled water and then adding $\frac{1}{30}$ c.c. of a 5 per cent. solution of fluorescein.

The amount of radium may be determined by the "Emanation Method" of Rutherford and Boltwood as described in Rutherford's "Radioactive Substances and their Radiations," Cambridge, 1913, p. 659.

STANDARD RADIUM EARTH.—A mixture consisting chiefly of silica with small quantities of carnotite, 450 Gm. (one pound) containing 0.45 micrograms of radium in the form of radium sulphate and in radioactive equilibrium with its decay products.

Actions and Uses.—See Radium.

Dosage.—See Radium. For use Standard radium earth is mixed with water and heated for thirty to forty minutes to 100 degrees C.

Manufactured by the Standard Chemical Co., Pittsburgh, Pa. (The Radium Chemical Co., Pittsburgh, Pa.) No U. S. patents or trade-marks.

Standard radium earth is a by-product in the manufacture of radium.

It is a very fine impalpable, brownish-gray powder yielding a thick paste with water.

The amount of radium can be determined either by the so-called "Gamma Ray Method" or, after dissolving the Standard radium earth, by the "Emanation Method" as described in Rutherford's "Radioactive Substances and their Radiations," Cambridge, 1913, p. 657.

STANDARD RADIUM COMPRESS.—A compress containing 225 Gm. (8 ounces) of a mixture consisting chiefly of silica, barium sulphate containing radium sulphate equivalent to 15 micrograms (0.015 mg.) of radium element.

Actions and Uses.—See Radium. Being applied wet, it is claimed that the action of Standard radium compress is partly due to beta and gamma radiation of the finely divided insoluble radium salts and partly to the radium emanation which is dissolved out by the water.

Dosage.—See Radium. The amount of radium being small, it is claimed that the compress can be applied for a long period of time without danger of inflammation or necrosis.

Manufactured by the Standard Chemical Co., Pittsburgh, Pa. (The Radium Chemical Co., Pittsburgh, Pa.) No U. S. patents or trade-marks.

To secure equal distribution the radioactive compress is packed in the pad in six compartments. When finished, the compress is sterilized by dry heat and packed in sterilized parchment paper.

The amount of radium can be determined either by the so-called "Gamma Ray Method" or, after opening the compress and dissolving the contents, by the "Emanation Method" as described in Rutherford's "Radioactive Substances and their Radiations," Cambridge, 1913, p. 657.

Typhus the Attendant of War and Famine.—There is good reason to believe that in the earliest ages of the world's history typhus fever accompanied famines, sieges and wars, just as it has in modern times. The first definite reference to the disease has been assigned to the eleventh century. Through the middle ages and down to the last century, typhus fever was prevalent in most European countries. The Napoleonic wars led in a serious and deadly extension of the disease. When these came to an end in 1815 and there was an era of peace, there was a marked subsidence of typhus. In 1846-7 there was another wide diffusion of typhus over Europe.—F. G. Clemow, The Geography of Disease.

3. Camden was not included in previous summaries.

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RECENT WORK ON CANCER

There are two phases of recent work on cancer that perhaps may be discussed briefly with interest at this particular time: the chemotherapy of cancer and the question of the inheritability of a tendency to the development of cancer.

The first topic receives extended and critical consideration at the hands of Weil¹ in this issue of THE JOURNAL. It would be idle to traverse again the ground so fully and ably covered in his report. Unfortunately there is no question but that the efforts at chemotherapy of cancer in man and animals up to this moment have not been successful. Even the results reported by Wassermann in mice treated with selenium and eosin for transplanted cancers now appear utterly insufficient to justify the hopes to which they gave rise when first announced.

In human cancer Weil proposes as the test of effective chemotherapy reduction in the size of the growth not explainable by natural processes. This is an altogether reasonable test well calculated to do justice to even minimum therapeutic effects, but when judged by this test all the various forms of cure of human cancer by chemical means are found to be without virtue. Whatever modifications of the disease that seem to be produced by these means are such as occur spontaneously, the alleged indications of the vainly hoped for cure being simply another exemplification of the post hoc ergo propter hoc fallacy in reasoning. Consequently an absolutely and uncompromisingly nihilistic attitude on the part of physicians with respect to cancer drugs, especially rashly exploited proprietary novelties, is warranted and demanded at the present time in order that false hopes may not lead timid patients to postpone radical surgical treatment until it is too late.

While the results of the work on chemotherapy must be set down as negative, the remarkable studies of Maud Slye² on the inheritance of cancer in mice are yielding positive results of great significance and interest. Miss Slye's work shows that in mice the

tendency to develop cancer is transmitted from generation to generation in exact accord with the laws of heredity so that it can be bred into and out of strains of mice at will. She has bred cancer through ten generations, and in the stock of ten thousand mice under observation at present spontaneous cancer is always present, arising almost without exception in strains of known cancerous ancestry. The proper representatives of such strains of mice "carry cancer into a strain with which they are hybridized as inevitably as an albino mouse carries albinism into a pigmented strain with which it is hybridized, and with exactly parallel behavior of the character."

It is not cancer—carcinoma or sarcoma—as such that is transmitted, but the tendency of the cells to produce cancer under suitable conditions, which appear to arise especially as the results of all kinds of local irritation, reminding us of the undoubted rôle that ordinary chronic irritation plays in human cancer.

The mass of evidence presented by Miss Slye certainly warrants her generalization that in mice cancer tendency is a transmissible character, whatever the actual cause of cancer may be. This is a positive result, the full significance of which makes it one of the great contributions to our knowledge of cancer. While the exact study of the influence of heredity in human cancer at present is practically blocked because not enough facts can be obtained, we do not know of any exceptions or modifications to the great laws of heredity, which appear to be immutable and inevitable, that would justify an opinion to the effect that the observations on the inheritability of cancer tendency in mice are not applicable to man. Hence the final lesson drawn by Miss Slye and based on the idea that cancer is not transmitted as such but as a tendency to occur from a given provocation, probably in the form of overirritation, must be accepted as sound and practical: "The elimination as far as possible of all forms of overirritation to the tissues of an individual of high cancer ancestry should go far to eliminate the provocation of cancer; and the eugenic control of matings so that cancer shall at least not be potential on both sides of the hybrid cross ought to eventuate in a considerable decrease in the frequency of human cancer."

NEWER ASPECTS OF METABOLISM

For a long time physiologists have been endeavoring to find some suitable basis for the comparison of the metabolism of persons of different ages, sizes, sexes and temperaments under what might be called standard conditions of living. It has, of course, been recognized from the outset that there are marked differences between the infant and the adult in respect to the total energy transformation; but even aside from such obvious extremes, the apparent unlike dietetic needs of classes of individuals more nearly alike

1. Weil, Richard: Chemotherapy and Tumors, THE JOURNAL A. M. A., this issue, p. 1283.

2. Slye: Jour. Med. Research, 1914, xxx, 281; 1915, xxxii, 159.

in size and activity have raised the question of how to evaluate the variations observed. It became apparent to the earlier investigators that a comparison of the metabolism of different individuals could be made satisfactorily only when muscular activity and the absorption of food were temporarily excluded by making the observations on subjects in complete repose and in the postabsorptive condition. The measurement of the energy exchange in this way has been termed the "basal metabolism."

How is the basal metabolism of different persons or the same individual at different times to be compared; in other words, what are the factors determining or modifying normal basal metabolism? With the accumulation of valuable data made possible by the development of facilities for the study of the energy metabolism all over the world, it became apparent that the unlike basal metabolism in different persons was not to be explained merely on the basis of their unlike size in terms of body weight. Calculated into units of weight—into energy transformations per kilogram per hour, for example—the results were still divergent.

Following Rubner's lead, physiologists thereupon began to believe that the heat production of the living body (whereby the basal metabolism finds expression) is proportional to the surface area. As Benedict¹ has remarked, this helpful hypothesis served to bring order out of chaos in the earlier study of energy requirements and transformations in the living organism, but as experimental evidence accumulated, the validity of this so-called "law of surface area" has frequently been called into question. It is true that a smaller individual such as an infant, with a proportionately larger body surface losing heat, may have a larger metabolism per kilogram of body weight than a larger adult. The larger the number and the greater the diversity of types of subjects, the greater have become the complications and the apparent lack of uniformity by any method of comparison. Much of the evidence points to distinct individuality.

In view of the extended series of observations collected by him at the Nutrition Laboratory of the Carnegie Institution of Washington, and in disagreement with many other workers in this field, Benedict¹ rejects the current modes of comparison. He maintains that an examination of the available material shows that there is a relationship between the heat production and the body composition, that is, that any physiologic data which imply a difference in the proportion of active protoplasmic tissue are invariably accompanied by a difference in the basal metabolism. One of the indications in favor of the fundamental conception that the heat production of the body is proportional to the active mass of protoplasmic tissue is given by Benedict's study of the influence of

athletic training.² Here differences in surface area were eliminated by making the comparisons only between groups of individuals with like height and weight. In general there was a distinct tendency for the athletes to have a measurably larger basal resting metabolism (about 7 per cent.) than the non-athletes with whom they were compared. The differences could not be due to changes in body surface. From what is known with regard to athletic training, it may be maintained that the increased catabolism is directly due to the larger proportion of active protoplasmic tissue in the body of the athletes.

Furthermore, according to Benedict, men with a smaller amount of subcutaneous fat and a correspondingly greater proportion of active protoplasmic tissue have been found to have a greater metabolism than women of the same height and weight. The study of normal and atrophic infants showed that with two infants of the same height and weight the elder, who would naturally be somewhat atrophic, invariably had a higher basal metabolism than the normal, well-nourished infant. Even with normal adults, it can be maintained that of two individuals having the same weight but different heights, the taller individual will, in general, have the greater proportion of active protoplasmic tissue, and the comparison of the heat production of normal men of like age and weight but different heights shows that there is almost invariably a distinctly greater metabolism with the taller individual.

It is along these lines that Benedict and his co-workers³ interpret the recognized fact that the energy needs of men as a class are somewhat greater than those of women. In groups with essentially the same body surface area (and excluding individuals of athletic habits) it is not logical to assume, we are told, that the larger heat production noted with the men is due to a disproportion between the body measurements and the body surface. The data showing a basal metabolism for men about 5 or 6 per cent. greater than for women of similar weight and height are believed to find their explanation in other directions. In all probability the women, particularly in those groups with the greater body weight, have a much larger proportion of subcutaneous fat than do the men, thus indicating a consequent smaller proportion of active protoplasmic tissue.

A further stumbling block has been found in the fact that frequently normal individuals with approximately the same weight have very great variations in their basal heat production. To Benedict this appears as evidence that the mass of active protoplasmic tissue may function with varying degrees of intensity. It points strongly to distinct differences in the intensity

2. Benedict, F. G., and Smith, H. M.: The Influence of Athletic Training upon Basal Metabolism, *Proc. Nat. Acad. Sc.*, 1915, i, 102.

3. Benedict, F. G., and Emmes, L. E.: A Comparison of the Basal Metabolism of Normal Men and Women, *Proc. Nat. Acad. Sc.*, 1915, i, 104.

1. Benedict, F. G.: The Factors Affecting Normal Basal Metabolism, *Proc. Nat. Acad. Sc.*, 1915, i, 105.

of cellular life. The basal metabolism of the individual thus appears as a function, first, of the total mass of active protoplasmic tissue, and, second, of the stimulus to cellular activity existing at the time the measurement of the metabolism was made. The latter feature involves the problems of age, sleep, the character of previous diet, and the after-effects of severe muscular work. Many of these factors may act as a stimulus to the protoplasmic tissue, resulting in a higher metabolic plane.

RUM IN THE BRITISH ARMY

Great struggles in civilization often produce results unexpected and unrelated to the issues at stake. Such a gigantic upheaval as the European war cannot fail to have a marked effect on the economic, social and moral development of the nations involved, as well as on their political future. Our knowledge of disease, as well as much of our modern conception of physiology, has developed since the last great European war. It is not strange, therefore, that, more than in any previous war, much attention should be paid to health problems and to physiologic conditions which affect the troops engaged. Never before has such a concentrated and gigantic effort been made to utilize all the available scientific and practical knowledge and experience in the solution of the problems developed by the struggles taking place between millions of men throughout almost the entire extent of continental Europe.

One of the significant results of the war is the astonishing growth of the sentiment against the use of alcohol in all forms and the increasing realization, on the part of both governments and people, of the gigantic economic waste involved in its widespread use. Russia has abolished alcoholic drinks, so far as imperial order can do so. Lloyd George has declared that England is fighting three foes, the Germans, the Austrians and alcohol, and that alcohol is the most dangerous of the three. King George has banished alcoholic liquors from the royal establishment. The French government has forbidden the manufacture and sale of absinthe and the German kaiser has strongly urged sobriety on his soldiers as the best means of fitting them to fight efficiently. This general recognition of the evils and harmfulness of alcoholic drinks, in the midst of a war which in previous ages would be regarded as a justification for the wildest license and indulgence, is significant.

Naturally, there has arisen widespread discussion of the general question of abstinence versus indulgence. This has been discussed from scientific, social, moral and economic points of view. One of the most interesting of these discussions has been going on for some weeks in the *British Medical Journal*. This started from an article by Sir Victor Horsley, criticizing the

custom prevailing in the British Army in Belgium, of serving a ration of rum to men on duty in the trenches, on the ground that alcohol, even in small quantities, caused a loss of heat, a fall of body temperature, an impairment of coordination and a dulling of the special senses, and not only was of no assistance to the soldier in resisting the effects of fatigue, strain, exposure to cold and weather, but actually decreased his effectiveness as a soldier. Horsley reviews the history of rum in the British Army from the time of Marlborough to the present day and sums up the scientific evidence against it, as well as the history of its use in armies in India, Egypt, the Crimea, our American Civil War, and in South Africa. He quotes from the Army Regulations, authorizing the issuing of a rum ration "when certified by the Senior Medical Officer to be absolutely necessary for safeguarding the health of the troops." He then affirms that alcohol is not a safeguard to health, but is on the contrary a positive detriment and that under the Regulations, the medical officer is made responsible for such a ration. The frequency with which this custom is followed may be judged from Horsley's statement that the army authorities have contracted for a supply of 500,000 gallons of rum and that more than 250,000 gallons had been sent to France for the use of the army by the end of November, 1914. He urges the substitution of warm and nourishing drinks such as hot soup, milk, coffee, chocolate, etc., in place of rum, "seeing that warm nourishment enables a man to shoot better and encourages him to go forward, whereas rum makes him shoot badly and inclines him to sit still or even go back." Above all, he insists that the medical profession be relieved of the responsibility for this custom, in order that physicians may be free from the accusation that they are responsible for "this gross injury done to our country and its defendants."

As might be expected, these statements at once aroused comment. As usually happens in any discussion on this question, those participating seem to have devoted more attention to personal criticism of each other than to arguments on the point of issue, while the longer the discussion continues, the farther it gets away from the essential question. Several of the letters are no credit to their writers and had far better been left unprinted. The only real point which has been made against Horsley's contention is that raised by Astley Cooper, who practically admits all of Horsley's statements regarding alcohol, but says that "there are occasions when hot food and drinks other than alcohol cannot be obtained and when something is urgently needed temporarily to bring back life to benumbed limbs and shivering bodies." Under such conditions, he sees no harm, but even value in the emergency ration, "provided it is given with the distinct understanding that the effect is purely evanescent and is to be made permanent at the earliest possible

moment by hot food and non-alcoholic drinks." This being granted, the discussion then turns on the practicability of furnishing hot food for the men in the trenches and of thus eliminating the necessity for rum, which all admit, at best, should be used only when nothing better can be procured. The statement on the part of Horsley's critics that a small ration of rum does not impair the effectiveness of the soldier, he replied to by reference to experiments made by the Swedish army authorities who discovered that one-half the British ration caused a deterioration of 50 per cent. in accuracy of rifle shooting, and to the practical experience which has led the British naval officers to take their squadrons out of harbor for at least twenty-four hours before target practice and gun trials, in order to secure the highest possible scores. Personal prejudices and habits seemed to have influenced the various disputants. For instance, one correspondent objects to a comparison of the effects of Russian vodka, making the surprising statement that this is "a raw spirit distilled from rye with irritating properties which it is quite unscientific to compare with the properties of pure well matured rum upon the system."

After reading the many letters that form this controversy, the unbiased reader will be forced to the conclusion (1) that the use of alcoholic drinks is so entrenched in the social customs of the country, and so grafted on the habits of the people, that a dispassionate, scientific discussion of the subject is, for the present at least, hardly possible; and (2) that Sir Victor Horsley's presentation of the case contains demonstrable facts that will require something more than personal attacks and general statements of denial to refute.

TYPHUS IN SERBIA

According to reliable reports, a serious situation exists in the typhus fever epidemic in Serbia. The endemic cases in Poland and Serbia have developed under the favoring influences of war into an epidemic which may require the services of the world's greatest sanitarians before it is checked. A number of American Red Cross physicians and nurses and numerous European physicians have died while at work in the affected countries. In such epidemics the mortality of the disease may reach 50 per cent. Physicians everywhere should be prepared to recognize it, not only in its severe forms, but also in the mild forms which are not infrequent in many American cities.

The recent developments in our knowledge of the etiology and transmission of this disease have been largely due to American investigations. These advances have resulted from the clinical observations of Brill and the experimental work of several scientists, notably Ricketts, Anderson and Goldberger.

Typhus fever is doubtless of microbic origin, but the infective agent is probably so small that it must be

placed in that ever puzzling class, the filterable viruses. While the etiology of the disease has not been determined, its mode of transmission has been worked out so that we are able to take reasonably efficient means for its prevention. It has been well demonstrated that the disease is communicated by the body louse and probably also by the head louse. This observation explains many puzzling features, for example, as McCrae remarks, the decrease of the danger of infection when the patient was removed to a hospital and the great danger to attendants in epidemics, to which Murchison drew attention.

The transmission of the disease to monkeys has enabled it to be made the subject of exact experimental work. Typhus fever formerly was very prevalent in epidemics, and also as sporadic cases, being known under the names of jail fever, camp fever, ship fever, etc., terms which indicate its close association with overcrowding and filth. With the progress of sanitary science, the prevalence of the disease decreased until it appeared to have vanished with the march of civilization, especially in this country.

In the United States the disease, in its typical form, has been found usually in ships coming into our seaports. A mild form of the disease has been discovered even in our farthest inland cities. It is important that the existence of this mild form should be borne in mind not only as explaining many puzzling cases but also as the possible source of epidemics when the virus may assume unusual virulence or the opportunity for transmission be unusually great. Clinically, the disease displays the absence of a characteristic course with the exception of the petechial eruptions. It is a general fever, in its severer forms, presenting the characteristic typhoid state. It is a striking fact that this typhoid state is observed with comparative rarity in modern epidemics of typhoid fever. The incubation period is put usually from four to fourteen days. The onset is abrupt, with headache, general pains and frequently with one or more chills. The eruptions appear from the third to the fifth day and the face is much reddened and swollen but rarely shows the characteristic spots. The temperature remains high, usually from 104 to 105 throughout the attack. The fever terminates by lysis in a great proportion of cases, contrary to the general belief. The duration is usually from twelve to fifteen days.

The prevention of the spread of this disease is a comparatively simple problem, although, as experience in the present war shows, it may be very difficult of accomplishment. It consists essentially in the destruction of vermin. This involves, of course, at the same time the removal of filth, the cleaning of the inhabitants, and the prevention of accumulation of waste. With the advent of warm weather the opportunity for cleanliness will be increased and it is to be hoped the spread of the disease will be restricted.

In this country our immigrant inspectors must take extra precautions to prevent the admission of numerous cases after the war has ceased. On the borders of Serbia troops are now compelled to undergo an official *Entlausung* (louse removal).

ANAL FISTULA AND MALE CLOTHING

Some one, sometime, will write a monograph on the influence of dress on disease—and it will not be concerned wholly with feminine dress and feminine fashions. Emphasis will be placed on the fact that the masculine hat has probably laid the basis for as many headaches as all the vagaries of feminine fashion in headgear. Something will also be said about the other end of the body. In spite of high heels and other abominations, feminine footwear, with the heel pushed farther toward the middle of the foot, has often proved a better support for the arch and foot generally than the supposedly much more sensible masculine footgear. Women suffer much less from flat foot than men, but so-called common sense shoes for women have often predisposed to such disturbances.

A recent article points out a condition, related to dress, which occurs between these two extremes. Philip H. Mitchiner,¹ on the basis of his work at St. Thomas' Hospital, London, calls attention to the preponderant frequency of fistula in ano in males. The proportion of males to females suffering from this affection, in over 1,500 persons who have been operated on for fistula in St. Thomas' Hospital during the past ten years, was about five to one. Other English statistics, which report the sex of patients with this disease, support this conclusion, and some of them present even a rather larger proportion of males.

Mitchiner has studied the occurrence of the disease particularly in children. It is very rare among them, but both at St. Thomas' and in the Hospital for Sick Children, London, all cases seen in children have occurred among males. The commonest age for the occurrence of fistula in the comparatively rare cases in which it is seen among small children is from 3 to 5 years, and Mitchiner suggests that the liability to the affection at this time is probably connected with the custom of putting children into trousers during these years. He thinks that the cause of the disease in most cases is an infectious process set up by the irritation of the trousers, usually in connection with some rectal or anal disturbance, particularly hemorrhoids.

The development of fistula is due, in the case of adults, he believes, to the exposure to considerable friction on the perineal and anal regions from the male clothing, and especially "the liability of such friction to cause excoriation of prolapsed hemorrhoids with subsequent infection and suppuration in the neighboring glands in the ischio-rectal fossa." This

would emphasize, of course, the necessity for having the trousers fit not too closely in the perineum, and in all cases in which prolapsed piles exist, to be sure that this lesion does not become a site of infection through irritation from ill-fitting garments. Above all, cleanliness is an extremely important precaution in this region, if any infection of the anus exists, and looseness of the trousers in this part should be insisted on.

The presence of tubercle bacilli in the intestinal contents is particularly prone to set up chronic affections in the ischio-rectal region, if there is a previous focus of infection of any kind in these parts. They are low in vitality and not very rich in blood supply, and therefore a favorable nidus for the growth of microbes, once the walls of the intestines themselves are penetrated by the infectious material.

THOMSEN'S DISEASE

Thomsen's disease is the name applied to an affection characterized by tonic muscular cramps at the beginning of voluntary movements. This designation is due to the fact that the manifestations were first described, in 1876, by a physician, J. Thomsen, by whom they were experienced and in whose family the disease had existed for five generations. Now that descriptions of more than one hundred cases have been collected¹ and the disease has actually been reported in Germany, France, Italy, Russia, Sweden, England and the United States, it deserves more than passing notice as an isolated oddity of medical experience. Hitherto Thomsen's disease has appeared to be more common in Germany and the Scandinavian countries than elsewhere. Doubtless it will be found in time, in the case of this malady like that of numerous other affections of the human organism, that when the symptoms are more generally understood and a certain theoretical interest is aroused in their genesis, new cases will be brought to light in unsuspected quarters. As an instance of an analogous awakening of appreciation, one need only recall the frequency with which heart block and the Stokes-Adams syndrome are now recognized in comparison with a decade or two ago. As a rule, the identification of Thomsen's disease should present no difficulty, for the myotonic disorder is observed in no other malady in precisely the same form, and the hereditary features will also generally assist in a diagnosis. Thomsen described the disorder manifested in himself and other members of his family by noting that in answer to a voluntary nervous impulse, difficulty is experienced in the muscles. There develops a tonic cramp condition in the biceps, for example, which then becomes stony-hard and only slowly recovers.

The veil of mystery which has covered the pathogenesis of Thomsen's disease is gradually being lifted.

1. Mitchiner, Philip H.: Brit. Jour. Surg., 1915, ii, No. 7.

1. Koch, H.: Ueber Thomsensche Krankheit, Leipzig, 1914.

The earlier theories, including that of Thomsen himself, postulated a psychic basis for its manifestations. Mental excitement was believed to augment the symptoms, and an explanation along the line of some psychopathic involvement was believed to help account for certain states said to be associated with the myotonic condition. A neuropathic view has attributed the disease to disturbances in the cerebrospinal nervous axis. By another group of writers, who have been impressed by the abnormal histologic appearance of the muscle fibers in Thomsen's disease in contrast with those obtained post mortem from normal subjects, it has been described as a primary muscular condition, and a myopathic cause thus assigned to the malady.

The study of this interesting problem has experienced progress in a series of observations on a family of eight children, half of whom were found to be affected with Thomsen's disease by Johnson and Marshall² at the Neurological Department of Guy's Hospital in London. The physical signs of the nervous system were normal in the three cases carefully investigated. The muscles were in all cases larger than normal, but the actual strength of contraction and ability to maintain that contraction for any length of time were below normal. Here, too, it was found in accord with earlier statements that the same muscle which gives a typical myotonic contraction on voluntary effort responds normally when brought into activity by reflex action. This important observation of two different types of response in the same contractile organ depending on reflex or voluntary stimuli, respectively, makes untenable the view that myotonia is primarily muscular.

The new histologic investigation of muscle in Thomsen's disease shows that the fibers are unquestionably larger than normal, their diameter being about twice the usual size. This augmentation is entirely the result of increase in the number of fibrils in each fiber. The nuclei are in proportion to the size of the fibers; there is no relative increase. Some of the nuclei occupy a position in the substance of the sarcoplasm. The longitudinal and transverse striation of the fibers showed no variation from the normal.

The permanent condition of increased tone and the prolonged spasm which follow a voluntary contraction must greatly increase the amount of work which the muscles are called on to do in myotonia. Johnson and Marshall accordingly look on the histologic changes in the muscle, which have hitherto formed one basis of the myopathic theory of the disease, as a natural secondary effect, a form of compensatory hypertrophy. Without calling on the ever available and persistently obscure hypothesis of some toxin or deranged internal secretion to explain the pathogenesis, they offer the novel suggestion that in Thomsen's disease there is

an increased resistance to the passage of nervous impulses. The resistance would appear to be in the synapses.

This conclusion is strengthened by actual observations. Strychnin is known to act on the synapses of the central nervous system, facilitating the passage of a nervous impulse from one neuron to the next. In the patients of Johnson and Marshall, after hypodermic administration of this alkaloid the muscular movements became practically normal. They remark that it is inconceivable that the small amounts of strychnin administered could have had any direct action on the muscles. The partial block which is assumed to exist in the disease seems to be temporarily removed by the action of strychnin.

In elucidation of further peculiarities, we are reminded that it is known that gross lesions of the pyramidal tracts, when the cerebellar tracts remain intact, give rise to a condition of increased muscular tone and spastic movements. A partial obstruction in the higher motor path would account for the symptoms encountered in Thomsen's disease. Thus the myotonic character of the contractions, as has been remarked before, is most marked when movement is in response to voluntary effort. On repetition, a movement becomes brisker, as the block tends to wear off. On the other hand, reflex movements are normal, for here the higher motor paths are not involved.

This newer theory deserves the most careful consideration in future discussions of the subject. In place of the apparent futility of all therapeutic measures hitherto instituted it has left the tentative suggestion that strychnin may prove of use in the treatment of this form of myotonia.

Current Comment

SPONTANEOUS HEALING OF TUBERCULOSIS OF THE KIDNEY

It is common knowledge that tuberculosis in various parts of the body frequently heals spontaneously. Recovery may occur from even generalized invasions of tubercle bacilli, as shown by rare instances of healing of acute tuberculous leptomenigitis. One localization of tuberculosis, in regard to the spontaneous healing of which there seems to be some question, is in the kidney. Tuberculosis of the kidney is usually regarded as a rapidly fatal disease. In a recent article on tubercle bacilli in the urine, Brown¹ states that spontaneous healing of renal tuberculosis has been said to occur, but that when Albarran challenged the French surgical society "to produce one such case, none was forthcoming." Brown cites details of a case described by Ekehorn in which the kidney was found a pultaceous encapsulated mass, in which tubercle bacilli could not be demonstrated, the patient having

2. Johnson, W., and Marshall, G.: Observations on Thomsen's Disease, *Quart. Jour. Med.*, 1915, viii, 114.

1. Brown, Lawrason: The Significance of Tubercle Bacilli in the Urine, *THE JOURNAL A. M. A.*, March 11, 1915, p. 886.

presented pronounced symptoms of renal and vesical tuberculosis, seven or eight years previously. The ureter was closed. This case appears to illustrate the usual way, so far as we now know, of healing of renal tuberculosis. This sort of healing does not seem to be a very rare occurrence. Harbitz² describes twelve such cases in which the history went back over several years, in one case twenty. The active processes subside, the pus changes into a seemingly inert homogeneous material, which is encapsulated, the pelvis and ureter are obliterated, and whatever there may be of tuberculous cystitis fades away completely. In some cases the arrest follows the spontaneous evacuation of perinephritic abscesses by external rupture. Occasionally obsolete renal tuberculous foci are found in persons who apparently remained unaware of the process. Manifestly the arrest of so far advanced a process as here illustrated does not offer much encouragement to leave the course of events entirely to Nature, but it does raise a question as to the frequency with which tuberculous foci in the kidney are healed in the earlier and earliest stages. There seems to be a lack of observations on this point that perhaps might be supplied by systematic examination of a large amount of necropsy material.

FEDERAL THRIFT AND CHARITY

Many government documents make dry and uninteresting reading, but occasionally one is issued which, while apparently true to type, is thought-provoking. A few months ago THE JOURNAL, in publishing an abstract of one of the Notices of Judgment under the Food and Drugs Act, called attention to a somewhat remarkable action on the part of the court in this particular case. It concerned a nostrum sold under false and fraudulent claims. Analyzed by the federal chemists, it was found, according to the government report, to possess "no medicinal properties whatever." The stuff was, naturally, declared misbranded. No one appeared to defend the product, and the court entered judgment for condemnation and forfeiture, and then ordered that the product should be sold by the United States marshal! What it was sold for, or as what, the record did not state; neither was the ethical and moral status of the problem discussed. An equally remarkable instance of court action is reported in a recent Notice of Judgment dealing with the adulteration and misbranding of a so-called sherry wine. Three barrels of this product were declared misbranded by the federal officials on the ground that the stuff was not sherry wine but was an imitation prepared from pomace and glucose, and preserved with sodium benzoate. The officials declared that the stuff was liable to confiscation under the Food and Drugs Act, as it was not only misbranded but was also adulterated in such a way "as to reduce and lower and injuriously affect its quality and strength." All of the charges made by the federal officials were sustained, and no one appeared to claim the property. The court, therefore, entered judgment of condemnation and forfeiture, and ordered the

United States marshal to remove the misleading labels, marking the stuff "Imitation Wine Preserved with $\frac{1}{10}$ of 1 per cent. benzoate soda," and then distribute it "to certain charitable institutions"!

LIMITATIONS OF THE REACTION WITH NINHYDRIN

Current medical literature bears witness to the interest which has attached quite recently to the triketohydrinden reaction, more popularly known by the name of ninhydrin reaction. Until very lately it has been regarded as a characteristic test for amino-acids or compounds of them, and consequently has found a wide application in some of the modern serum reactions, such as those introduced by Abderhalden in relation to pregnancy, cancer, etc. In view of the growing use of the reagent, it deserves to be pointed out that many substances which in no sense exhibit a combination of amino and carboxyl groups, as do the amino-acids and proteins, nevertheless give a characteristic reaction. Amines, amino-aldehyds, aminosulphonic acids, urea derivatives and certain organic acids may be mentioned in illustration of this statement. To these known exceptions Neuberg¹ has added a new series of both organic and inorganic substances, some of which might lead to deception in respect to the reaction. It would be of little advantage to recite here this list of compounds, which the specialist in this field should learn at first hand. Perhaps it is worthy of mention, however, that a minimal putrefactive change in proteins is sufficient to provoke the appearance of substances which give a strongly positive test with the ninhydrin reagent. They are presumably putrefactive bases which are in part of a volatile nature. These facts point to the necessity of caution in the interpretation of findings based on the use of the ninhydrin test.

THE PATIENT'S OBLIGATION TO THE PHYSICIAN

A recent number of the Portuguese journal *Medicina Contemporanea* contains, in Portuguese, Article II of the original Code of Ethics adopted by the American Medical Association in 1847, "Obligations of Patients to Their Physicians." The *Medicina Contemporanea* states that it copied the translation from an old number of the *Jornal da Sociedade das sciencias medicas de Lisboa*, which in turn had credited it to the *Gazeta medica da Bahia*, of Brazil. "The statements in the article are as pertinent and wise now, after fifty years, as when they were first issued," says the modern Portuguese journal. It adds, "Many of the actions which would have been considered unethical then, even by the most unscrupulous, are now of common occurrence." As this part of the old "code" of ethics is no longer included in the "Principles of Ethics," it may be of interest to the younger members of our profession. We therefore reproduce it in the Miscellany Department of this issue.

1. Neuberg, C.: Ueber die Triketohydrindenreaktion, *Biochem. Ztschr.*, 1914, lxxvii, 56.

2. Harbitz: *Norsk Mag. f. Lægevidensk.*, 1913.

TYPHOID FEVER IN THE UNITED STATES IN 1914

On another page¹ appears our third annual summary of typhoid fever in the large cities of this country. It is evident from the data there given that typhoid fever is on the way to become a relatively rare disease in many parts of the United States. There are two main reasons for this: 1. There are now comparatively few large cities in which the public water supply is likely to contain typhoid bacteria in dangerous numbers either constantly or occasionally. 2. The increase in the practice of pasteurization has resulted in a diminution in the amount of milk-borne typhoid. With these two great sources of infection largely removed, health officers are in a position to begin a detailed study of less generalized sources. Outbreaks due to carriers and other causes can be much more readily discovered when they are no longer screened by a mass of cases due to water or milk. The really astonishing decrease in typhoid fever since 1910, which amounts to a reduction of about 20,000 cases annually in a population of 23,000,000, is a matter for national congratulation. It is not too much to hope that by 1920 nearly all large American cities will have reduced their typhoid rates to a level fairly comparable with that maintained for some years past in Berlin and London.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Want License Tax Remitted.—A number of prominent physicians of Mobile appeared before the city commissioners recently to appeal for the abolition of the city license tax on physicians, which was raised the first of the year to a minimum of \$17.50 and a maximum of \$100.

To Handle Trachoma.—A complete survey of trachoma in Tuscaloosa County will be made by Dr. Robert A. Herring of the U. S. Public Health Service, stationed at New Orleans, who has been detailed by the surgeon-general to make the investigation. Some alarm has been caused on account of the spread of trachoma in Tuscaloosa.

CALIFORNIA

Summer Graduate Course.—A summer graduate course has been announced by the Leland Stanford Junior University, College of Medicine, San Francisco, for a term of five and one-half weeks, between July 6 and Aug. 14, 1915.

Health Officers Entertained.—Dr. Ralph L. Taylor, health officer of Long Beach, entertained the Los Angeles County Association of Health Officers, March 30. Addresses were made by Dr. Francis E. Corey, for twenty-seven years health officer of Alhambra; Dr. Luther M. Powers, health officer of Los Angeles; Dr. William A. Weldon, health officer of San Pedro.

GEORGIA

New Hospital.—The Union Hospital, Dublin, was opened April 1, as a hospital for Dublin and Laurens counties.

State Physicians to Convene.—The annual meeting of the Medical Association of Georgia will be held in Macon, April 21 to 23, under the presidency of Dr. William B. Hardman, Commerce.

1. Typhoid in the Large Cities of the United States in 1914, special article, THE JOURNAL A. M. A., this issue, p. 1322.

Harrison Law Inspector Appointed.—Mr. George D. Casc, Milledgeville, formerly president of the Georgia Pharmaceutical Association and State Board of Pharmacy, has been appointed state drug inspector of Georgia.

Personal.—Dr. William D. Jennings has been appointed surgeon for the police and fire department of Augusta.—Dr. Robert E. L. Burford, Brunswick, has been placed in charge of the Brunswick Quarantine Station.

Society Revived.—The Decatur County Medical Association, which has been practically defunct for several years, was reorganized at Bainbridge, March 31. Dr. George T. Clark, Bainbridge, was elected president; Dr. Baker Whisnant, Brinson, vice-president, and Dr. Gordon Chason, Bainbridge, secretary-treasurer.

IDAHO

Personal.—Dr. D'Orr Poynter, Montpelier, has been appointed superintendent of the Blackfoot Insane Hospital, succeeding Dr. George E. Hyde, Blackfoot.—Dr. Ernest E. Laubaugh, Boise, state bacteriologist, who has been making an investigation of a violently contagious disease which appeared among the children at Driggs, Fremont County, and which has caused five deaths, reports that the disease is streptococcus sore throat.

State Health Board Matters.—At a meeting of the State Board of Health at Boise, March 31, Dr. Oscar B. Steely, Pocatello, was elected president, succeeding Dr. William R. Hamilton, Weiser. The secretary of the board was given authority to cooperate with the U. S. Public Health Service in an investigation of the tick fever which prevails in Idaho.—Dr. Ralph Falk, Boise, secretary of the board, has renewed his proposal to turn back to the state a portion of his salary. This offer was rejected by the board at its last meeting.

ILLINOIS

Case of Human Foot and Mouth Disease.—A press report from Rockford says that a case of foot and mouth disease has been diagnosed in the person of the village blacksmith of Winnebago. The patient had had pneumonia and after convalescence had begun developed an eruption about the mouth which aroused the suspicion of the attending physician that it might be an infection with the cattle disease. It is said that Dr. C. W. Crawford of the state board and Dr. Heman Spalding of Chicago confirmed this diagnosis.

INDIANA

Hospital Burned.—The Detention Hospital, Lafayette, was destroyed by fire, April 2, with a loss of \$3,000.

Child Welfare Exhibit.—A child welfare exhibit will be opened at Evansville, April 20, at which many of the exhibits used in the state child welfare exhibition, Indianapolis, will be on exhibition.

Open-Air School Opened.—An open-air school for tuberculous children has been opened on the grounds of the technical institution, Indianapolis, as the result of the efforts of the Marion County Society for the Prevention of Tuberculosis.

State Board Election.—At the annual meeting of the State Board of Health held in Indianapolis, April 9, Dr. James S. Boyers, Decatur, was elected president; Dr. Harley H. Sutton, Aurora, vice-president, and Dr. John N. Hurty, Indianapolis, secretary. Dr. Hurty has served in this capacity for nineteen years.

Inspector Appointed.—H. Wallace Guinn, New Albany, has been appointed inspector for the thirty-five southern counties of Indiana under the Harrison Antinarcotic law.

Infirmery to be Remodeled.—Contracts have been let for remodeling the Fayette County Infirmery, in accordance with the requirements recommended by the state board of charities.

To Centralize Charitable Institutions.—An effort is being made to assemble in one place, probably at Julietta, near Indianapolis, all the eleemosynary institutions of Marion County. New buildings are needed for the County Hospital for the Insane at this place; an appropriation of \$80,000 is asked for a municipal tuberculosis hospital and a building for orphans will also be erected.

Personal.—Dr. James W. Milligan, formerly assistant superintendent of the Northern Indiana Longcliff State Hospital, Logansport, more recently physician at the state prison, Michigan City, has been appointed superintendent of the Southeastern Indiana State Hospital, Madison.—A dinner

was given at the Wabash Valley Sanitarium, Lafayette, March 3, in honor of Dr. Floyd A. Loop, superintendent of the institution.—Dr. William Palm, Harmony, fractured his clavicle and sustained other injuries in a recent automobile accident, near Brazil.—Dr. John D. Sourwine has established a hospital at Brazil.—Dr. Clint C. Sourwine, Brazil, is ill with septicemia in the Sourwine Hospital in that city.

IOWA

Hospital Board Named.—The members of the board of Mercy Hospital, Davenport, named by the Sisters of Mercy, are as follows: Dr. Henry U. Braunlich, Anthony P. Donohoe and William A. Stoecks, and those appointed by the staff are Drs. William H. Rendleman and Ray R. Kulp.

Hospital Notes.—Work has been resumed on the hospital at Mason City which is being built by the Roman Catholic Society under the direction of Bishop Keane.—Construction is being resumed on the new Lutheran Hospital, Hampton. Rev. F. O. Hansen has succeeded Rev. O. A. Henry as superintendent of the Iowa Lutheran Hospital, Des Moines.

Urge Medical Bureau for State Library.—The house appropriation committee has been asked to favor a building for the support of a medical department of the state library. The plan is to create a separate division of the library in which medical books may be assembled and made available to the medical men of the state. A good start has already been made for the medical library, by the contribution of the Drake Medical School and individual donations.

Personal.—Dr. John B. Heles, Dubuque, was operated on for appendicitis, March 28, at Mercy Hospital, Dubuque, and is reported to be doing well.—Dr. Edward R. Ames, Knoxville, is under treatment for lumbago in the Methodist-Episcopal Hospital, Des Moines.—Dr. Emmett E. Richards has been elected mayor of Hamburg.—Dr. Thomas F. Kelleher, Des Moines, who has been critically ill at his home, is reported to be improving.—Dr. Robert H. Woodruff, Charles City, has been appointed local surgeon for the Charles City Western Railroad Company.—Dr. Clyde A. Noland has been elected president of the Commercial Association of Ogden.—Dr. Harold H. Johnson, Princeton, sustained a fracture of the arm by the kick of a horse, March 18.—Dr. Frank W. Porterfield, Waterloo, has been appointed surgeon for the southern division of the Chicago Great Western Railway which includes the territory between Oelwein and Des Moines.—Dr. Chester A. Miller has been appointed postmaster of Nevinville.

MAINE

Personal.—Dr. William W. Varrell, York Harbor, has been appointed a member of the Board of Health of York.—Dr. Alexander C. Hagerthy has been reelected mayor of Ellsworth for the seventh term.

No Vacation Typhoid at York.—The 2,500 inhabitants of the town of York have approved a plan whereby each is taxed one dollar to pay a full-time health officer whose duties will be to see that the town is kept in as sanitary a condition as possible, thus inviting the summer guests, on whom York depends in a great measure for its prosperity, to a real health resort. This determination of the townspeople of York was due to their experience with the typhoid-fever epidemic last year.

MARYLAND

Johns Hopkins Benefactress Dies.—Miss Mary Elizabeth Garrett, daughter of the late John W. Garrett, president of the Baltimore and Ohio Railroad, and a prominent philanthropist, who gave \$300,000 toward the fund for the establishment of the Johns Hopkins Medical School, died at Bryn Mawr, Pa., April 3.

Changes at Bay View.—At a recent meeting of the supervisors of city charities, the following appointments were made at Bay View Asylum: Dr. Le Compte Cook, chief resident physician of the municipal tuberculosis hospital; Dr. Thomas P. Sprunt, medical resident of Ward A, the new general hospital at Bay View; Dr. C. P. Hoke, resident physician in the surgical department.

Aggressive Campaign for Hospital.—A campaign to raise \$200,000 for the Maryland General Hospital has been inaugurated to pay off the floating debt of the institution and also for the completion of the private wards in the surgical building.

Personal.—Dr. Wright S. Sudler, Baltimore, formerly coroner of Highlandtown, had his right arm broken and sus-

tained other serious injuries in a collision between his automobile and a trolley car during a blinding snow storm in Baltimore, April 3.—Senior Surgeon Henry Rose Carter, U. S. P. H. S., Baltimore, who will take charge of the anti-mosquito crusade in this city, has been promoted to the rank of assistant surgeon-general, under the act of Congress providing increase of rank in recognition of his work in Canal Zone sanitation.—Dr. G. G. Snarr, medical superintendent of the Franklin Square Hospital, Baltimore, is ill with a severe attack of tonsillitis.

MASSACHUSETTS

Theobald Smith Dinner Postponed.—Owing to the illness of Dr. Theobald Smith, Boston, the dinner which was to be given in his honor at the Harvard Club, Boston, April 17, has been postponed until June.

Joint Secretary for Boards Proposed.—Governor Walsh has presented to the members of the state boards of dentistry, pharmacy, embalming, optometry and veterinary medicine a proposition for the employment of one general secretary to keep their records, and for the maintenance of a joint office in the state house.

Endowment for Mental Disease Chair.—A campaign has been started to raise \$150,000 for the endowment of a chair of mental disease in Harvard Medical School. The plan is for a full-time professor and is said to have the approval of Dean Edward H. Bradford and the endorsement of Drs. William N. Bullard, Walter Channing and Herbert B. Howard.

Personal.—Dr. William V. McDermott has been appointed a member of the Board of Health of Salem.—It having been arranged that Dr. Frank Burr Mallory of the Boston City Hospital shall devote all his time to research work the mayor has asked for a fund of \$20,000 to be used for this purpose. Special efforts are being made in the direction of discovering antitoxins for scarlet fever and measles.

From Municipal to Federal Control.—The quarantine station of Boston is to be transferred to the federal government. This action was determined March 24 when the city council committee on ordinances voted to report favorably on the proposal at the next council meeting. The federal government is to lease the station on Gallop's Island until an agreement is made as to the price to be paid by the government for the property.

MICHIGAN

Personal.—Dr. Ralph G. Cook has been appointed chief medical officer of the Civil Service Commission of Kalamazoo.—Dr. A. F. Lyon Campbell, for seven years mine physician at Dunbar, has been appointed to a similar position at Florence, Wis.

Hospital Opened.—The Donald McRae Hospital, Alpena, was formally opened, April 8, but the institution will not receive patients until the building obligations have all been met. At present there is an indebtedness of \$4,695, and a campaign is being made for the collection of this amount.

Dinner to Health Board President.—A complimentary dinner to Dr. Charles H. Oakman, president of the Board of Health of Detroit, March 29, in recognition of Dr. Oakman's work pertaining to the care of teeth of children in the public school, was attended by twenty-eight members of the dental department of the board.

MINNESOTA

Appropriation for State Institutions.—For the coming biennium, nearly \$4,000,000 is needed to care for the 10,000 wards of Minnesota in the sixteen charitable, corrective and penal institutions conducted by the state.

Health Board Activities Curtailed.—On account of the lack of funds, the State Board of Health at a special meeting, April 6, ordered the suppression of the work of the Bureau of Vital Statistics and of the branch laboratories at Duluth and Mankato. Curtailment of the field work for the prevention of disease was also decided on.

State Board Appointments.—Governor Hammond announced on April 6 the following appointments for the State Board of Medical Examiners: Drs. Thomas McDavitt, St. Paul, reappointed for three years; Drs. Thomas Lowe, Pipestone; and Pierre C. Pylon, Paynesville, to succeed Drs. John E. Campbell, South St. Paul, and Albert G. Moffatt, Howard Lake, resigned.

Personal.—Dr. P. M. Hall, Minneapolis, has been reappointed a member of the advisory commission of the State Sanatorium for Tuberculosis, Walker.—Dr. Archibald W. Graham, Chisholm, who was convalescent after a severe illness, has had a relapse and is confined to his bed.—Dr. Thomas Zeien has been commissioned as postmaster at North Branch.—Dr. James McAuliffe, Duluth, who has been seriously ill with ptomain poisoning, is reported to be improving.—A farewell banquet was tendered Dr. Joseph D. Budd, Two Harbors, March 26, at which a silver loving cup was presented to him.

MISSOURI

Staff Reappointed.—The board of managers of the State Hospital No. 2, St. Joseph, at its monthly meeting April 6, reappointed the following medical staff: Drs. William L. Whittington, Calvin L. Woolsey, Ray O. Lieuallen and Amos T. Fisher.

Medical Laboratory to Be Established.—A meeting of the board of trustees of the medical laboratory to be established in St. Joseph by the Methodist Church South, was held April 2. The meeting was devoted principally to perfecting the organization of the board and arranging a plan for financing the laboratory.

Personal.—Dr. Albert W. Davis, Kansas City, who has been ill with pneumonia, is slowly convalescing.—Dr. Thornton E. Moore, Trenton, underwent an operation at the Wright Hospital in that city, March 29, and is said to be doing well.—The office of Dr. William Rienhoff, Springfield, was damaged by fire to the extent of more than \$1,000, March 31.

St. Louis

Interns for City Hospital.—The names of 48 successful applicants for internships at the City Hospital were announced, April 7. Twelve of the 48 are graduates of St. Louis University; 6 of the Washington University Medical School; 13 of the University of Illinois; 7 of Northwestern University; 7 of Rush Medical College; 2 of the National University of Arts and Sciences, St. Louis, and 1 is a graduate of the University of Alabama, Mobile.

New Director of Hospital.—Dr. George M. Smith, formerly associate professor of pathology of Washington University, took charge of the Barnard Free Skin and Cancer Hospital, April 1, as medical director of the hospital and director of the research department. All beds in this institution (forty-four) are free for the study and treatment of cancer and skin diseases. All the facilities afforded by the institution are entirely free to patients, therefore Dr. Smith enters on an enviable field for the study of cancer. The endowment fund has lately been largely increased, which will enable the institution to further its facilities for the study of cancer both from a clinical and a purely laboratory (research) standpoint.

NEW HAMPSHIRE

State Board Change.—Dr. George C. Wilkins, Manchester, has been appointed a member of the State Board of Health, vice Dr. Frank E. Kittredge, Nashua, resigned.

Charges Unfounded.—The commission appointed by Governor Spalding to investigate the charges which led to the removal of Dr. Charles P. Bancroft, Concord, from the superintendency of the New Hampshire State Hospital, has reported that the charges against Dr. Bancroft were not well founded.

Cancer.—In the *Quarterly Bulletin* of the State Board of Health for January, Dr. Irving A. Watson, Concord, secretary, reviews the statistics of cancer in New Hampshire from 1884 to 1913. There has been a steady increase in the number of recorded deaths from 210 in the first mentioned year to 453 in the last. The total number of deaths for the thirty years was 9,096. Of these 3,075 were males and 6,021 females. The cancer death rate increased during the period from 5.93 to 10.42 per ten thousand of population. The state board has joined in the general efforts to educate the people in regard to cancer, and the state laboratory will examine all specimens submitted by physicians.

NEW YORK

To Eradicate Foot and Mouth Disease.—On April 1, Governor Whitman signed the Walters bill, which appropriates \$50,000 for the eradication of the foot and mouth disease.

Personal.—Dr. Harry Jay Brayton, formerly connected with the Iola Sanatorium, has begun his new work as superin-

tendent of the Onondaga County Tuberculosis Hospital, which is now nearing completion near Syracuse and will be opened in July.—Dr. Barton D. Skinner, Greenport, is seriously ill with pneumonia.

Talks on Health.—The director of the division of publicity and education of the State Department of Health has prepared a series of four lecture syllabi to be used by health officers. These syllabi deal with "Man and the Microbe"; "Health on the Farm"; "Clean Milk and Safe Milk," and "Tuberculosis." Each syllabus is provided with from thirty to fifty lantern slides and they are intended to supply health officers with good basis for their talks with the people.

Widow's Pensions.—The New York Legislature has passed the widow's pension bill granting "allowances" not to exceed the amount or amounts it would be necessary to pay to an institutional home for the care of the widow's children. The bill includes only mothers whose husbands are dead. They must be "suitable" to bring up their children, must have been residents of the counties for two years preceding the application for allowance and their husbands must have been citizens of the United States and residents of the state before death. The law contains a provision not found in laws in other states "that if such aid is not granted the child or children must be cared for in an institutional home." This, if strictly interpreted, would restrict the number eligible for allowances. The administration of the law is placed in the hands of the local board of child welfare in each county.

New York City

Physicians Lease Club.—Two physicians have leased the old Calumet Club House at Fifth Avenue and Twelfth Street, for a period of about five years. The building will be remodeled and used for offices by physicians.

City Will Not Lose Hospital.—Although the bill creating the city of Rockaway out of the Fifth Ward of Queens will pass the legislature, provisions have been made by which the city will still retain the Sea Breeze Hospital, with 1,000 feet of ocean front.

United States to Take Charge of Quarantine.—After attempts for twenty-five years by the Academy of Medicine and other bodies, to have the United States take charge of the quarantine station at New York, it is now announced that the Public Health Service will soon assume control of the plant at Quarantine.

Additional Instruction for Midwives.—The health department announces that it proposes to supplement the general meetings for midwives which have been held at the central office of the department by local meetings to be held in selected milk stations. It is hoped by this plan to reach a larger number of midwives who find it inconvenient to travel long distances to the central office.

To Keep Drugs from Prisoners in the Tombs.—The commissioner of corrections, Katherine B. Davis, announces that the construction of the Tombs Prison will be changed so that there will be a special entrance for visitors and they will be separated from the prisoners by a thick iron netting. A similar system is used at Sing Sing and it is hoped in this way to eliminate the drug smuggling and aiding prisoners to escape.

Health Department Offers Aid in Diagnosis and Treatment of Meningitis.—The Division of Preventive Medicine and Specific Therapy has brought to the attention of the physicians of the city that it has a staff of physicians and bacteriologists who are prepared to give assistance to practicing physicians in the diagnosis and treatment of meningitis and meningeal conditions. The health department emphasizes the fact that its representatives see the patient only in consultation and that it has no desire to supplant the family physician.

Deported for Causing Deaths by Wood Alcohol.—Nicholas Karolis, a Greek, was deported April 12 for causing the deaths of three men and the blinding of two others by means of anisette manufactured by him from wood alcohol and supplied to a grocer from whom the dead and injured men obtained it. Karolis pleaded guilty in the New York Supreme Court to manslaughter in the first degree and the sentence of deportation followed. The prosecution was instigated by the National Committee for the Prevention of Blindness. This is said to be the first indictment on so serious a charge as manslaughter in the first degree as the result of the sale of wood alcohol. According to Miss Carolyn C. Van Blarcom, secretary of the national society, during the past year in New York City alone there have been six deaths and five cases of blindness from wood alcohol poisoning. In 1912

twelve persons were blinded and three killed. Improvements in the manufacture of wood alcohol which have removed its coloring matter and much of the characteristic odor have permitted the substitution of this product in drinks, toilet and medicinal preparations, so that it is more than ever a dangerous drug, and efforts are being made to prevent its use by compelling its labeling as wood alcohol or poison. Legislation to bring this about is now pending in seven states. A bill for this purpose has recently been signed by the governor of Rhode Island.

NORTH CAROLINA

Dispensary in Operation.—The medical dispensary to be erected by the Associated Charities of Charlotte in the basement of the city hall, is now in operation every afternoon from 4 to 5 o'clock.

Checking Up Vital Statistics.—Dr. James R. Gordon, Jamestown, deputy state registrar, has visited a number of the counties of the state, checking up vital statistics and instituting prosecution where wilful and persistent violations are found.

Personal.—Dr. Joseph Akerman, superintendent of the James Walker Memorial Hospital, Wilmington, has retired and will be succeeded by Dr. Herbert A. Codington, Baltimore.—Dr. Everett A. Lockett, Winston-Salem, announces his retirement from general practice and that he will devote his entire attention to surgery and consultations.—Dr. Thomas O. Coppedge, a member of the staff of the State Hospital, Raleigh, has resigned and will resume private practice.

North Carolina Physicians to Make a Clinical Tour.—Dr. J. W. Long, Greensboro, writes that some twenty-five North Carolina physicians will make a clinical itinerary from April 17 to May 1. They will visit New York, Boston and Philadelphia. Special clinics are being arranged for them. Among those listed to join in the itinerary are Drs. H. A. Royster, H. McGee Tucker, Raleigh; R. L. Gibbon, C. M. Strong, G. W. Pressley, Charlotte; M. H. Fletcher, Asheville; S. H. Lyle, Franklin; C. S. Lawrence, Winston-Salem; M. H. Biggs, Rutherfordton; D. T. Tayloe, Washington; L. S. Booker, Durham; E. T. Dickinson, Wilson; R. S. Primrose, New Bern; J. F. Highsmith, Fayetteville; H. F. Long, Statesville; J. P. Monroe, Sanford; D. A. Stanton, High Point; P. R. McFadgen, Concord; D. A. Garrison, Gastonia; J. W. Long, C. W. Banner, J. A. Williams, W. F. Cole, Greensboro; Le Grand Guerry, Columbia, S. C., and F. H. McLeod, Florence, S. C.

PENNSYLVANIA

Wassermann Test Free.—Dr. Samuel G. Dixon, Philadelphia, state commissioner of health, announces that the State Department of Health Laboratory will hereafter make the Wassermann test free to physicians of the commonwealth.

Personal.—Dr. Edward W. Ryan, Scranton, after directing the American Red Cross fight against typhus fever near Belgrade, Serbia, has been stricken with the disease.—Dr. John A. Lichty, Pittsburg, has been appointed a commissioner of the State Board of Public Charities, vice Cyrus B. Laing, resigned.—Dr. Ralph T. Sowden, Slatedale, was seriously injured by the overturning of an automobile in which he was riding, March 29.

New-Home Day for Society.—Berks County Medical Society celebrated its New-Home Day, April 13. The program, held in the Medical Hall, Reading, included addresses by Drs. James Tyson and E. E. Montgomery, Philadelphia; an address on "The State Society and What it Offers to the Profession," by Dr. John B. McAlister, Harrisburg, president-elect of the state society; "The State Society and Its Relation to the American Medical Association," by Dr. Edward B. Heckel, Pittsburgh, president of the state society, and "The Advantages of a Library to the Medical Society," by Dr. James C. Wilson, president of the College of Physicians of Philadelphia. At the conclusion of the program, a dinner was given at the Berkshire.

Semicentennial of Society.—The fiftieth anniversary of the Allegheny County Medical Society will be celebrated by all-day exercises, April 20. In the morning there are to be clinics in the hospitals of Pittsburgh. The afternoon will be devoted to a formal meeting of the society with addresses by the president of the society, the president of the Medical Society of the State of Pennsylvania, and one giving the history of the society from the day of organization to the present time, followed by a symposium on "Intestinal Stasis," to be considered from the viewpoint of the internist by Dr.

Thomas R. Brown, Baltimore, from that of the surgeon by Dr. John G. Clark, Philadelphia; from that of the orthopedist by Dr. Loring T. Swaim, Clifton Springs, N. Y., and from that of the roentgenologist by Dr. James T. Casc, Battle Creek, Mich.

Philadelphia

Gross Prize Awarded.—The Samuel D. Gross Prize of the Philadelphia Academy of Medicine for the year 1915 has been awarded to Dr. John Lawrence Yates, Milwaukee, for his essay entitled, "Surgery in the Treatment of Hodgkin's Disease." The amount of this prize is \$1,500.

Reception at Medical Club.—The Medical Club of Philadelphia announces a reception will be given at the Bellevue-Stratford, April 23, at 9 p. m., in honor of Edgar Fahs Smith, LL.D., provost of the University of Pennsylvania; Alba B. Johnson, Esq., for the president of Jefferson Medical College; David Milne, Esq., president of the Medico-Chirurgical College of Philadelphia, and Russel H. Conwell, D.D., president of Temple University.

National and International Health Movements.—Following the reading of a technical paper at a meeting of the College of Physicians of Philadelphia, April 7, a symposium on National Hygiene was held at which Dr. John A. Ferrell, assistant director-general of the Rockefeller Foundation, New York City, read a paper entitled, "The Organization and Activities of the International Health Commission"; and Dr. Joseph S. Neff, LL.D., Philadelphia, read a paper on "The Recent Health Movements in the United States, with Special Reference to Infant Welfare Work."

Educational Campaign for Medical Women.—A campaign to interest college girls in the medical profession and counteract the falling attendance of women at medical schools is being carried on under the auspices of the Women's Medical College by Gertrude A. Walker, who has just returned from a round of colleges. To the students of all these institutions Dr. Walker has pointed out the fact that owing to the advanced entrance requirements and advanced undergraduate standards, the number of female medical graduates in the country has in the last ten years decreased 44.1 per cent.

Philadelphia Ward in Paris Hospital.—The \$15,000 necessary to open the Philadelphia ward of forty beds in the American Ambulance Hospital, Paris, and to maintain the ward for six months, has been exceeded by more than \$8,000, and in addition five individuals have offered to duplicate their subscriptions, amounting in all to about \$1,800, if it should be necessary to keep the ward open for a second period of six months. The staff from the University of Pennsylvania will take charge of an entire floor of the institution during the months of July, August and September, following the Harvard School contingent.

Physicians Held for Misuse of Mail.—Two physicians charged with using the mails to conduct wholesale medical swindles from a central office at 1801 Vine Street, were caught in a net spread by the United States postal inspectors, April 9. Drs. E. Smiley and George M. Frank were taken before United States Commissioner Edmonds and held in \$2,500 bail, each. They represented themselves as being able to diagnose cases by mail and to prescribe medicine that would not fail to cure. Patients were required to pay a certain sum at the beginning of treatment and thereafter certain sums at regular intervals.

UTAH

State Board Appointments.—The following are appointments on the State Board of Medical Examiners: Drs. David C. Budge, Logan; Frederick E. Straup, Bingham Canyon, and A. P. Hibbs, Ogden, each to serve six years, and Drs. Charles L. Olsen, Murray; Frederick W. Taylor, Provo, and Walter M. Stookey, Salt Lake City, each to serve four years.

Personal.—Dr. Charles P. Harvielle, Salt Lake City, who was recently operated on in Denver for disease of the throat, is convalescent and will, it is said, regain his voice.—Dr. William L. Rich, Salt Lake City, has returned from abroad.—Dr. Robert S. Joyce, Ogden, has been appointed a member of the board of trustees of the Thomas D. Dee Memorial Hospital, Ogden.

Medical Courses Not Interrupted.—Word from the University of Utah indicates that the recent resignations of medical teachers were to become effective at the end of the present session, and not immediately, as implied in the editorial note following the letter in "Correspondence" in THE JOURNAL of April 3, 1915. It is evident, therefore, that the medical courses have not been interrupted, as inferred.

WASHINGTON

Tacoma Physician Starts for War Zone.—Dr. Llewellyn B. Ashton, Tacoma, left for Toronto, March 30, and sails for Europe this month as a member of the staff of the University of Toronto Base Hospital, which will soon be established in France.

Model Law for Morbidity Reports.—The common council of the city of Spokane in January adopted an ordinance requiring notification of infectious diseases modeled after the state law for morbidity reports, with only such modifications as were required to adapt it to city conditions.

Plague Rat in a Shipping Box.—The state horticulturist recently on opening a large box of plants from Yokohama, Japan, found a rat in the soil in the bottom of the box. The rat was killed and sent to the local representative of the Public Health Service at Seattle who reported that the rat was suffering from chronic bubonic plague. Careful investigation showed that the box had been opened in the appraisers' office in Seattle after landing from Japan, but it is not believed probable that the rat entered the box there. Conditions were said to be such that the rat might have survived the journey from Japan. The incident shows the possibilities of plague transmission from infected ports.

WISCONSIN

Bids Asked for Sanatorium.—Advertisement has been made for bids for the furnishing of all material and labor for the construction of a tuberculosis sanatorium for Kenosha County.

Health Appropriation Not to be Cut.—The Bradley bill providing to cut the annual appropriation of the State Board of Health from \$40,000 to \$20,000, was killed by the assembly, March 24, by a vote of 72 to 13.

New Hospital.—Arrangements have been completed for ten Belgian sisters to come to Rice Lake and establish a hospital. The present building will be greatly enlarged or a new building will be erected during the summer.

Bungalows for Inebriates.—Superintendent Moses J. White of the Milwaukee County Hospital for the Insane suggests that two bungalows constructed on the County Hospital grounds, Wauwatosa, would be sufficient to care for all the cases of liquor and drug addiction in the institution. While inebriates are now being admitted to the hospital, he believes that they should be cared for in a special building or buildings.

Personal.—Dr. Glenford L. Bellis assumed his duties as superintendent of the new Milwaukee County Tuberculosis Sanatorium, Wauwatosa, April 1. The institution will be ready for occupancy about July 1.—Dr. Albert E. Julien, Superior, will soon start for medical service in Germany.—Dr. Frederick C. Werner, Watertown, has been appointed deputy revenue collector under the Harrison act.—Dr. Jesse Y. Potter, New London, who was operated on recently, is reported to be improving.—Dr. George W. Lawler, Sussex, fell recently, fracturing his left leg near the ankle.

CANADA

Antitetanus Serum for Europe.—The Canadian Red Cross Society has ordered from the antitoxin department of the Ontario Board of Health, 5,000 doses of antitetanus serum which will be forwarded to England for distribution to the Canadian Hospital at the front and the French Red Cross Society.

New City Hospital.—It has been determined by the city council of Hamilton and the board of governors of the present public hospital, to begin at once, the erection of a new hospital to accommodate more than 500 patients, for which \$2,000,000 has been appropriated. The first section, to cost \$150,000, is a four-story reinforced concrete building without basement.

Personal.—Drs. Robert L. Collins and Walter H. Scott, Edmonton, Alta., have gone East to join the Canadian expeditionary force.—Dr. Archibald J. Amos of the Dominion Government Research Laboratories, sailed on the *Lusitania* for Liverpool.—Dr. Francis J. Shepherd, Montreal, has returned from a trip to Bermuda.—Dr. Harry A. Boyce, superintendent of the Kingston General Hospital, Ontario, has resigned after a service of seven years.—Dr. Oscar A. Cannon, Stratford, Ont., has reported at Halifax, N. S., to sail for England as head surgeon of the army medical corps reinforcements.

Canadian Doctors for Serbia.—The Serbian government informs Agent Pelletier of Quebec Province in London, England, that 100 applications have been received from all over Canada from those willing to serve in the civil service in Serbia to replace Serbian doctors at the front. Only fourteen can be accepted; and these will be required to speak either French or German perfectly. Passage money, not exceeding 2,000 francs will be paid by Serbia, and the ordinary pay will be 500 francs monthly, with opportunity for fees by those able to pay for services. Successful applicants will be required to stay in Serbia at least three months and to find their own board and lodging.

Dr. Adami to Record Medical History of the War.—Dr. J. George Adami, professor of pathology in McGill University, Montreal, has left Montreal for England to take up important work as a member of the British War Office, having on hand the preparation of the medical history of the war. Dr. Adami has received his appointment from the British government, but he has also been specially appointed by the Canadian government to look after the medical records of the Canadian expeditionary forces. Dr. Adami was going with the McGill Hospital but was relieved of this service. Sir William Osler is to be a member of the committee having the matter in charge, and Dr. Morley Fletcher is the secretary. Their work will be to go into all the medical records of the war.

GENERAL

Sociologists to Meet in Texas.—The Southern Sociological Congress will convene in Houston, Tex., on May 8, for a three-day session, under the presidency of former Governor W. H. Mann of Virginia.

Directory of Health Boards.—*Public Health Reports*, April 2, contains a directory of state and insular health authorities for 1915 which should be useful for the information of health officers and others interested in health activities.

Vaughan in Philadelphia.—At a special meeting of the College of Physicians and Surgeons of Philadelphia, April 12, Dr. Victor Clarence Vaughan, Ann Arbor, Mich., delivered an address on "The Study of Camp and Military Hygiene, Its Sanitation and Relation to War Mortality."

Railway Surgeons Meet.—The eighth annual meeting of the Joint Association of Surgeons of the Illinois Central and Yazoo and Mississippi Valley Railroad companies, was held in Memphis, March 31 and April 1. Dr. Guy G. Dowdall, Chicago, is secretary and executive officer of the association.

Personal.—Captain Robert Charles McDonald, M. R. C., U. S. A., who has been in charge of the American Red Cross Hospital, Budapest, Hungary, for five months and was decorated by Emperor Francis Joseph of Vienna for distinguished service, reached New York, March 25, on the steamship *America*.

Hospital Ship Returns.—The Hospital Ship *Solace* with Medical Inspector Robert M. Kennedy, U. S. N., in command, arrived at the Navy yard, Washington, D. C., from Guantanamo Bay, Cuba, April 7, with 130 patients on board, 74 of whom were transferred to the Naval Hospital, Washington. The *Solace* sailed to rejoin the fleet, April 8.

The Study of Epilepsy.—The fourteenth annual meeting of the National Association for the Study of Epilepsy and the Care and Treatment of Epileptics, will be held in the Hotel Chamberlain, Fortress Monroe, Va., May 10.—Immediately following this meeting will occur the seventy-first annual meeting of the American Medico-Psychological Association.

Naval Medical School Commencement.—The formal commencement exercises of the United States Naval Medical School, Washington, were held April 15. The secretary of the Navy delivered the certificates and addressed the class; Surgeon-General William C. Braisted delivered an address and the formal oration was delivered by Dr. Paul B. Barringer of the University of Virginia, Charlottesville.

To Fight Typhus in Serbia.—A party of physicians headed by Dr. Thomas Wright Jackson sailed for Naples from New York, April 3, under the auspices of the Red Cross, for health work in Serbia. In the party were Drs. Eugene W. Caldwell and Hans Zinsser, New York; Andrew V. Seller, George C. Shattuck and Francis B. Grinnell, Harvard, and W. S. Standifer and Luis de la Pena, who have recently been on duty in the Canal Zone as specialists on diseases caused by insects.

Fighting Typhus.—The presence of typhus in Europe and the finding of an occasional case in this country draws atten-

tion to the necessity for greater precautions against the entrance of the disease, particularly at the close of the European war when immigration from the infected area will probably increase. As a step in this direction the government is arranging to take over the quarantine stations heretofore maintained by state and port authorities at ports of entry such as Boston, New York, Baltimore, Galveston, etc. Dr. J. A. Nydegger of the U. S. Public Health Service at Baltimore urges that the taking over of the quarantine stations be hurried in preparation for the influx of immigrants at the end of the war. He says that only through federal control of all quarantine stations can the health of the people of the United States be properly safeguarded. Typhus has already appeared at New York.

Leprosariums.—In answer to many letters regarding employment in leper colonies, the U. S. Public Health Service announces that no leper colonies are maintained by the United States, but that the following leprosariums are in operation: San Francisco (Cal.) Leper Home, administered by the health officer at San Francisco; Louisiana State Leper Home, administered by the Board of Control for Leper Homes, New Orleans, La.; Massachusetts Leper Station, Penikese Island, Mass., administered by the state commissioner of health, Boston; Hawaiian Leper Colony, Molokai, Hawaii, administered by the director of health, Manila, P. I.; Philippine Leper Island, Culion Island, P. I., administered by the director of health, Manila, P. I., and Porto Rico Leper Colony, Cabras Island, P. R., administered by the insular director of sanitation, San Juan, P. R.

Promoting the Antituberculosis Campaign.—The National Association for the Study and Prevention of Tuberculosis is about to inaugurate a movement to secure better cooperation from physicians and nurses in the antituberculosis campaign. Efforts have been made to induce medical colleges and schools of nursing to give more instruction of clinical nature in tuberculosis. Individual practitioners and nurses are to be reached by special booklets prepared for the purpose. The object of the plan is primarily to secure more accurate and earlier diagnosis of tuberculosis by physicians, and to show nurses the opportunities for service in the cases of consumptives. The plan has been approved heartily by medical colleges and schools of nursing. It will be the aim to put the average family physician in touch with the best methods of treating tuberculosis, and with the most recent literature on the subject.

Warnings.—Dr. Solren W. Staads of Sioux City, Ia., states that on Oct. 13, 1914, Fred Hernbloom, then agent for the American Accident Insurance Company of Lincoln, Neb., sold him two policies in this company for which he gave an official receipt. The company claims that Hernbloom has turned in neither the applications for the policies nor the premiums thereon, that he is no longer their agent and will not inform Dr. Staads where he can be found. Dr. Staads requests that anyone who may learn of the address of Fred Hernbloom, will notify either Hon. E. H. English, commissioner of the insurance department of Iowa, or Dr. Staads.

The medical profession is warned against a young man traveling under the name of Paul Goodman, who has claimed to be a representative of the Victor Electric Company, and endeavors to gain the confidence of physicians to induce them to cash a personal check. The Victor Electric Company states that it does not know this man, he has never been in its employ nor handled its goods directly or indirectly. "He is said to be a little fellow, about 22 years old, and all scarred up, and claims the burns were caused by electricity." This man has been operating in Terre Haute, Ind., Omaha and Hastings, Neb. Any physician knowing of this man's whereabouts will confer a favor on the Victor Electric Company by sending a collect telegram to the company at its general office in Chicago.

The attention of physicians is again called to the activities of certain young men in Pennsylvania who are attempting to secure subscriptions for THE JOURNAL and other magazines through a bureau which they call the National Educational Association, the plea being based on the desire of the young men to secure free scholarships. When last heard of the scheme was being pushed in Philadelphia.

THE JOURNAL is informed by Dr. Linsly R. Williams, deputy commissioner of the New York State Department of Health, that a man recently presented himself in Butler, Pa., as George H. Gray, pathologist of the New York State Board of Health, and incurred numerous obligations, after which he left without settling them. The New York State Department of Health has never had anyone of this name in its employ, and desires to warn others against this impostor.

HAWAII

Japanese Hospital in Hawaii.—Work is commenced on the erection of a new Japanese hospital in Kuakini Street, Honolulu, to cost \$20,000.

FOREIGN

French-Grecian Medical Association.—The *Grèce Médicale* states that a library of French medical works and periodicals is on the point of being opened at Athens by the newly founded Alliance médicale Franco-Hellénique. They plan also an annual series of postgraduate medical lectures and demonstrations by leading French specialists. Professor Phocas of Athens is the president and Sotiriades the secretary at Athens, and P. Descomps, the secretary at Paris.

Quinin at Cost.—By a decree of the president of Venezuela, dated Dec. 19, 1914, in order to secure a good supply of quinin and to extend its use, the national health office is directed to establish stores in which quinin shall be sold at cost. Charitable institutions (public or private), the regular army and wholesale and retail drug stores may also be supplied at cost. Its distribution and inspection as to quality is to be under the supervision of the Department of the Interior.

Death of Loeffler.—The cable brings word of the death at Berlin of Prof. Friedrich Loeffler, aged 63, discoverer of the diphtheria bacillus in 1884 and of the glanders bacillus two years earlier. In 1887 he founded, with Leuckart and Uhlworm, the *Centralblatt für Bakteriologie*, and long served as professor of hygiene at Greifswald, as member of the imperial board of public health, and, more recently, as director of the Institute for Infectious Diseases at Berlin, and was repeatedly called on to represent Germany at various scientific meetings and on scientific missions. As an army surgeon, hygienist and research worker the list of his publications is a long one, including his work on prevention of foot and mouth disease. Those who attended the International Congress on Hygiene and Demography at Washington in 1912 will remember Professor Loeffler's joining in the discussions on poliomyelitis, etc.

WAR NOTES

Aid for Belgian Physicians.—As the war continues the need for aid to Belgium daily becomes greater; in fact, for at least six months after the ending of the war this duty of feeding the starving must be continued. The infant mortality is enormous because of the lack of adequate nourishment. The world looks to America as the great neutral nation to give aid in this time of stress.

The report of the treasurer of the committee of American physicians for the aid of the Belgian profession, of the week ending April 10, 1915, lists the following contributions:

The Cooke County Medical Society, Gainesville, Tex.....	\$ 15.00
The Sedgwick County Medical Society, Wichita, Kan.....	25.00
Dr. Carl B. Davis, Chicago, Ill.....	10.00
Dr. R. C. Dorr, Batesville, Ark.....	5.00
Anonymous, "J," New York, N. Y.....	5.00
Dr. George Leonard Schadt, Springfield, Mass.....	5.00
Dr. Mark T. Goldstine, Chicago, Ill.....	10.00
Dr. Lomax Gwathmey, Norfolk, Va.....	25.00
Dr. J. C. Chipman, Sterling, Colo.....	5.00
Miss Grace Hutchison, Canton, N. Y.....	2.25
Dr. Brooke M. Anspach, Philadelphia, Pa.....	5.00
Dr. J. B. Haskins, Chattanooga, Tenn.....	15.00
Dr. Fred W. Phifer, Wheatland, Wyo.....	5.00
Dr. Henry P. Brown, Jr., Philadelphia, Pa.....	10.00
Dr. Floyd W. McRae, Atlanta, Ga.....	10.00
Dr. William L. Rodman, Philadelphia, Pa.....	25.00
Anonymous, "F," St. Johnsbury, Vt.....	10.00
Dr. Joseph P. Murphy, Brooklyn, N. Y.....	5.00
Dr. Rudolph Matas, New Orleans, La.....	25.00
Dr. Neal N. Wood, First Lieut. M. C., U. S. A., Schofield Barracks, Hawaii.....	5.00
Cumberland County Medical Society, Bridgeton, N. J.....	10.00
Gonzales County Medical Society, Gonzales, Tex.....	10.00

Receipts for the week ending April 10.....\$ 242.25
Previously reported receipts.....5,896.50

Total receipts.....\$ 6,138.75
Previously reported disbursements:
1,625 standard boxes of food @ \$2.20.....\$3,575.00
1,009 standard boxes of food @ 2.30.....2,320.70
Disbursements for the week ending April 10:
105 standard boxes of food @ \$2.30.....\$ 241.50

Total disbursements.....\$ 6,137.20

Balance.....\$ 1.55
One box of surgical instruments sent to the American Commission for Relief in Belgium, through *Surgery, Gynecology and Obstetrics*, without name of donor and without a list of contents.

F. F. SIMPSON, M.D., Treasurer,
5 Jenkins Arcade Bldg., Pittsburgh, Pa.

LONDON LETTER

LONDON, April 1, 1915.

The War

THE ALCOHOL QUESTION

The examples set by Russia in totally abolishing the drinking of vodka and of France in abolishing absinthe have been seized on by the teetotalers as a moral for this country, and they have exhorted the nation to stop the sale of drink, which is helping to prolong the war. Taking the country as a whole, the war has not been attended with any increase of alcoholism, rather the contrary; but in certain groups, particularly dock workers, increased wages have led to a certain amount of abstention from work, the result of drink. An important deputation of shipbuilders has waited on Mr. Lloyd George, Chancellor of the Exchequer, and urged him that in order to meet urgent national requirements there should be a total prohibition of alcohol during the period of the war. It was represented that mere restriction of hours or even total prohibition within certain war-work areas would not be sufficient, as certain classes would be entirely unaffected. In many cases the number of hours worked is actually less than before the war, and in spite of Sunday labor, 80 per cent. of the present avoidable loss of time was attributed to drink, and the figures of the takings in saloons near the shipyards showed an increase of the sale of intoxicants of from 20 to 40 per cent. Curtailment in the hours of sale had proved useless, and led to the pernicious habit of buying spirits by the bottle to drink elsewhere. Mr. Lloyd George said in reply that the facts placed before him by the deputation were only too convincing, and he had a growing conviction that nothing but radical measures would avail. We were fighting Germany, Austria and Drink, and the greatest of these foes he thought was Drink. Success of the war was merely a question of munitions. On receiving a report of the proceedings, the king sent a letter to the chancellor stating that he felt that nothing but the most vigorous measures would successfully cope with the grave situation in our armament factories. Owing to drink, we were unable to secure the output of war material indispensable for the army, and there had been much serious delay in the conveyance of the necessary reinforcements and supplies to the front. The continuance of such a state of things must inevitably prolong the horrors and the burdens of this terrible war. If advisable, the king is prepared to set the example by giving up all alcoholic liquors himself and forbidding their consumption in his household, so that no difference shall be made as far as he is concerned between the treatment of the rich and the poor in the question. In another form the problem of alcohol has also become a burning one. It is the custom to issue a ration of rum to the troops in the trenches. The teetotalers in the profession, led by Sir Victor Horsley, have denounced the procedure in the *British Medical Journal* as injurious, and a somewhat acrimonious controversy has arisen on the still unsettled question of the value of alcohol as a beverage. Some correspondents have pointed out its food value on the basis of its oxidation in the body, but Sir Victor Horsley rejoins that oxidation is no proof of its value as a food, for morphin is oxidized in the body and no one claims that it is a food. For him the consumption of alcohol is an unmitigated evil which only diminishes the efficiency of the soldier.

FOOD IN TIME OF WAR

A conference has been held at the Institute of Hygiene on this subject. The chairman, Sir Malcolm Morris, said that the public could not complain of lack of counselors as to what they should eat, but unfortunately the counselors gave discordant advice. Even vegetarians were divided. Dr. Strickland Goodall moved a resolution, which was agreed to, that the Local Government Board and Education Board should adopt measures forthwith to encourage better knowledge of foods and food values in the interest of public health and economy. He said the Germans had paid an enormous amount of attention to the question of civilian diet. With the exception of a fifth of the supply of food, Germany was self-supporting, while we imported two thirds of our food supply, our colonies sending us what we required and the navy saving us from any deficiency. Great waste of food went on in this country. In Germany housewives had printed instruction showing how waste of foodstuffs might be avoided, to use starch for linen, and there were fatty substances used in making soap that might be used in preparation of food. Dr. Gasteneau Earle said that as to the required amount of protein, physiologists were not agreed, but generally speaking, in England they

were in favor of a high protein diet. Lieutenant-Colonel Melville said 190 gm., while Chittenden in America said 50 or 60.

Dr. R. Hutchison said diversity of opinion was not surprising; there were a hundred ways of nourishing the human body, and all might be right. He did not believe in being too scientific. The recent investigations in Germany had been ultrascientific and were untrustworthy as to food production. To construct a gigantic scientific edifice on the estimate was extremely rash, and he had no doubt it had been adapted like many other professorial utterances to serve a government purpose. In any country, under present conditions, there could not be, for economic reasons, a great deal of overeating. It could not be true of the bulk of the inhabitants of any country. No country could afford it. The bulk of the inhabitants of this country were certainly not people who overate. It would be more true to say that a large proportion of the people are habitually underfed. It was of no use to preach to people that they should eat less as one might in a besieged town. So long as the navy kept the seas there was no lack of food. But as a question of economy, what was the cheapest way? The most expensive part of diet was the protein which entered so largely into animal food. Most people got it in the form of meat; the deliberate wisdom of inhabitants in temperate climates had declared that a certain proportion in the form of meat was right. But when meat became too expensive, there were other sources to be drawn on. One of these sources was cheap fish; the herring, for instance, was an excellent substitute which did not seem to be used as formerly. Cheese of the cheaper kinds, milk was valuable, and peas and beans were good sources of proteins, though with them there was the difficulty of digestion. For the richer classes, he continued, his advice would be, "Eat less meat." Certainly it had been shown that for a considerable number of months people did very well on small quantities of meat, and certainly the wealthier classes would not suffer. As to what was called fuel food, there economy was more difficult, because mankind had adopted bread as the cheapest form of diet, and when bread became scarce a substitute had to be found. The Germans had to some extent found a substitute in potatoes. In this country we might use some of the fats used in the manufacture of soap. Margarin was an excellent food, as nutritious as butter; the prejudice against it was unfounded. He would rather have a good brand of margarin than of bad butter. No doubt in this country we were extremely wasteful in food; we literally threw it away.

PARTLY TRAINED NURSES

The difficulty in supplying nurses for the large new army has caused the authorities to extend the qualification for service in order to render available every woman with nursing experience. The regulation that candidates for the army service must have a certificate of training from a hospital of 100 beds is to be suspended, and candidates from hospitals of fifty beds will be accepted if suitable in other respects. The age limit has been extended from 35 to 45. Accepted candidates must serve for a year either at home or abroad as they may be required. For service in the home hospitals, nurses required, as matrons, superintendents or sisters, if healthy and fit for work, will be accepted probably up to the age of 50. There will be full opportunity for retired or married nurses and nurses who have not completed their training. In addition, provision has been made for employing the many women outside the ranks of fully or partially trained hospital nurses who have taken certificates in home nursing and first aid. Such women will be accepted in certain hospitals as probationers for a month, and if recommended by the matron for further service, they may sign on for a year or the duration of the war, and receive a salary. They must be not less than 23 nor more than 38 years of age. There is a possibility that 3,000 carefully chosen certificated women from voluntary aid detachments will be needed.

A WAR NURSES' RELIEF FUND

Already many nurses have suffered severely both mentally and bodily from their arduous duties. A committee has been formed for the purpose of providing funds to help them. Nurses on the staff of the army or navy are provided for by the government, but so far no relief had been arranged for the civil nurses, of whom between 1,500 and 1,600 have come to the aid of the country. Some of the conditions which they endure have been thus described by Miss Swift, matron-in-chief of the British Red Cross. They are often nursing in the midst of a bombardment for hours on end in the noise and the danger, their hospitals constantly the aim of the enemy's shells. They put up without murmuring with the

most insanitary and uncomfortable conditions. At St. Omar, for instance they have no proper beds, no sanitary accommodation, no baths, and they had to face the same conditions at Dunkirk and other places. So far none have been killed by shells, but one had a surface wound from a shell which might easily have been fatal. Shells were dropped continually on or near the hospitals in Antwerp, and the nurses who went through the strain of that bombardment are completely nerve-shattered. A good many nurses have been down with typhoid and typhus, particularly those who are nursing in Serbia. The nurses who are running these risks are the pick of their profession, many of them women who command high fees and who have thrown up their civil work in quiet practice, where their own comforts were as sure as those of their patients, and have given their services for very little, because they knew they were needed.

THE PROFESSION AND WAR EMERGENCIES

Fresh suggestions continue to be made as to the means of overcoming the difficulty arising from the withdrawal from civil practice of a large number of physicians for the new army. The Scottish Medical Service Emergency Committee has issued a memorandum on the subject addressed to the public, the local education authorities, retired physicians who are still fit, and the younger lecturers at the medical schools. To the public it is suggested that it will materially help to relieve the great strain now imposed on physicians remaining at their posts throughout the country—many of whom are working from fifteen to sixteen hours a day—if patients will send messages for the physician as early as possible in the morning, so that the physician may arrange his daily round in the way most economical of time. Where the case is not urgent and a visit on the next day will suffice, this fact should always be stated in the message. To the local education authorities it is suggested that regular medical inspection of schoolchildren is not nearly so urgent as attendance on patients who are dangerously ill. They appeal to schoolboards and other educational authorities to release entirely, or in part, those physicians who are willing during this emergency to resume general medical work for the public. Retired physicians are offered opportunities for service that will not involve excessive strain. The younger lecturers are asked to substitute a change of work for the customary annual holiday, and to offer their help to country colleagues in difficulty. Many physicians, especially in rural districts, are overworked and breaking down. The executive committee of the Newcastle-on-Tyne branch of the British Medical Association has appealed in the press for the cooperation of the public in assisting the profession in dealing with their overwork. They are asked to restrict as far as possible their calls on physicians at untimely hours and to send the request for visits before the physician leaves for his rounds in the morning.

PARIS LETTER

PARIS, March 25, 1915.

The War

ENROLMENT OF THE 1916 CLASS

The instruction of the young men of the 1915 class is already so far advanced that they can soon be sent to the armies. Accordingly, the minister of war is taking measures to replace them immediately in the training camps by the conscripts of the 1916 class whose enrolment has been completed. According to the present law, the 1916 class should not be incorporated in the army until October, 1916. The authorization of parliament was therefore necessary to permit an anticipation of the period of enrolment by eighteen months. It will be unanimously granted by the two chambers, after which the minister of war has promised to make considerable improvements in the clothing, bedding, lodging and food of the young soldiers, the greater number of whom are not yet 19 years old, and should, therefore, be given the best of care. The commission of public hygiene has drawn up a practical program which has been approved by the minister, according to which the food is to be more abundant, the barracks and cantonments are to be approved by the sanitary commission and kept perfectly clean, while each man is to be furnished a complete outfit of bedding and an ample supply of inner and outer clothing. Saturday is to be devoted to hygienic measures. Training is to begin gradually in order to avoid overexhaustion and its disastrous consequences. By means of scrupulous observance of these conditions it is expected that bad consequences of the early enrolment of the young men of 1916 class may be avoided.

THE ACTIVITY OF THE THREE SOCIETIES OF THE FRENCH RED CROSS

The central office of the charitable organizations has just published a book entitled "Paris charitable pendant la guerre." From this book, some interesting figures may be taken which show the activity of the French Red Cross. This comprises three organizations: the Société française de secours aux blessés militaires, which was founded in 1864 and which for a long time was the only one to bear the name of Red Cross; the Association des Dames françaises, founded in 1879 and the Union des Femmes de France, which dates from 1881.

The Société française de secours aux blessés militaires has 7,600 nurses; it maintains twenty establishments in Paris, one for each arrondissement; ninety-three first aid posts with 1,500 beds, attached to the sixth and twentieth army corps; eighty-nine railway station infirmaries; thirty-five railway station canteens; 773 auxiliary hospitals with a total of 56,579 beds; the Elizabeth Hospital at Calais, offered by the society to the king of the Belgians; sixty-five workshops; a war prisoners' bureau; work for supplying clothes for the prisoners of war; a refugees' wardrobe; thirty-two automobiles and seven horse-drawn vehicles for transporting the wounded; a hospital school; a convalescent home for officers, and work in aid of colonial and legionary soldiers.

The Association des Dames françaises has three establishments in Paris; 368 auxiliary hospitals with a total of 18,000 beds in France; a hospital school; twenty workshops within the limits of the military government of Paris; fifty railway station canteens; a bureau supplying information with regard to wounded and prisoners; forty automobiles for transporting the wounded, etc.

The Union des Femmes de France has twenty establishments in Paris; 420 auxiliary hospitals in France, eighty-eight within the territory of the military government of Paris, with a total of 28,000 beds; a hospital school; seventeen railway station canteens; seventeen workshops; automobiles and Lemaître apparatus for the transportation of wounded; four ambulance boats for the transportation of the wounded by water; two ambulance boats offered by the Danish colony of Paris; one ambulance boat offered by the French colony at Petrograd; a service for furnishing information with regard to the wounded and missing; convalescent homes; soldiers' clubs; arrangements for distributing coffee and other hot drinks to the soldiers in the principal railway stations, etc.

To the services of the French Red Cross must be added those of the British, Japanese and South African Red Cross, the American medical relief work and four hospitals organized in Paris by the Italian, Greek and Swedish colonies. The generosity of the Americans should be particularly mentioned; they have endowed at least nine institutions within the limits of Paris. From Canada have come large amounts of money and more than 100,000 pieces of clothing for the people of the invaded territories. The city of New York has sent more than 2,000,000 francs (\$400,000).

NERVOUS TROUBLES AMONG THE WOUNDED

The Société de neurologie de Paris has sent the minister of war a letter calling attention to the fact that men affected with nervous troubles are ordinarily sent to the special neurologic services too late. To take examples from among the most common wounds of war, in cases of lesions of the nerves by balls or fragments of shell, which are very numerous, it is essential that the possibility of operation and its character should be determined as soon as possible. This is a point which cannot be decided without a very minute neurologic examination, requiring not only particular training but also the use of instruments with which most ambulances are not provided. Among the greater number of patients affected with traumatic neuritis and sent to the neurologic services long after the onset of the symptoms, fibrotendinous retractions and subankyloses have developed and persisted in spite of treatment and in some cases have been incurable. Especially to be deprecated is the prolonged sojourn in unsuitable environments of patients affected with hysteric troubles—hystero-traumatism, traumatic neuroses and troubles due to suggestion. Then there are also the simulators, who can be best distinguished by a neurologist. Observation shows that hysteric disorders disappear very rapidly when they are properly diagnosed and treated by psychotherapy and countersuggestion at their inception. They may, on the other hand, be very refractory to treatment when, having been wrongly diagnosed at first, they have been fostered by the sympathy of companions, etc. There is no exaggeration in saying that there are now in the ambulances and military hospitals thousands of men

of this class who, if properly treated, should have been able to return to their posts of duty long since.

Therefore the Société de neurologie de Paris believes that all patients who are or appear to be affected with nervous troubles, organic or nonorganic, ought to be sent, as soon as possible, to the neurologic services. Moreover, for those patients whose abnormal condition persists in spite of treatment and in whom exaggeration or simulation may be suspected, special services for medical oversight and discipline should be organized.

TREATMENT OF WOUNDS OF WAR BY THE DANYSZ METHOD

In a previous letter (*THE JOURNAL*, Feb. 20, 1915, p. 677), I mentioned the method advocated by Dr. J. Danysz, which consists of treating wounds by extremely dilute solutions of silver nitrate. At one of the last sessions of the Société de médecine de Paris, Dr. Maurice Cazin reported a series of cases in which he obtained by this method excellent results from the point of view both of very rapid disinfection and of intensive proliferation of the tissue ending in a relatively short time in complete repair of very extensive loss of substance. The researches of Danysz have shown that to produce a sufficiently bactericidal action without injury to the tissues, silver nitrate should be employed in 1:200,000 solution at first, which may be reduced in strength little by little to 1:500,000. Cazin has treated by this method large articular infected wounds, open fractures also much infected, great losses of substance in the soft parts and in all cases he has observed, suppuration has been rapidly checked while reparative proliferation of the tissues has occurred with surprising activity.

NECESSITY FOR ANTITETANIC TREATMENT IN CASES OF FREEZING

Dr. Péraire, assistant surgeon at the Rothschild Hospital, has reported to the Société de médecine de Paris two cases of tetanus following freezing in which there had been no firearm wound. He believes that in any case of freezing, injections of antitetanic serum should be used. Dr. Cazin likewise advocates this measure and Dr. Butte uses antitetanic serum for cases of simple pyodermitis and has never observed any undesirable complications.

BERLIN LETTER

BERLIN, March 15, 1915.

Personal

March 6, Prof. H. Fischer, formerly director of the Breslau surgical clinic, celebrated the sixtieth anniversary of his doctorate. Fischer is 84.

The War

CARE OF THE WAR INVALIDS

Extensive organized efforts are being put forth in behalf of the invalids of the war both in a medical and in a social way. The provisions which have been made by the government of Bavaria for such care are of great interest and may serve as a model. The official publication with reference to this measure is substantially as follows:

1. Hospital treatment. Treatment in the hospitals constitutes the first important point in the preservation of earning power. According to the orders of the military authorities, not only must the wounded and sick be treated medically until the best possible recovery is secured, but also special provision must be made by mechanical and orthopedic treatment, baths, etc., to secure the greatest possible power to use the deformed or diseased limb. The military authorities also furnish the injured with artificial limbs necessary for the movement and balance of the lacking parts of the body. Also the preservation and renewal of the artificial limbs is undertaken by the military authorities.

2. Advice as to occupation. (a) This hospital care in the case of many invalids needs for its success an accompanying spiritual influence on the invalid. The wounded and sick must be convinced of the fact which they are at first unwilling even to believe, namely, that the present condition of medical skill scarcely allows such a thing as crippling, and that those severely deformed, as a rule, can be made again able to earn a living, if they themselves only have the will to do so. The naval authorities have assigned to the appropriate service stations an important task to assume in this matter. But the association of other agencies in many cases cannot be avoided on account of the necessity of treating each individual case entirely on its own merits. (b) Such cooperation is especially necessary in regard to advice as to occupation. This also must, as far as possible, begin already in the hospital with the advice of the physician as a friend.

Its aim must be, as far as possible, to retain the wounded and sick for their former occupation and to preserve for them the conditions of their homes. The medical opinion of the physician, especially of the orthopedic specialist, regarding the degree of strength and capability that can be again secured, must furnish the basis for this advice. In most cases this aim can be reached. If a change of occupation is unavoidable, the choice of a related trade should be secured which the invalid can take back to his home and his former relations. (c) The selection of the trade adviser is the function of the local committee. He combines with the head physician of the hospital what is necessary for the regular admission of the wounded. In the selection it is essential to consider the purpose. Those especially adapted for this office are physicians who are accustomed to give opinion on the fitness of patients for work, and who possess an insight into the requirements of industrial life, particularly such doctors as the confidential physicians of the industrial insurance societies, men of practical professional life and officials of intelligence offices who have a special acquaintance with the industrial situation, the fellow tradesmen of the wounded, the representatives of their labor unions, who enjoy their confidence, the teachers of trade schools and employers who can judge of the fitness of the wounded for a trade. A collective action is desirable. Moreover, ministers will gladly favor and aid in giving such advice.

3. (a) Trade instruction. The selection of a trade must be followed by care to secure special fitness for the trade. Even this, so far as possible, must begin in the hospital. For this purpose, workshops for instruction in the trade must be arranged in the hospitals or in close connection with them, and definite exercises in the trade must be provided. (b) So far as extended treatment in the hospitals is not adapted to make the wounded fit again for his trade, opportunity for further instruction in the trade must be given to them after dismissal from the hospital. For this purpose, courses of instruction in institutes for cripples and invalids in professional schools and manual training courses, and in connection industry and trade must be provided. Especially our distinguished representatives feeling the responsibility as the result of the rich experience which they have acquired in the trade schools, will provide courses of instruction for the wounded, especially for their former employees. In this way, though injured by the war, they will be employed as much as possible in their own homes or in the neighborhood of their homes in preparation for their return to the old relations. (c) So far as instruction outside of a hospital can be carried on in connection with curative treatment, according to the provisions of the imperial insurance, the institutions of the national insurance societies will undertake and assist it. (d) Corresponding to the requirements of practical life, opportunity will also be given those who have taken part in the war and who are limited in their earning power to secure further instruction; and the military authorities particularly, are instituting courses of instruction in left-handed writing for those who are compelled to use the left hand as a result of the loss or crippling of the right. Persons who have become blind will be instructed by the instructors of the royal national institute for the blind. For the deaf, or such as have been severely injured in the hearing organ, it is proposed to establish courses by the special government teachers.

4. Furnishing employment. (a) The care described is for the purpose of reestablishing the invalids again in their industrial life and putting them into orderly relations. It must therefore accompany the individual in cases in which he cannot help himself from the hospital until he has secured an independent place of work. The agencies for advice as to trade and for instruction in a trade must, in all things, tend to this end. Especially, they should, during the stay in the hospital, apply to the former employer of the invalid to secure him a place in his old business. Where this is not possible, the invalid or his adviser must look to securing a position. (b) In general, the furnishing of new work should endeavor to place the invalid in the neighborhood to which he was formerly accustomed, to bring him to his home town in which he will find connections and support. Particularly invalids from the country should, as far as possible, be returned thither not only because the value of money is higher than in the city, but particularly that they may find a settled residence in their old home. For the collective furnishing of employment there is associated with the public intelligence office in every district a special intelligence office for war invalids which is to serve as the chief agency

for furnishing employment for that district. In case of necessity, other intelligence offices of the same sort will be provided for smaller districts.

5. Institutional care. From comprehensive medical and social care, it may be hoped that the number of invalids who must be dismissed from economic life and who need care in institutions will be very small. For these persons, in the first place, the already existing arrangements, such as the national insurance sanatoriums and the endowed houses, and the hospitals in the neighborhood of the home of the invalids come into consideration. Also in institutional care an effort must be made that the invalids will be furnished as far as possible with suitable occupation.

6. The agents in the care. The care for invalids is a function of the entire community, primarily of the empire and of the state. For this reason and to exclude dissipation of energy, it is to be instituted by the state and controlled by it. (a) For larger cities and in addition for other suitable places with hospitals, the president of the officials of the district government calls together a local committee for the care of war invalids. To the local committee belongs the function of carrying out the care immediately. It employs suitable voluntary helpers for advice as to trade and for instruction in trades, unites with the head physicians of the hospitals in the establishment of this care, and in connection with the intelligence offices provides, as far as possible, for the furnishing of employment. The local committee extends, so far as necessary, its care to the home of the invalid, with the purpose of making the soldier as soon as possible again an independent, self-responsible, self-supporting man. According to circumstances, the war invalids may be provided for this purpose with the means for business and the like. In every government district, the president of the government carries on this business. He is assisted by a district committee for the care of war invalids. This includes the representatives of the military authorities, a delegate of the national insurance institution and of the district committee of the Bavarian National Association of the Red Cross, and representatives chosen by the provincial president of the Soldiers' and Veterans' Association for the Care of Cripples, of the communes, of the officers of the intelligence offices, of employers, of the most important branches of trade of the workmen, and other suitable persons. The provincial president institutes the general measures for executing the plan with the advice of the district committee. The oversight of the hospital treatment and the execution of the associated measures of the military authorities is exercised immediately by the sanitary officials subordinated to the head physicians and by the board of management provided by the authorities of the hospital. In other matters, the supervision of the care for war invalids is assumed by the state secretary of the interior in conjunction with the department of war. He is furnished with a national advisory committee for the care of war invalids. Inasmuch as this concerns a task of public social and patriotic philanthropy, the means, for the most part, are assured by the empire and by the state. In addition, the national insurance societies furnish means. The necessity is widely felt of giving expression by voluntary contributions to the thankfulness which we owe to our navy and especially to the wounded. The matter of the care of the war invalids is not completed by the fulfilling of a public social duty. The combination of agencies and the possibility of an energetic comprehensive care require much more than such voluntary contribution should be provided.

Marriages

WILLIAM CROOKS THRO, M.D., New York City, to Miss Alice Prendergast Simmons of North Chelmsford, Mass., March 27.

CLARENCE H. HALL, M.D., Cherokee, Ia., to Miss Lucille Payne of Lake Andes, S. Dak., at St. Paul, Minn., March 18.

BENJAMIN JABLONS, M.D., to Miss Audrey Frances Jakobi, both of New York City, in Paris, France, March 9.

WILLIAM WEBER KELLY, M.D., Green Bay, Wis., to Miss Ida M. Madeau of Marinette, Wis., April 5.

LUTHER DAVIS, M.D., Deeson, Miss., to Miss Sady Lee Yates of Dublin, Miss., March 28.

ROBERT TAYLOR WILLIAMS, M.D., Detroit, to Miss Ethel Wheeler of Detroit, recently.

Deaths

Julius Mount Bleyer, M.D. Bellevue Hospital Medical College, 1883; well known as a specialist on electrotherapeutics and diseases of the nose, throat and lungs in New York City; once vice-president of the American Congress on Tuberculosis, who when a member of the New York Medico-Legal Society's committee to obtain the adoption of a new system for ending the lives of criminals, devised the death chair for electrocution which is now used in many states; consulting specialist on throat diseases for the Metropolitan Opera Company since 1888; died at his home in New York City, April 3, aged 55.

Benjamin F. Sturgis, M.D. Medical School of Maine, Brunswick, 1862; a Fellow of the American Medical Association, and once president of the Maine Medical Association; assistant surgeon of the Nineteenth Maine Volunteer Infantry during the Civil War; visiting surgeon to the Central Maine General Hospital; a member of the Maine House of Representatives in 1874-1875, and the two following years a member of the state senate and again a member of the house of representatives in 1913; in 1884 and 1885 mayor of Auburn, Maine; died at his home in that city, March 31, aged 77.

Ernest Pendleton Magruder, M.D. George Washington University, Washington, D. C., 1902; clinical professor of surgery in his alma mater; formerly a Fellow of the American Medical Association; a member of the Medical Society of the District of Columbia and of the Washington (D. C.) Surgical Society; at one time on duty on the staff of the Emergency Hospital, Washington, D. C., who went to Serbia by way of Petras, Greece, sailing on Nov. 21, 1914, as director of American Red Cross Unit No. 3; died in Serbia, April 9, from typhus fever, aged 39.

Edith Jane Claypole, M.D. University of Southern California, Los Angeles, 1904; a Fellow of the American Medical Association; and a member of the American Association of Pathology and Bacteriology; research associate in pathology in the University of California, Berkeley; well known as a teacher and investigator in biology and during recent years for her work on the differentiation of streptothrix infections in human beings and on immunization against typhoid fever; died in Berkeley, March 27, aged 45.

William H. Randle, M.D. Jefferson Medical College, 1878; formerly a member of the Medical Society of the State of Pennsylvania; a member of the federal commission to study and combat yellow fever in the southern states in 1878; a practitioner of Germantown, Philadelphia, for many years; and a member of the staff of the Jewish Hospital, Philadelphia; a sufferer from diabetes for a long time; died in the Jewish Hospital, April 2, a week after a mastoid operation, aged 62.

James Eugene McGourty, M.D. Harvard Medical School, 1896; a member of the Association of Military Surgeons of the United States; formerly surgeon of the Ninth Infantry, M. V. M., and a practitioner of Worcester and Lynn, Mass.; for the last three years a surgeon on board Harburg-American steamships, on the New York-Hamburg and New York-Puerto Rico services; died in the Flower Hospital, New York City, March 28, from pneumonia, aged 42.

Joshua Stevens Blanchard, M.D. University of Michigan, Ann Arbor, 1881; a Fellow of the American Medical Association and since 1908 secretary of the Buffalo County (Neb.) Medical Society; formerly a practitioner of Parma, Albion and Jackson, Mich., but since 1902 a specialist on diseases of the eye, ear, nose and throat of Kearney, Neb.; died at his home in that city, March 27, from cerebral hemorrhage, aged 58.

Laura A. Linton, M.D. University of Minnesota, Minneapolis, 1900; for fifteen years a member of the staff of the Rochester (Minn.) State Hospital; at the time of her death second assistant superintendent and in charge of the women's ward; one of the heads of the Minnesota State Training School for Nurses; died at her home in Rochester, April 2.

Henry F. D. Bruhns, M.D. University of Berlin, Germany, 1870; a resident of Lead, S. Dak., for more than thirty years, and at one time a member of the staff of the Homestake Hospital; while returning to his home, Dec. 24, 1914, lost his way, fell into a prospect hole and died from exposure, aged 74.

John H. Jenness, M.D. University of Maryland, Baltimore, 1887; a Fellow of the American Medical Association; for several years school commissioner for Cecil County, Md.;

a member of the Maryland Legislature in 1898; died at his home in Rising Sun, Md., March 29, from pneumonia, aged 52.

Frederick Erastus McClellan, M.D. University of Buffalo, N. Y., 1890; a member of the Medical Society of the State of New York and physician to the Thompson Memorial Hospital, Canandaigua, N. Y.; died at his home in Canandaigua, March 27, from heart disease, aged 46.

Frank D. Koonce, Jr., M.D. Southern Medical College, Atlanta, Ga., 1893; formerly assistant physician at the North Carolina State Hospital, Raleigh, but for the last fifteen years a practitioner of Washington, D. C.; died at his home in that city, March 24, from pneumonia, aged 46.

Rachael T. Speakman, M.D. Woman's Medical College of Pennsylvania, Philadelphia, 1861; who retired from practice twenty years ago and has been for the last twelve years resident physician at Wellesley College, Wellesley, Mass.; died in Brookline, Mass., March 30, aged 87.

Henry Randolph Bradley, M.D. University of Alabama, 1896; a member of the Medical Association of the State of Alabama; died at his home in Elba, February 10. At a meeting of the Coffee County Medical Society, March 11, resolutions of respect and regret were adopted.

Angus Noble, M.D. Jefferson Medical College, 1868; a member of the Association of Surgeons of the Pennsylvania Lines; for twenty-four years surgeon for the Pennsylvania system, at Wellsville, Ohio; died at his home in that city, March 30, from pneumonia, aged 74.

James R. Clouston, M.D. McGill University, Montreal, 1888; for twenty-three years coroner of Huntingdon County, Que.; for many years a member of the Huntingdon School Board; a well-known temperance advocate; died at his home in Huntingdon, March 29, aged 57.

Landreth W. Thompson, M.D. Hahnemann Medical College, Philadelphia, 1887; formerly professor of emergencies in his alma mater; surgeon to St. Luke's and Children's Homeopathic hospitals, Philadelphia; died at his home in Philadelphia, March 31, aged 51.

Thomas Edsmond Sheffield, M.D. Medical College of Georgia, Augusta, 1902; a member of the Medical Association of Georgia; was shot and killed by his wife near his office in Blakely, Ga., aged 38. Jealously is believed to have been the motive for the tragedy.

John Mutius Gaines, M.D. Jefferson Medical College, 1860; surgeon in the Confederate service during the Civil War and for many years a practitioner of Washington County, Md.; died at his home in Hagerstown, Md., March 27, aged 77.

Charles Warren Johnson, M.D. Jefferson Medical College, 1872; for nearly thirty years a practitioner of Litchfield, Ill., and for many years health officer of that city; died at his home, January 28, from cerebral hemorrhage, aged 66.

James A. Modesitt, M.D. Medical College of Indiana, Indianapolis, 1879; a practitioner of Clay County, Ind., since 1873; for the last two years a resident of Terre Haute, Ind.; died at his home in that city, March 30, aged 70.

Judson Elam Hair, Jr., M.D. University of Maryland, Baltimore, 1912; of Greenville, S. C.; who had been living in Tucson, Ariz., on account of tuberculosis; died at Mobile, Ala., while on his way home, March 26, aged 26.

Lewis E. Safley, M.D. College of Physicians and Surgeons, Chicago, 1885; well known as a practitioner and big game hunter of Montana; died at his home in Livingston, Mont., March 27, from arteriosclerosis, aged 53.

Francis M. Beals, M.D. Eclectic Medical Institute, Cincinnati, 1879; chairman of the Board of Health of Mattoon, Ill., and a member of the staff of the Mattoon Hospital; died at his home in that city, March 31, aged 62.

James O. A. Pipkin, M.D. Tulane University, New Orleans, 1869; for many years a practitioner and druggist of Waco, Tex., and for several years physician of McLennan County; died in Lancaster, Tex., March 20.

William Brooks Bigler, M.D. Jefferson Medical College, 1865; an honorary member of the Hillsboro County Medical Society, Tampa, Fla.; died at his home in Dallastown, Pa., April 1, from senile debility, aged 81.

John Robert Barnett, M.D. Rush Medical College, 1881; formerly of Lincoln and Peoria, Ill., but more recently a resident of Imboden, Ark.; died in Peoria, March 29.

M. P. Alexander, M.D. Eclectic Medical Institute, Cincinnati, 1859; died at his home in Maysville, Ga., March 17, from pneumonia, aged 85.

William R. Stavelly, M.D. Jefferson Medical College, 1855; formerly local surgeon for the Pennsylvania system at Lahaska, Pa.; died at his home near Lahaska, March 29, from senile debility, aged 83.

Robert J. Rivers, M.D. Hospital College of Medicine, Louisville, 1902; formerly city physician of Paducah, Ky.; died in Hopkinsville, Ky., about March 28, from disease of the gallbladder, aged 34.

Harney Upshaw, M.D. Charity Hospital Medical College, New Orleans, 1875; formerly a member of the State Medical Association of Texas; died at his home in Somerville, Tex., March 29, aged 69.

Frederick H. Mersfelder, M.D. Cleveland Homeopathic Medical College, 1904; also a clergyman of the United Brethren denomination; died at his home in Canal Dover, Ohio, January 31.

Alois B. Shelton, M.D. Eclectic Medical Institute, Cincinnati, 1889; a member of the Kentucky State Medical Association; died at his home in Boydsville, Ky., March 25, aged 71.

Rudolph F. Erdmann, M.D. Miami Medical College, Cincinnati, 1870; a practitioner of New Richmond, Ohio, since 1887; died at his home in that place, February 8, aged 68.

Joseph N. Hannaford, M.D. Rush Medical College, 1871; for nearly thirty years a practitioner of Marion, Kan.; died at his home in Mt. Vernon, Wash., March 13, aged 78.

Frederick R. Mosher, M.D. Wisconsin College of Physicians and Surgeon, Milwaukee, 1898; died at his home in Milwaukee, March 29, from tuberculosis, aged 44.

Eugene M. Legg (license, Texas, Eclectic State Board, 1906), a Fellow of the American Medical Association; died at his home in Abernathy, Tex., March 7, aged 36.

Frank Constant Manchester, M.D. Dartmouth Medical School, Hanover, N. H., 1885; died at his home in Grafton, N. H., January 28, from influenza, aged 53.

George Henry Furbeck, M.D. Long Island College Hospital, Brooklyn, 1895; formerly of Cohoes, N. Y.; died at his home in Denver, Colo., January 27, aged 43.

Albert Z. Buchen, M.D. College of Physicians and Surgeons, Baltimore, 1876; died at his home in Hanover, Pa., March 24, from pleuropneumonia, aged 64.

M. Rudolf Collison, M.D. Pulte Medical College, Cincinnati, 1881; of Oklahoma City, Okla.; died at his home, February 22, from pneumonia, aged 65.

William B. Doane, M.D. Eclectic Medical Institute, Cincinnati, 1882; a veteran of the Civil War; died at his home in Amelia, Ohio, Dec. 13, 1914, aged 77.

Hugh Upton, M.D. Fort Wayne College of Medicine, Fort Wayne, Ind., 1889; of Upper Lake, Cal.; died in Kelseyville, Cal., March 13, aged 75.

Robert K. Dixon, M.D. Georgia College of Eclectic Medical Surgery, Atlanta, 1908; died at his home in Fayetteville, Ga., January 27, aged 30.

James Vance Kinyoun, M.D. St. Louis College of Physicians and Surgeons, 1892; died at his home in Kansas City, Mo., March 31, aged 51.

David A. Sayre, M.D. Starling Medical College, Columbus, Ohio, 1892; died in his office in New Haven, W. Va., March 27, aged 53.

Thomas Alfred Amos, M.D. Trinity Medical College, Toronto, 1882; died at his home in Exeter, Ont., March 25, from pneumonia.

Jerome Charles Marion Chaffee (license, Illinois, 1896), a practitioner for forty-six years; died at his home in Chicago, April 1, aged 69.

William L. Bolon, M.D. Columbus (Ohio) Medical College, 1879; died at his home in Cumberland, Ohio, Dec. 14, 1914, aged 56.

Joseph Walton (license, Ohio, 1896) of Newark, Ohio; died in the Newark Sanitarium, March 24, from pneumonia, aged 85.

George Veitch, M.D. Trinity Medical College, Toronto, 1885; died at his home in Port Elgin, Ont., March 18, aged 55.

Frank B. Stallsworth, M.D. University of Alabama, Mobile, 1899; died at his home in Cuba, Ala., January 2.

John H. Williams, M.D. Jefferson Medical College, 1893; died at his home in Philadelphia, March 15, aged 44.

Cyrus E. Heywood, M.D. Rush Medical College, 1868; died at his home in Casey, Ill., March 21, aged 71.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

DR. CRONEY'S SPECIFIC FOR EPILEPSY

A Fraudulent Epilepsy Cure Exploited from Columbus, Ohio

Dr. James T. Croney of Columbus, Ohio, calls himself a "specialist" in epilepsy. His specialty is of the mail-order variety, and he treats patients he never sees, for conditions that are self-diagnosed. So far as can be ascertained from the records, Croney was never graduated by a medical college. He was licensed to practice in Ohio in 1896, under the law passed in that year, which permitted non-graduates who had practiced a certain number of years to register. At the time of licensing he was classified as an eclectic, as he claimed to have attended the Eclectic Medical College, Cincinnati, for four months in 1871.

"I have, perhaps, the most positive method ever devised for the permanent cure of Epilepsy," says Croney, with all the easy assurance of quackery. With glib self-glorification, he has declared: "My record is a patient restored to health in every case where my treatment was followed as prescribed."

Croney obtains his "sucker list" by writing to the mayors of small towns and also to the local agents of express companies asking them to furnish the names of sufferers from epilepsy in their neighborhoods. He also incloses with his requests a printed slip emphasizing the fact that he ships his nostrum by express. Having obtained the name, a form-letter prepared so as to resemble a personal communication is sent to the sufferer offering the usual "free trial treatment."

Nor does Croney fail to play on the fears of the sufferers:

"If you could understand fully the terrible results of neglected epilepsy—imbecility or equally fearful complications which may inevitably result—you would write to me to-day—this very moment."

Of the "treatment," Croney says:

"... the key to my success is due to the fact that I have dissected epilepsy—so to speak—and have prepared a remedy that opposes it at all times."

And what is this "remedy" that, according to its exploiter, "first removes the primary cause of epilepsy and then dispels the secondary causes?" Let the chemists of the Association's Laboratory answer:

CHEMISTS' REPORT¹

One bottle of "Dr. Croney's Specific for Epilepsy," manufactured by J. T. Croney, Columbus, Ohio, was submitted to the Chemical Laboratory for examination. The bottle contained 980 c.c. (32 $\frac{2}{3}$ fluidounces) of a brown liquid, having extractive matter present. The specific gravity of the liquid at 15.6 C. was 1.1403. Qualitative tests demonstrated a trace of alkaloid, alcohol, ammonia, sodium, potassium, carbonate, chlorid and bromid. A resin was also present. The liquid was distinctly alkaline. Quantitative determinations yielded the following:

Alcohol (by volume).....	3.70 per cent.
Ammonia (NH ₃) (by weight).....	0.46 per cent.
Potassium (K ⁺) (by weight).....	5.02 per cent.
Sodium (Na ⁺) (by weight).....	0.04 per cent.
Carbonate (CO ₃ =) (by weight).....	0.98 per cent.
Bromid (Br ⁻) (by weight).....	10.91 per cent.
Chlorid (Cl ⁻) (by weight).....	0.16 per cent.
Resinous material (by weight).....	0.47 per cent.

Essentially each 100 c.c. of the solution contains approximately 3.0 gm. ammonium bromid and 16.1 gm. potassium

bromid. Calculating from the bromid determination, each dose, 2 teaspoonfuls (2 fluidrams) contains the equivalent of 16.9 grains potassium bromid, or the daily dose (6 teaspoonfuls) correspond to 50.7 grains potassium bromid.

Shorn of its mystery and secrecy Croney's "cure" for epilepsy, like every other nostrum of its type, stands nakedly exposed as essentially a mixture of bromids. Summarized, the investigation shows that Croney's alleged "Specific for Epilepsy" is not only worthless but a dangerous fraud.

[CONTRIBUTION FROM THE CHEMICAL LABORATORY OF THE AMERICAN MEDICAL ASSOCIATION]

THE QUALITY OF COMMERCIAL BLAUD'S PILLS

L. E. Warren, Ph.C., B.S.

In view of the known instability of ferrous salts, it has been generally held that pills of ferrous carbonate U. S. P. (Pilulae Ferri Carbonatis, U. S. P.), commonly known as Blaud's pills, are unstable. Thus, the U. S. Pharmacopeia directs that they shall be freshly prepared when wanted. Pharmaceutic manufacturing houses, evidently holding this requirement to be unnecessary, almost universally sell ready-made Blaud's pills. On the other hand, some firms sell special forms of the preparation with claims of keeping quali-

ties superior to the ordinary pill. Nevertheless, it was recently pointed out¹ that a proprietary brand of Blaud's pill, which the manufacturer claimed to be greatly superior in keeping quality to the ordinary Blaud's pill, and an ordinary commercial specimen, were each of good quality. To determine whether there is justification for the sale of ready made Blaud's pills, and to determine whether the existence of special forms of Blaud's pills is warranted, an examination of the principal market brands was undertaken. Twelve freshly purchased specimens were examined, together with a specimen of each of three brands which were known to be several years old. Three specimens of the freshly purchased pills were what the manufacturers called "soft mass" pills.

Some of the claims made for the "soft mass" pills are:

"... present advantage of being rapidly soluble and disintegrating in the stomach and intestinal tract. . . . Under proper storage conditions they retain their soft consistency and shape perfectly."

"They disintegrate or dissolve readily in the digestive tract."

"They keep well, i. e., do not lose strength under proper conditions of storage."

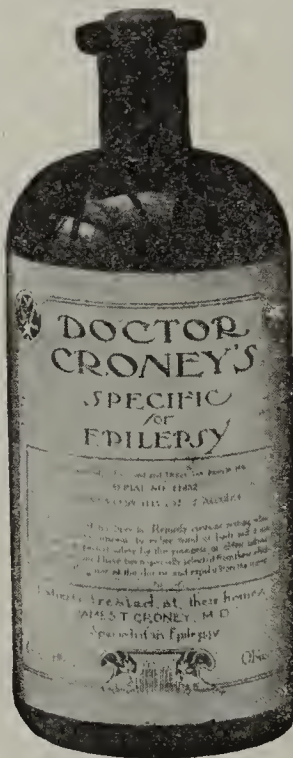
"They show little tendency to become hard when kept under reasonable conditions."

"They are strictly true to formula."

The "soft mass" pills were "chocolate-coated." The remainder, except where stated to the contrary, were gelatin-coated. Three of the specimens (one of which was old) were not claimed to have been prepared according to the U. S. P. formula, but in general were claimed to contain the ingredients from which ferrous carbonate is produced, so that after ingestion ferrous carbonate in the "nascent" state would be formed in the alimentary tract. A number of the specimens were proprietary. These included Frosst's Blaud Capsules; Laminoids Ferruginous (nascent) Schieffelin; Laminoids Blaud (a specimen known to be at least seven years old) Schieffelin; Ferruginous Blaud, Upjohn (one of the "nascent" preparations), and two specimens of tabloids (one of which was old). The laminoids were uncoated. The tabloids were sugar-coated. With one exception all of the preparations were stated to contain 5 grains of Blaud's mass, which is equivalent to about 1 grain of ferrous carbonate. This one was a specimen of Tabloids Blaud Pill and Aloin which was known to be at least six and one-half years old. One specimen of gelatin-coated Blaud's pills (Parke, Davis

1. This is a condensed report of the chemists' findings. The details of analysis will appear in the Reports of the Chemical Laboratory of the American Medical Association for 1915.

1. Queries and Minor Notes, THE JOURNAL A. M. A., Oct. 1, 1914, p. 1315.



& Co.) also was known to be at least six and one-half years old.

Concerning Frosst's Blaud capsules, the following claims were made:

"Blaud capsules 'Frosst' represent freshly precipitated Ferrous Carbonate of a high percentage of purity, deprived of moisture and incorporated with Castor Oil that it may be readily incapsulated in a freely soluble gelatine covering. The capsules do not harden with age nor the contents oxidize."

The cost of Frosst's Blaud capsules was nearly twice that of any other brand of Blaud's pills examined.

The following statements were made concerning Laminoids:

"The Laminoids (Ferruginous, Nascent) consist of two lamina, one of ferrous sulphate and the other of sodium bicarbonate, united by pressure. When brought in contact with water or the fluids of the stomach, chemical action at once takes place, producing fresh ferrous carbonate with the accompanying salts. An excess of carbonate is present to neutralize the acid in the stomach.

content of the real Blaud pills when calculated to ferrous carbonate varied between 77 and 156 per cent. of the amount claimed, and that of the "nascent" preparation between 88 and 183.2 per cent. of the amount claimed. The determinations of ferrous carbonate did not markedly fall below this, showing that oxidation had not taken place to any considerable extent. The analytic findings are given in the accompanying table.

In order to obtain some information as to the relative disintegrating properties of the several brands of pills, tests were carried out by treating a specimen of each (1 pill) with 90 c.c. of 0.2 per cent. hydrochloric acid at ordinary temperature in a 100 c.c. Erlenmeyer flask, and agitating the mixture by inverting once every ten minutes. This process was continued until the pill had become disintegrated, or until the experiment had continued for nine hours. In a second series of tests at the end of six hours, the acid was removed from

TABLE SHOWING QUALITY OF COMMERCIAL BLAUD'S PILLS

Product	Manufacturer	Claims; Composition	Ferrous Carbonate Calculated from Determination of Total Iron. Per Cent. of Claim	Ferrous Carbonate (by Titration of Ferrous Iron) Per Cent. of Claim	Disintegration in Acid Solution (Hours)	Disintegration in Alkaline Solution Following Acid (Hours)
Blaud Capsules	Charles E. Frosst & Co.	5 grains, approximately $\frac{1}{2}$ grain of iron in the ferrous state	77	79.2*	No effect except to dissolve coating	No effect
Blaud Pill	Sharp and Dohme	5 grains U. S. P.	91.8	92.6	6.00 5.00	
Blaud Pill Soft	Sharp and Dohme	5 grains U. S. P.	99.5	96.2	6.00+ 3.00 2.00 3.50 2.00	0.50
Blaud Pill	John Wyeth and Brother	5 grains U. S. P.	114.2	113.9	8.50	
Blaud Pill	Eli Lilly & Co.	5 grains U. S. P.	117.7	112.5	6.00 3.50 2.00 4.00	
Blaud Pill Soft	Eli Lilly & Co.	5 grains U. S. P.	121.4	120.1	6.00 7.00 6.00+	
Ferrous Carbonate (Blaud)	Parke, Davis & Co.	5 grains U. S. P.	117.6	121.3	4.50 4.00	1.00
Ferrous Carbonate (Blaud) soft	Parke, Davis & Co.	5 grains U. S. P.	156.2	153.9	2.00 2.50	
Ferrous Carbonate (Blaud) (old specimen)	Parke, Davis & Co.	5 grains U. S. P.	142.3	143.7	7.00 6.00+	
Ferruginous Blaud	Wm. S. Merrell Chemical Co.	5 grains	117.4	105.9	1.00 2.00 3.00	6.00†
Ferruginous (Blaud's)	The Upjohn Company	5 grains	183.2	169.5	5.50 8.00 6.00+	
Laminoids Ferruginous (nascent)	Schieffelin & Company	5 grains	121.3	126.4	1.50 2.00	4.00
Laminoids Blaud's (old specimen)	Schieffelin & Company	5 grains	87.7	74.9	1.00	
Tabloid Blaud Pill	Burroughs, Wellcome & Co.	5 grains	104.3	104.1	1.00 7.00†	
Tabloid Blaud Pill and Aloin (old specimen)	Burroughs, Wellcome & Co.	Blaud Pill 4 grains (20% ferrous carbonate); Aloin $\frac{1}{20}$ grain	106.1	113.1	6.00+ 8.50 6.00+	6.00† 6.00†

* The apparent discrepancies between the amount of ferrous carbonate as calculated from the determination of total iron and that obtained by titration of ferrous carbonate are explained elsewhere in this paper.

† Not completely disintegrated in twenty-four hours.

"In Laminoids (Ferruginous, Nascent) the physician will find an absolutely reliable means of administering Blaud's formula, without the possibility of the efficiency of this time-tried remedy being impaired by oxidation and the formation of more or less inert material."

The total iron content in the several preparations was determined gravimetrically, and the amount of ferrous carbonate determined by titration. In order to obtain information as to the variation among the individual pills, the assays for ferrous carbonate were made on three pills taken together and on each of three pills taken singly, or four assays in all. The average was then obtained by dividing by six. In some instances, additional assays were made. The results in some cases show considerable variation from the claimed amount of medicinal ingredients. In some of the brands the average results found by titration for ferrous carbonate were somewhat higher than those obtained by calculation from the determination of total iron. Evidently this is due to the fact that because of great variation in the weight of individual pills, uniform samples could not be obtained. The total iron

such of the pills as had not become completely disintegrated, and 90 c.c. of a 1 per cent. solution of sodium carbonate substituted. The digestion was then continued as described above until the pill had become completely disintegrated, or until a period of six hours had elapsed. Although the disintegration would undoubtedly have taken place more rapidly at a temperature of 37 C. and possibly faster in a weak pepsin solution, it is believed that for comparative purposes the results obtained are sufficient.

The results not only showed great variation among the several brands, but also considerable variation among the several pills of the same brand. The Laminoids disintegrated the most readily, but these were not coated. The next in order were the Parke, Davis & Co. brand of soft mass pills and the Sharp & Dohme brand of soft mass pills. It should be noted that the Lilly brand of soft mass pills disintegrated more slowly than the ordinary kind from that firm. The results are given in the table.

The results of the examination refute the commonly assumed instability of ready-made Bland's pills. On the other hand, it is seen that the Bland's pills of the market are not very reliable as to iron content. A range of from 77 to 182 per cent. of the claimed amount of ferrous carbonate denotes carelessness in manufacturing or lack of proper analytic control over the finished product. Further, the examination demonstrates that the "nascent" preparations, the soft mass pills, and the gelatin encapsulated oily suspension show no advantage over the ordinary kinds. In view of the findings, physicians should consider the advisability of directing the pharmacist to prepare Bland's pills according to the U. S. P. whenever they are prescribed.

ARTICLES REFUSED RECOGNITION

Reports of the Council on Pharmacy and Chemistry

Below appears an abstract of the Council's action on an article refused recognition which was not deemed of sufficient importance to require a lengthy report.

Lactobacilline Omitted from N. N. R.

The Franco-American Ferment Company has advised the Council on Pharmacy and Chemistry that, in advertising its products, it will no longer conform to the rules of the Council. This is evident. The Franco-American Ferment Company has distributed circulars in which the public is informed that auto-intoxication is the cause of innumerable ills ranging all the way from arteriosclerosis, rheumatism and gout to chronic headache, odorous perspiration, nervous disorders and melancholia; that the Bulgarian bacillus "is a wonderful corrective or remedy" for all these conditions, and that the Lactobacilline products are the only preparations of Bulgarian bacillus "to be had in America which bear his [Professor Metchnikoff's] personal endorsement"—by inference, the only reliable products. In view of the action of the Franco-American Ferment Company, and of the tendency of their advertising to cause the public to exaggerate slight ailments into alarming conditions, the Council has voted that the several Lactobacilline products of this concern be deleted from New and Nonofficial Remedies.

CONVICTIONS UNDER FOOD AND DRUGS ACT

NEAL'S OLIVINE

Neal's Olivine was a liquid soap put on the market by the To-Kalon Manufacturing Company of Syracuse, N. Y. Under the heading "Important to Physicians and Trained Nurses," the label bore the following claims:

"Neal's Olivine is a thoroughly Antiseptic soap, medicated with chemically pure borax, in the form of boroglycerine. It is of exceptional value in producing surgical cleanliness, unexcelled for removing dirt, softening and whitening the skin, healing chapped hands, and eradicating skin blemishes.

"Neal's Olivine will not injure the most delicate skin.

"Unexcelled for the relief of dandruff, falling hair, and shampooing the scalp."

On a circular that went with the bottle these further claims appeared:

"Olivine contains the pure oil of crushed olives combined with chemically pure borax in the form of boroglycerine.

"It is both an antiseptic and germicide."

A sample of Neal's Olivine was analyzed in the Bureau of Chemistry and the chemists reported that it was not made from olive oil, that it contained no boroglycerin, and that it had neither antiseptic nor germicidal action. On March 20, 1914, the To-Kalon Manufacturing Company pleaded guilty to the charge of misbranding and the court imposed a fine of \$20.—[*Notice of Judgment, No. 3522.*]

FRECKLESS

Freckless was marketed by one John Emmett Barry trading under the firm name of J. E. Barry & Co., Paris, Texas. The stuff was sold "for the removal of Freckles, Tan, Sun-

burn and other Facial blemishes" and bore the following statements on the trade package.

"The Superior Skin Food and Massage Cream."
"As harmless as it is sure."

When analyzed by the Bureau of Chemistry the chemists reported that Freckless was an ointment consisting largely of petrolatum (vaseline) with which had been mixed about 10 per cent. of bismuth subnitrate and 12 per cent. ammoniated mercury.

The stuff was declared misbranded because it was not harmless, containing as it did a "harmful, poisonous and deleterious" substance, ammoniated mercury, which as is well known, is a caustic poison. It was further declared misbranded in that it was not a "skin food" and "did not contain any ingredient or combination of ingredients capable of acting as a food for the skin." On Oct. 19, 1914, J. E. Barry pleaded guilty and was fined \$10.—[*Notice of Judgment, No. 3540.*]

Correspondence

Ancylostoma, not Ankylostoma

To the Editor:—The Current Comment "Ancylostoma, not Ankylostoma" (*THE JOURNAL*, March, 27, 1915, p. 1081), says: "We do not know what considerations induced the commission to choose the spelling 'ancylostoma,' which apparently also involves a change in pronunciation, but possibly the choice will illustrate the proverb, 'You may lead a horse to water but you cannot make him drink.'" I find that other medical journals have likewise criticized the opinions of the commission. The rules for nomenclature established by the International Commission on Zoological Nomenclature have no bearing on the etymological derivation of a name. It is the duty of the commission to determine the first name applied to a genus or species correctly described. The name does not have to be descriptive; nor does it matter how the name is spelled.

Official names are of great help to scientists; it is only by their use that the various descriptions in various languages are brought to a focus. The fact that an unofficial name has come into wide use in medical literature is no argument against the necessity of official names for scientific work. There is less room for argument here than there is in the action of the committee on revision of the present Pharmacopeia in dropping the name "chloral," which was official and which is widely used in medical writings, and in replacing it with the official name, "chloralum hydratum." I wish you would make it clear to the readers of *THE JOURNAL* that zoological nomenclature is not based on etymological or orthographic rules, and that a name does not have to be descriptive.

The first name published with a correct description is the one that the committee usually selects as the official name.

Dubini in 1843 gave the first description under the name *Agchylostoma duodenale*. Article 25 of the Code provides that the valid name of a genus or species can only be that name under which it was first designated. The name must not have been used previously for some other genus or species. Of course, all names must be Latin or Latinized, or considered and treated as such in case they are not of classic origin. There never was any question about the designation of the species *duodenale*. It is believed that the *g* in *Agchylostoma* was due to a typographical error and, therefore, according to Article 19 of the Code an emendation would be valid. The first emendation was made by Creplin in 1845, who changed *Agchylostoma* to *Ancylostoma*. Article 19 of the Code provides: "The original orthography of a name is to be preserved unless an error of transcription, a *lapsus calami*, or a typographical error is evident."

I believe a similar law of priority should apply to the names in our Pharmacopeia and that we should cease this ever changing of names.

O. V. HUFFMAN, M.D., Albany, N. Y.

To the Editor:—There is at least one serious objection to the adoption of the word "ancylostoma" instead of "ankylostoma," as the International Commission of Zoological Nomenclature has decided. The same objection has held for the word "ceramics," which the dealers who know and the magazine published by that name have for some time past spelled "keramics."

The objection is that the Greek origin calls for a hard "c" or "k" sound in the pronunciation of both words. It is ridiculous to pronounce the name of the worm "ansilostoma," which the new proposal will initiate.

L. K. HIRSHBERG, M.D., Baltimore.

Scholarships for Belgian Students

To the Editor:—There are many Belgian students and professors, young and old, crippled physically and unfit to serve in the army, whose important life work is at a standstill. A committee is actively at work endeavoring to anticipate somewhat the future needs of Belgium during its period of educational reconstruction. To the lovers of equity, and to those who cherish education and admire Belgian integrity and heroism, an opportunity is given to assist in bringing to America worthy intellectual men and women for a temporary free enjoyment of the privileges of American institutions.

This committee has already received assurances from the George Washington University for the instruction of ten students in any of the departments of the University. It is highly probable that the committee will receive from other American institutions similar assurances.

It is proposed to raise a fund at once to defray the traveling expenses to and from Belgium, and the cost of residence in Washington for a period of one year, of the students or research workers, which the George Washington University has already generously provided for. In the case of professors it is hoped that the subscriptions will be sufficiently liberal to provide for honorariums as well, thereby giving all the students in Washington the benefits of lectures by Belgian scholars.

It is estimated that from \$20,000 to \$25,000 will be needed in the work at once, and in the event of a surplus being accumulated, it is proposed to apply this to the recuperation of educational work in Belgium. This committee is a subcommittee of the Central Committee for the Belgium Relief Fund for women and children and other non-combatants, and it is organized with the approval of the minister from Belgium to the United States. Contributions may be sent to Belgian Scholarship Committee, Washington Loan and Trust Building, Washington, D. C. Checks for any amount, large or small, are earnestly asked for.

NEVIL MONROE HOPKINS, Chairman,
2128 Bancroft Place,
Washington, D. C.

Use of the Continuous Warm Bath

To the Editor:—In the article on "The Tools of Our Trade," by F. X. Dercum (THE JOURNAL, March 13, 1915, p. 878), a view is expressed regarding the "continued warm bath" in treatment of psychoses which does not represent the correct attitude, as I think, toward this means of treatment. Dr. Dercum remarks that "the continued warm bath is also a form of restraint." This is not the opinion or the usage of all. Since 1909, when I observed the *Dauerbäder* as given at Kraepelin's clinic at Munich, where I took the "Fortbildungskursus," I have employed it as a method of treatment only when the patient was entirely willing. Previously I had occasionally used mild compulsion with it. I asked Kraepelin if he ever used compulsion. He replied that he did not—only persuasion, requesting the patient to get in and allowing him to get in and out as he chose, adding that he seldom failed to finally win the full consent of the patient. I am more inclined to call attention to this as I noticed some time ago that the prolonged warm baths were treated as a form of "restraint" in the state institutions of Illinois, and

blanks provided to report this form of "restraint" to the state board of administration.

I believe that the method of treating the prolonged warm baths as "voluntary" is the more enlightened one, and that patients with whom force is required to give the bath would as a rule do as well without it if they prove refractory to persuasion, after a thorough, kindly and patient trial of that means. Though there may be exceptions to this statement, I believe it in accord with the best welfare of the greatest number.

RICHARD DEWEY, M.D., Wauwatosa, Wis.

Information Wanted on Inherited Harelip and Cleft Palate

To the Editor:—We are studying the inheritance of harelip and cleft palate. So far we have been unable to obtain data of children when both parents showed one or both of these abnormalities. Information is wanted on the inheritance of harelip and cleft palate in families in which both parents are affected. Descriptions of the abnormalities of both parents are desired, and especially the total number and sex of the children, both normal and abnormal.

S. L. MASON,
D. F. JONES.

Bussey Institution of Harvard University, Forest Hills, Mass.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

INQUIRIES ON THE HARRISON LAW

A FEW SUGGESTIONS

The Vigo County (Ind.) Medical Society, with commendable enterprise, has prepared and distributed to its members a card to hang over the doctor's desk or wherever it can be easily consulted. It contains a number of helpful suggestions which physicians will do well to keep in mind. The card reads:

GET THE HABIT.—Write or have printed your register number—your patient's name and address—your name and address—the date on all your prescriptions. You will find it a good check.

BE CAREFUL when prescribing proprietaries containing narcotics to always use your register number, etc. It will save confusion.

A DRUGGIST cannot accept a prescription containing any narcotic over the phone.

COOPERATION is going to make this law the best ever enacted. REMEMBER the doctor has everything to gain, the druggist everything to lose, so don't ask him to do anything that is not strictly within the letter of the law.

REMEMBER it is necessary for a doctor to use official order blanks in purchasing H. T. apomorphia, morphin, codein, cocain solution or other narcotics coming under this act.

TO FACILITATE the duties of the inspector, druggists should keep a separate file of all prescriptions coming under this act.

REMEMBER the dispensing doctor must follow all regulations as laid down for the druggist.

TELEPHONE PRESCRIPTIONS

To the Editor:—Is the druggist allowed to take prescriptions over phone, for opiates under Harrison act, and sign the physician's name and register number, or must the prescriptions be in the physician's own handwriting?

H. H. NIEHUS, M.D., El Dorado, Ark.

ANSWER.—The law provides that prescriptions shall be written by the physician, dated on the day on which they are signed and signed by the physician who shall have issued the same. Obviously, prescriptions signed with the physician's name by any one else would not be lawful.

COPY OF PRESCRIPTION NOT REQUIRED

To the Editor:—Is a physician required to keep a copy of his prescriptions for drugs mentioned in the Harrison act?

F. O. YOUNG, M.D., Lexington, Ky.

ANSWER.—No.

QUESTION OF DOUBLE LICENSURE

To the Editor:—1. With reference to the question of P. G. K. (THE JOURNAL, March 27, 1915, p. 1096), suppose he applies for the licenses at different times and gets Nos. 1 and 20, as physician and druggist, respectively. If he carries a medicine case, in order for him to

replenish his supply, is it necessary for him to order the drugs on the regulation blanks as No. 1 to himself as No. 20? Or can he simply take them out of the stock bottles and keep a record of all in his possession collectively?

2. Would the following prescription come under the exemptions? It is used merely to illustrate:

Elix. heroin and terpine hydrate.....
Syr. wild cherry.....
Syr. simpleāā 1 ounce
M. Sig.: Teaspoonful every three hours.

Elixir of heroin and terpin hydrate contains $\frac{1}{3}$ grain of heroin to the ounce, but the whole mixture contains only $\frac{1}{6}$ grain to the ounce.
L. H. S., McDaniel, Md.

ANSWER.—1. A physician doing business as a druggist would have to take out a license in each capacity. If he takes drugs out of his stock for his own professional use, he should fill out an order blank for himself as he would do if he were getting the drugs from a druggist, other than himself.

2. Any preparation containing less than 2 grains of opium, one-fourth grain of morphin, one-eighth grain of heroin or 1 grain of codein to the fluidounce is exempt. As prescriptions are required to show only the registry number, the patient's name and address and the physician's signature, it is better and much easier to comply with these conditions in writing all prescriptions, and then one will not need to worry about the exact amount of opiate in each prescription. May we once more emphasize that physicians need not worry about the antinarcotic law, when writing prescriptions, if they will have printed, or write, on their prescription blanks, their registry number; and in addition do what they ought to do always, that is, give the date and name of patient and sign their own name in full.

DEAD SHOT COUGH REMEDY — A DANGEROUS AMYL ACETATE MIXTURE

To the Editor:—I am sending you a one-half ounce vial of Dead Shot Cough Remedy in original package. The person who puts up and peddles this claimed that it contained no alcohol, opium or any harmful drug, and was a sure cure, etc. A party took two doses and complained of suffocation and an enlargement of the blood vessels of the head, blindness, vertigo and afterward a violent headache. Also, another party took 10 drops and complained of a fulness in head and dyspnea—says it feels as if all the blood goes to the head. It seems to have the effects of the nitrites. The label does not declare its contents and the preparation is put up and sold by a layman. Can you examine and report the findings of the contents of this bottle, and whether this is being put up and sold in violation of the "Pure Food and Drugs Act?"
R. L. ALEXANDER, M.D., Jayton, Texas.

ANSWER.—The specimen sent in had an overpowering odor reminding one of fusel oil. In view of its evident potency and the consequent danger liable to result from its promiscuous use, the Chemical Laboratory of the Association was asked to make an examination of the specimen. The following is the report:

The specimen submitted to the laboratory for examination was labeled:

DEAD SHOT COUGH REMEDY

Dead shot for coughs, and colds. Manufactured and sold exclusively by W. F. Martin, Anson, Texas. Dose: From 12 to 15 drops for adults three or four times a day without water. Give children number of drops, according to age.

Tests were made for the presence of such compounds as amyl nitrite and nitroglycerin, either of which might produce the symptoms reported by those using the preparation, but the presence of neither compound could be demonstrated. On evaporating some of the preparation, a small amount of an oily residue was left which from its physical properties was concluded to be kerosene, or a similar petroleum oil.

Compared with a known specimen of amyl acetate as to odor, color, taste, volatility, presence of acetate and reaction with vanillin sulphuric acid reagent, no difference could be detected.

This qualitative examination indicates that the specimen of liquid sent to the laboratory is essentially amyl acetate containing a small amount of kerosene or similar oil.

As to physiologic effects of amyl acetate, Koelsch (*Hyg. Rundschau*, 1913, p. 239) states that it produces coughing, dizziness and severe headache. Fraenkel ("Arzneimittel Synthese," Edition 3, p. 70) states that amyl acetate is very energetic and quick acting, affecting the respiration very markedly and in larger doses having a paralyzing effect on the nerve centers.

These statements show that amyl acetate is an active compound, and some of the symptoms ascribed to it are the same as those reported by Dr. Alexander's patients.

The Food and Drugs Act, commonly called the "Pure Food and Drugs Act," is a federal law and affects only products which are sold in interstate commerce. As the preparation is said to be sold locally only, the federal law does not apply.

LITERATURE ON QUARANTINE AND FUMIGATION

To the Editor:—Please tell me where I can obtain a list of material on quarantine and fumigation.

E. L. MERTZ, M.D., Downers Grove, Ill.

ANSWER.—The following is a list of references on this subject:

- Dreyfus, W.: Formaldehyd Fumigation, *Am. Jour. Pub. Health*, November, 1914.
Ford, W. W.: Brief History of Quarantine, *Bull. Johns Hopkins Hosp.*, March, 1914.
Berkowitz, M. E.: Practical Side of Deratization with Flue Gas, *THE JOURNAL*, Feb. 14, 1914, p. 526.
Public Health, Hospital and Budget Committee of the New York Academy of Medicine: Quarantine in the Maritime Cities of the United States, *THE JOURNAL*, Jan. 18, 1913, p. 194.
Kerr, J. W.: Procedure in Quarantine Practice, *THE JOURNAL*, Dec. 7, 1912, p. 2026.
Stone, E. B.: Necessity of Reporting and Quarantining Contagious Diseases, *Vermont State Board of Health Bull.*, September, 1913.
Cruikshank, W. J.: An Abuse of Quarantine—Its Remedy, *Long Island Med. Jour.*, October, 1912.
Policies in the Management of Communicable Diseases, *Florida State Board of Health Bull.*, March, 1912.
Landford, J. S.: The Lesson of Canal Zone Sanitation, *Pop. Sc. Month.*, September, 1913.
Disinfection and Disinfectants, Instructions of the District of Columbia Health Department.
Rankin, W. S.: Quarantine—Its Ineffectiveness in the Past, *North Carolina State Board of Health Bull.*, August, 1913.
What Diseases Should be Quarantined, Editorial, *Rhode Island State Board of Health Bull.*, February, 1914.
Boudeau, F. G.: The Duration of Quarantine in Transmissible Diseases, *Ohio State Board of Health Bull.*, May, 1914.
Gardner and Simonds: Practical Sanitation, St. Louis, C. V. Mosby Company, 1914.
Cofer, L. E.: Maritime Quarantine, Public Health Bulletin 34, Washington, 1910; Quarantine Procedure, Public Health Bulletin 64, Washington, 1914.

ANION AND CATION — NOMENCLATURE

To the Editor:—I have a suggestion for medical nomenclature, namely, the replacement of the words "anion" and "cation" by "cathophobia" and "anophobia," respectively. There is some confusion now because anode means positive pole, whereas anion means a negative ion. My new words retain the root "ano" for positive ions, and the root "catho" for negative ions. Thus, a positive pole is called "anode"; a positive ion, "ano-phob-" (fearing, repelling) ion."

I. F. SHAPIRO, M.D., New York.

ANSWER.—There would be objections to this change. The term "anion" is thoroughly established in chemical as well as medical literature with the meaning, negative ion. It would seem injudicious to attempt to replace a term so long in use by a longer and more complicated one. The meaning of these terms can be easily understood if we remember that anode means the way up and refers to the passage of the electric current. It should be remembered also that positive electrons pass to the negative pole and vice versa; hence, while "anode" means the positive pole, the ions which pass to it are the negative ions. On the other hand, "catho" means down, and refers to the passage of the electric current into the liquid, the cathode being the negative pole. The ions which pass to it are the positive ions. It would, perhaps, create as much confusion to explain that the anophobions are the ions that shun the negative pole as to explain that the negative ions pass to the positive pole.

THE BACCELLI METHOD OF HEROIC TREATMENT

To the Editor:—I read in *THE JOURNAL* (March 13, 1915, p. 952) an abstract on "Intravenous Injection of Bichlorid of Mercury in Acute Rheumatism." The author used the Baccelli technic. What is this technic? Has this treatment been used successfully by any one in this country?

ARTHUR L. BROWN, M.D., Riverside, Cal.

ANSWER.—Baccelli's technic is given in full in his book entitled "La via delle vene aperta ai medicamenti eroici" (The Administration of Heroic Medicines by Intravenous Injection), Rome, 1907.

The technic is cited by Martone as the intravenous injection of 2 mg. of mercuric chlorid; the next day, 3 mg.; the seventh and eighth days, 4 mg. each day; the ninth, tenth and eleventh days, 5 mg. each day. He says elsewhere, "The dose should range between 1 and 5 mg., never going above

this." He quotes Singer as the first to apply the Baccelli method of intravenous injection of mercuric chlorid in treatment of acute articular rheumatism.

Dal Monto (*Policlinico*, Rome, 1912, xix, 795) reports recovery from severe anthrax after an intravenous injection of 1.6 gm. of a 1 per cent. solution of mercuric chlorid followed two days later with 2 cg.

F. Grandoni reports the cure of nodose erythema after intravenous injection of 2 mg. of mercuric chlorid in 2 c.c. of distilled water.

These citations indicate the outlines of the technic used. No references have been found to the use of the method in this country.

THE DENATURING OF ALCOHOL

To the Editor:—Certain of the druggists of Coos County, Oregon, have decided not to handle alcoholic liquors, and some will not renew their liquor licenses with the Department of Internal Revenue. Of course, those who are not licensed will not be allowed to sell pure alcohol, but may sell denatured alcohol. A drug journal has suggested that alcohol may be denatured by adding to each gallon of alcohol 2 drams of phenol (carbolic acid) and 20 minims of oil of gaultheria. Alcohol denatured after this formula can be used for the sterilization of instruments, and properly diluted, can be employed for sponge baths.

Kindly inform me if this formula has the approval of the Bureau of Chemistry and also whether the druggist who does not hold an internal revenue license could denature alcohol in accordance with a doctor's prescription.

L. G. JOHNSON, M.D., Myrtle Point, Ore.

ANSWER.—"Art. 25. The Commissioner of Internal Revenue will consider any formula for special denaturation that may be substituted by any manufacturer in any art or industry, and will determine (1) whether or not the manufacture in which it is proposed to use the alcohol belongs to a class in which tax-free alcohol withdrawn under the provisions of the law can be used; (2) whether or not it is practicable to permit the use of the proposed denaturant and at the same time properly safeguard the revenue. But one special denaturant will be authorized for the same class of industries, unless it shall be shown that there is good reason for additional special denaturants" (Manufacture of Denatured Alcohol, Bulletin 130, U. S. Department of Agriculture, Bureau of Chemistry). We do not find listed among the formulas approved by the Department of Internal Revenue the one concerning which inquiry is made. No pharmacist can manufacture tax-free alcohol unless he is licensed by the Department of Internal Revenue. In fact, unless a druggist is licensed, he may not include a supply of alcohol in his stock and could not compound a prescription calling for alcohol. The sole purpose of denaturing alcohol is that it may be available "free from tax" and, as is indicated in the foregoing quotation, the licensure for the manufacture and the supervision of the output of a distillery engaged in this manufacture is under the supervision of the Department of Internal Revenue.

CAPITALIZATION OF SCIENTIFIC NAMES

To the Editor:—Will you be good enough to advise me why THE JOURNAL capitalizes the Latin term for Bulgarian bacillus, as follows: "Bacillus lactis bulgaricus" instead of "bacillus lactis Bulgaricus?" I notice that bacteriologists quite generally also use the first style of capitalizing.

The use of the capital for "Bacillus" may be according to German usage; it is, however, so far as I am informed, contrary to English rules, which demand capitals for such nouns only when they are used as titles, and I have always understood it to be correct, when using an adjective derived from a proper name, to capitalize it. In some instances, I have observed that even when the proper name of a person is used as the specific title of an organism, such a specific title is not capitalized.

According to English usage, as I understand it, the term in question, when not used as a title, should be written "bacillus lactis Bulgaricus."

X. Y. Z.

ANSWER.—In capitalizing the word "bacillus" when forming part of a scientific name, THE JOURNAL follows a generally recognized rule, namely, that when the generic and specific names are used together to form the scientific name of an animal or plant, the generic name is capitalized, thus: *Streptococcus mucosus*, *Quercus alba*, *Musca domestica*, *Equus caballus*. See, for instance, under "genus" in the Century or Standard dictionary.

In writing "bulgaricus" without a capital, THE JOURNAL conforms to a growing tendency in medical literature. It is true that, with few exceptions, ordinary English adjectives derived from proper names are written with capitals; but of late considerable headway has been gained in a tendency to write all adjectives in scientific medical language with small

letters: eustachian tube, sylvian fissure, meibomian gland. In conformity with this tendency, Lippincott's, Stedman's and the American Illustrated medical dictionaries write "bulgaricus" with a small letter.

COMBRETUM SUNDIACUM IN THE TREATMENT OF MORPHINISM

To the Editor:—Please inform me as to the employment of the drug known as *Combretum sundiacum* in treatment of morphinism. Is this listed by any of the manufacturing chemists? How can it be obtained?

T. M., Alaska.

ANSWER.—Several years ago *Combretum sundiacum* was vaunted as a Chinese opium cure. Analyses by several chemists have failed to show anything except chlorophyll, gum, tannin, a caoutchouc-like substance, and traces of resin—in short, nothing to which the alleged antinarcotic action could be attributed. Investigation has shown that the method of using combretum by the Chinese is merely an application of the well-known principle of diminishing dosage. The opium habitué mixes his daily dose of opium with a quart of decoction prepared from roasted combretum. At the intervals at which he is accustomed to the narcotic he swallows 3 ounces of the combretum-narcotic mixture and fills the container with combretum decoction which contains no narcotic. It is probable that the tannin in the increasing doses of combretum tends to overcome the tendency to diarrhea caused by the decreasing dosage of opium. It is probable that the decoction of any other tannin-containing, but otherwise comparatively inert, drug would be as efficacious in the cure of the opium habit if used in a similar manner. Combretum is not listed by manufacturing pharmacists and has apparently fallen into disuse.

THE DOSE OF CODEIN FOR COUGH

To the Editor:—In THE JOURNAL, March 6, 1915, p. 811, is a prescription calling for 1/32 grain of codein sulphate to be given to a child 5 years old every two or three hours. Is it possible for any physician to recognize the influence of such a dose on the cough of such a patient? Codein seems to me to be a weak morphin, making the dose equal to about 1/120 grain of morphin.

A. B.

ANSWER.—The sedative influence of this dose of codein could probably be recognized. The average dose of codein is given by the pharmacopeia at one-half grain. The average dose of morphin preparations is placed at one-fourth grain. It is usual in prescriptions for cough to give the anodyne in comparatively small doses. Thus a quite frequent prescription of morphin in cough mixtures is one-sixteenth grain, one-fourth of the average dose. If we follow the same rule with regard to codein, the dose for a cough mixture would be one-eighth grain. The corresponding dose for a child of 5 years would be about one-fourth of the adult dose, which would make a dose of codein, 1/32 grain. It is wise in prescribing for cough not to give an anodyne in larger doses than is necessary. A better practice, when it is necessary to give an anodyne, is to give it in a separate prescription and regulate the dose according to the apparent need.

BRICKLAYER RHEUMATISM

To the Editor:—In tennis players, trying to acquire a new stroke, and in milkers with hard-milking cows, I have several times encountered a condition resembling Dr. Thornton's "bricklayer rheumatism" (Queries and Minor Notes, THE JOURNAL, April 3, 1913, p. 1182). In all of my cases the right forearm was affected, and auscultation over the tendons while in motion showed it to be a tendosynovitis crepitans. Rest and subcutaneous injection of thiosinamin (or fibrolysin) 10 cg. once a day for three or four days has in my cases always been sufficient to relieve the condition permanently.

SOREN NIELSEN, M.D., Hayward, Cal.

Malaria a Political Disease.—Malaria remains forever in areas it has once invaded. Very malarious places cannot be prosperous. Those who live there are too sickly for hard work, and such localities often end by being deserted by all save a few miserable inhabitants. Malaria is the great enemy of the explorer, the missionary, the planter, the soldier, the administrator, the villager and the poor, and has profoundly modified the world's history by tending to render the whole of the tropics comparatively unsuitable for the full development of civilization. It is essentially a political disease—one which affects the welfare of whole countries.—Ronald Ross, "The Prevention of Malaria."

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Regular, Little Rock, May 11-12. Sec., Dr. W. S. Stewart, Citizens Bank Bldg., Pine Bluff. Homeopathic: Little Rock, May 11. Sec., Dr. Scott C. Runnels, 900 Scott St., Little Rock. Eclectic: Little Rock, May 13. Sec., Dr. C. E. Laws, 712 Garrison Ave., Fort Smith.

ILLINOIS: Chicago, May 13-15. Sec., Dr. C. St. Clair Drake, Springfield, Ill.

LOUISIANA: Homeopathic, New Orleans, May 3. Pres., Dr. C. R. Mayer, 919 St. Charles St., New Orleans.

MASSACHUSETTS: Boston, May 11-13. Sec., Dr. Walter P. Bowers, Room 591. No. 1 Beacon St., Boston.

MICHIGAN: Detroit, May 27-29. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

NEVADA: Carson City, May 3. Sec., Dr. S. L. Lee, Carson City.

NEW YORK: Albany, Buffalo, New York and Syracuse, May 25-28. Mr. Harlan H. Horner, Chief, Examination Division, State Education Bldg., Albany.

TENNESSEE: Knoxville, Memphis and Nashville, May 3. Sec., Dr. A. B. DeLoach, 426 Scinitar Bldg., Memphis.

Oklahoma January Report

Dr. John W. Duke, secretary of the Oklahoma State Board of Medical Examiners, reports the written examination held at Oklahoma City, Jan. 12-14, 1915. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 70. The total number of candidates examined was 13, of whom 5 passed and 8 failed, including 1 osteopath. Four candidates were granted reregistration licenses. Thirteen candidates, including 1 osteopath, were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Georgia College of Eclectic Med. and Surg.	(1913)		86
Tulane University of Louisiana	(1914)		81
Harvard University	(1896) 89; (1912)		86
Baylor University	(1914)		70

College	FAILED	Year Grad.	Per Cent.
University of Arkansas	(1912) 66; (1913)		65
University of Louisville	(1914)		70*
College of Phys. and Surgs., Baltimore	(1907)		76*
Leonard Medical School	(1913)		70*
Meharry Medical College	(1914)		60
Vanderbilt University	(1893)		53

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Medical College of Alabama	(1904)		Mississippi
University of Arkansas	(1910) (1913)		Arkansas
College of Phys. and Surgs., Chicago	(1906)		Indiana
Rush Medical College	(1896)		Nebraska
Medical College of Indiana	(1905)		Indiana
Physio-Medical College of Indiana	(1902)		Indiana
University of Louisville	(1911)		Kentucky
Baltimore Medical College	(1895)		N. Carolina
University Medical College, Kansas City	(1900)		Arkansas
Meharry Medical College	(1913)		Penna.
Fort Worth University	(1898)		New Mexico

* Conditioned in one subject.

The following questions were asked:

ANATOMY AND HISTOLOGY

1. Name the bones entering into the formation of the ankle joint. 2. Give the nerve supply of the anterior femoral group of muscles. 3. What arteries are usually cut in the Bassini operation for oblique inguinal hernia? 4. What relation does the femoral canal bear to: (a) the gubernate ligament? (b) the femoral vessels? 5. What is the origin of: (a) the ovarian artery, (b) the uterine artery? What artery in the male is analogous to the ovarian artery in the female? 6. What is the difference in the origin of the right and left common carotid arteries? 7. What are the appendices epiploicae? 8. How may you determine, approximately, the origin of epithelial cells seen in a centrifugized specimen of urine? 9. What kind of tissue forms the inner coat of an artery? 10. By what route may there be a direct extension of infection from nasal cavity to superior longitudinal sinus?

PHYSIOLOGY

1. What does *vis a tergo* mean? To what does it refer in physiology? 2. Give names of the first and second pairs of cranial nerves and tell their function. 3. What nerves form the solar plexus, and what plexuses

receive fibers from the solar plexus? 4. What veins have no valves? 5. What is an enzyme? 6. Upon what class of foods does saliva act? 7. Describe the lymphatic system and tell its function. 8. State circumstances that influence secretion of glands. 9. Describe reflex action. 10. What part of the brain controls coordination of muscular action?

TOXICOLOGY AND MEDICAL JURISPRUDENCE

1. Give the dose of morphin sulphate. Antidote and symptoms of morphin poisoning. 2. Give dose of strychnin sulphate. Symptoms of poisoning and antidote. 3. Give dose of white arsenic. Antidote and symptoms. 4. Give dose of tr. aconite. Treatment for poisoning. 5. Give dose of sulphonal, effect on blood and nervous system. 6. Give the signs of delivery in the dead. The post-mortem signs of parturition, both recent and remote. 7. How would you detect feigned unconsciousness? 8. How would you detect feigned paretic dementia which had been assumed after an offense had been committed? 9. What is civil malpractice? What is criminal malpractice? 10. Give method of commitment to the Oklahoma Hospital for the Insane.

SURGERY

1. What is gangrene? Give its causes. 2. How would you treat a case of tetanus? 3. How would you dress a fracture of the olecranon process? 4. Give differences between a direct and an indirect inguinal hernia. 5. How would you diagnose a hydrocele? Give treatment. 6. When should appendicitis be operated? Describe the operation and after-treatment when pus is found. 7. How would you treat a case of housemaid's knee? 8. When would you operate in a case of gunshot wound of abdomen? 9. What arteries do you cut in amputating leg at middle third? 10. Give signs of fracture.

CHEMISTRY

1. Define each and state the difference between combustion and oxidation. Name two chemical compounds which if mixed together will cause a combustion. 2. Give chemical antidotes for formaldehyd and iodine. 3. What is mucin and what is collodion, chemically? 4. What are aldehyds and name the halogens. 5. How does potassium permanganate act as a disinfectant? 6. What element is common in all acids, and name elements in alkaloids. 7. What is the chemical composition of the pancreatic juice? 8. What is albumin, and give the test for same in urine? 9. Give test for determining chemically whether urinary deposit is composed of urates or sulphates. 10. Give formula, and state the properties and give procedure to antidote case of nitric acid poisoning.

OBSTETRICS AND HYGIENE

1. Define position; presentation. 2. Name three acute diseases of the mother that endanger the life of the fetus. 3. How would you manage a case of complete placenta praevia? 4. What would be your treatment of a case of eclampsia occurring earlier than the eighth month of pregnancy? 5. How would you determine that a fetus was at full term when born? 6. Give symptoms, diagnosis and treatment of puerperal septicemia. 7. How would you deliver the head in breech presentation? 8. Give your treatment of post-partum hemorrhage. 9. What are the most common adulterations of milk? How are they injurious? 10. Name four preventable diseases. Give instructions for their prevention.

PHYSICAL DIAGNOSIS

1. Describe the stethoscope. 2. Name the physical signs of aortic insufficiency. 3. Describe the general method of palpation. 4. What does splashing fremitus signify when felt against the thoracic wall, shaking the body? 5. In what posture should the patient be to make the best physical examination of the chest? 7. Give physical signs of dislocated stomach. 8. How many ways may auscultation be conducted? 8. Diagnose enteroptosis (dropping of the viscera). 10. Diagnose dislocated kidney.

BACTERIOLOGY AND PATHOLOGY

1. Describe the pathologic lesions which may result from corneal ulcers. 2. What pathologic changes take place in lupus vulgaris? 3. What are: antiseptics, disinfectants, culture mediums, bacteria, and phagocytes? 4. Differentiate pathogenic and non-pathogenic organism. 5. Give method of growing culture on blood serum, gelatin and potato. 6. Name three bacteria usually found in an infected case of parturition. 7. What is *Diplococcus lanceolatus*? Give method of staining same. 8. Name three systemic diseases caused by micro-organisms. Give the pathology of each disease and name the specific organism of each. 9. What is hydatid cyst and where is it found? 10. Give pathology of cerebrospinal sclerosis.

MATERIA MEDICA AND PRACTICE

1. Name the official preparations of aconite and give dose of each. 2. Name the principal potassium salts and give dose of each. 3. Name four principal coal-tar derivatives. Give dose and medicinal use. 4. Strychnin: Give dose, medicinal use, therapeutic effect. 5. Give indications for use of heat and cold. Treat the following diseases, giving doses of drugs used and their therapeutic effect, the diet and prognosis: 6. Erysipelas. 7. Typhoid fever. 8. Whooping cough. 9. Acute follicular tonsillitis. 10. Syphilis.

GYNECOLOGY

1. Give etiology and treatment of pruritus vulvae. 2. Diagnose uterine fibroid. 3. Differentiate between chronic appendicitis and chronic salpingitis. 4. Under what conditions would you advise hysterectomy in cancer of the uterus? 5. Describe the perineal body. What are its functions? 6. Of what diagnostic value is digital examination via vagina? 7. Give gynecologic uses for heat, silver, glycerin, iodine. 8. Diagnose pudendal hernia. 9. Define leukorrhea. Give etiology and treatment. 10. Diagnose incipient carcinoma of cervix.

Book Notices

A LABORATORY MANUAL AND TEXT-BOOK OF EMBRYOLOGY. By Charles William Prentiss, A.M., Ph.D., Professor of Microscopic Anatomy in the Northwestern University Medical School, Chicago. Cloth. Price, \$3.75. Pp. 400, with 368 illustrations. Philadelphia: W. B. Saunders Company, 1915.

"This book represents an attempt to combine brief descriptions of the vertebrate embryos, which are studied in the laboratory, with an account of human embryology adapted especially to the medical student" (author's preface). Its striking features are the large number of beautifully executed original figures, the combination of the use of dissection with sections in the study of mammalian embryos, the brevity of the written descriptions, and the fine typographic work. The author has practiced for years on methods of dissection of embryos, following the suggestions of the lamented Charles Sedgwick Minot; the figures of these dissections constitute the most original feature of the work, which will earn the appreciative gratitude of every teacher of embryology. There is much to be learned from the figures that is not mentioned in the text; the latter, indeed, is not so much illustrated by figures as descriptive of them. The book attains a high standard of technical excellence in many respects, and is recommended to teachers and students alike. The latter will find much of their laboratory work already performed for them. The main criticisms that may justly be made are: 1. The text descriptions are too brief in numerous places, and the student, therefore must receive an inexact idea of many processes. 2. Some old ideas and incorrect figures are used, in a few places only, in place of more recent work and figures: thus the gastrulation of birds is given wrongly, and the long out-of-date figures of Koller reproduced; Figure 32 (from Marshall's Embryology) is incorrect in several fundamental respects. 3. In the colored plate facing page 36, the cells in yellow are labeled "outer cells" and those in brown "inner cells" in the first five figures, and the relations are reversed in the next three, a confusing blunder in labeling which can be corrected in another edition. Figure 60 is also incorrectly described as a section of a thirty-six instead of a fifty hour embryo. 4. The treatment of the early development in the introduction and in the first two chapters is not very sure; on page 14 the law of recapitulation is attributed to Meckel in 1881. Meckel died in 1833; moreover, he was not the originator of the recapitulation theory, nor yet of the law of von Baer, who should always be mentioned first in considering the history of the law of recapitulation. The old term "alecithal" is used instead of "isolecithal," and Amphioxus is stated to have a telolecithal egg, though it is usually classed as isolecithal; (p. 36) the term "germinal vesicle" is not synonymous with "blastodermic vesicle"; it has a definite connotation of long standing which should not be changed. Other similar instances might be cited; but a few corrections in a new edition would overcome such defects. We may anticipate that the opportunity for this will not long be delayed, for the real excellences of the book far outweigh the causes for criticism.

A HANDBOOK OF FEVERS. By J. Campbell McClure, M.D., Physician to Out-Patients, the French Hospital, London. Cloth. Price, \$3.50 net. Pp. 470. New York: Paul B. Hoeber, 1914.

Without attempting a complete discussion of the pathology or bacteriology of the diseases which he describes, the author aims to discuss fully their clinical history and especially their treatment. Therefore, it is best to examine the book with reference to these aims. Symptomatology and treatment are well described though both subjects might have been more fully considered. In typhoid fever the author commends tub baths, but says that they cannot be used well in private practice and that the same effects can be obtained by the use of cold compresses. He does not describe the methods of giving baths on the bed. He has a few words for vaccine and serum treatment, but does not discuss vaccine prophylaxis, although he has paragraphs or sections on home prophylaxis and public health administration. A

brief paragraph is devoted to methods of infection. It is stated that ground saturated with the excreta of infected persons, converted into dust, may spread the infection through whole neighborhoods. The danger from soiled linens, etc., is spoken of, but no mention is made of transmission by flies and by food, though the latter is referred to in another paragraph when reference is made to typhoid carriers and the danger of their contaminating milk if they work in a dairy. Twenty-four pages are devoted to pulmonary tuberculosis, but other forms are not considered. The discussion is up to date but not sufficiently full for a handbook. The author describes twenty-three common and one uncommon febrile disease. He adopts a classification which oddly unites diseases usually considered very different and separates those usually considered allied. Moreover, the classification emphasizes our ignorance rather than our knowledge. He makes two groups of febrile diseases: (1) fevers of known bacteriology, and (2) fevers of uncertain bacteriology. He adds two chapters, one on beriberi and one on pellagra. It is difficult to understand why these are incorporated in a handbook of fevers. The author says that fever is not present as a part of either form of beriberi. His discussion of the etiology of this disease is not full and complete. He inclines to believe that it is infectious. The volume is a fairly good compilation of what is known of some of the common diseases, but should not be purchased if one wishes a full discussion, or the ripe judgment of a clinician.

THE MEDICAL HISTORY OF MILWAUKEE, 1834-1914. By Dr. Lewis Frederick Frank. Cloth. Price, \$5. Pp. 272, with illustrations. Milwaukee: Germania Publishing Company, 1915.

The diffidence of most physicians in pushing their claims to fame before the public, in a way, has relegated them to a position somewhat subordinate to that of the poet, the statesman and the financier. To overcome this condition so far as the profession of Milwaukee is concerned, Dr. Frank has written this book. The city considered, compared with those of Europe or the East, is a rather young community. However, in the short period of sixty years since its beginning, the growth of Milwaukee, as typical of the West, has been rapid and full of thrilling interest. The lives of the pioneer physicians were more or less romantic, but their trials were numerous. Illustrative of the latter is the reproduction of some pages from the books of two old German physicians:

Dec. 1842	16 office visits 37½.....	\$6.00
	Solution and powders.....	2.52
		<hr/>
		\$ 8.52
July 29, 1853	Paid by receiving a stove.	
	19 visits at 50c.....	\$ 9.50
	2 oz. Syr. of rhubarb.....	.25
	Opening of abscess of breast	1.00
	Pencil fluid .....	.50
		<hr/>
		\$ 11.25
Received 18 yds. of cotton for underwear		
at 11c		\$1.98
		<hr/>
	Bal.	\$ 9.27

The book covers the various phases of medical activity, including medical societies and journalism and work in hospitals. The text is embellished with many good illustrations. With a few exceptions only the biographies of deceased physicians are included. The book is full of local interest.

THE STORY OF BETHLEHEM HOSPITAL FROM ITS FOUNDATION IN 1247. By Edward Geoffrey O'Donoghue, Chaplain to the Hospital. Cloth. Price, \$5 net. Pp. 427, with 140 illustrations. New York: E. P. Dutton & Co., 1915.

This narrative, written by the present chaplain of Bethlehem Hospital, a man in full sympathy with the old institution, is as entrancing as a novel and as interesting a piece of medical belles-lettres as has been published for many a day. Famous characters of English history and literature pass through its pages. The care of the insane has always attracted the author because of the mystery and awe which accompany the dement. From the writing of novelists and poets, the author has picked the portions dealing with Bethlehem Hospital, and he has gathered from the British

Museum original manuscripts from the days of the pamphleteers. Among those mentioned who bore some connection to the institution are Bunyan, Hogarth, Crooke, Cromwell, Smollett and Defoe. The book chronicles also the altering attitude of medicine toward the insane. It takes us from the days of scourging and torture, through the periods of manacles, strait-jackets and the days of the padded cell, to the present era of unrestraint and kindness. A hint is given concerning the beginning of the interest in this subject from the standpoint of eugenics. There are more than 100 plates and other illustrations. It is a book worth while for the leisure hour; a book to read and to save.

THE HOUSE-FLY (MUSCA DOMESTICA LINN). ITS STRUCTURE, HABITS, RELATION TO DISEASE AND CONTROL. By C. Gordon Hewitt, D.Sc., F.R.S.C., Dominion Entomologist of Canada. Cloth. Price, \$4.50 net. Pp. 382, with 104 illustrations. New York: G. P. Putnam's Sons, 1914.

This book contains a description of the anatomic structure of the house fly and other flies found about dwelling places, an excellent description of the breeding and other habits of the fly and its larvae, notes on the natural enemies and parasites of the fly, and several chapters on the relation of house flies to disease. In the chapters on the dissemination of pathogenic organisms by flies, the carriage of typhoid fever, and the relation of flies to the summer diarrheas of infants and the spread of other diseases, the author has set forth the evidence on both sides, reviewing the investigations made to prove or disprove the rôle of flies as disease carriers, and giving the results of his own experiments. An interesting chapter is that of the relation of flies to myiasis and to the spread of intestinal worms, their rôle in the latter phenomenon not being perhaps a matter of common knowledge. Preventive and remedial measures are considered in a practical way. The different experimental methods of handling and treating manure, the prolific breeding ground of flies, is described, as well as measures for the protection of food, and the destruction of adult flies by trapping, poisoning, etc. The illustrations are good, and there is an extensive bibliography, with an index. The book is not intended for popular consumption, but is for the use of entomologists, physicians, health officers or others especially interested in the subject. For them it is a valuable book.

PRACTICAL TROPICAL SANITATION. A Manual for Sanitary Inspectors and Others Interested in the Prevention of Disease in Tropical and Sub-Tropical Countries. By W. Alex. Muirhead, Staff Surgeon, Royal Army Medical Corps. Cloth. Price, \$3.50. Pp. 288, with 114 illustrations. New York: E. P. Dutton & Co., 1915.

This book is a compilation of the author's lectures on the subject, together with abstracts of lectures by such well-known sanitarians as Sir Ronald Ross, Professor Boyce and others. The author makes no claim to originality, and acknowledges his indebtedness to other text-books. His compilation is in reality a good outline abstract of the subject. The book is intended chiefly for sanitary inspectors who are not medically trained. It is written in simple language, is well illustrated, and contains reproductions of various form blanks and the method of using them in such service. A useful appendix gives the details of the preparation of specimens and filing of reports, notes on meteorology, and many tables of weights and measures, etc.

CHILD TRAINING AS AN EXACT SCIENCE. A Treatise Based on the Principles of Modern Psychology, Normal and Abnormal. By George W. Jacoby, M.D. Cloth. Price, \$1.50 net. Pp. 384, with illustrations. New York: Funk & Wagnalls Company, 1914.

This is a satisfactory attempt to give in plain language to the teacher the up-to-date views of the psychologist and physician on the subject of child training. After the psychology of childhood, the psychic abnormalities receive attention. The etiology, etc., of the various types of imbeciles and idiots are discussed; then follows the part on prophylactic training in which the Montessori and other methods are taken up. Under therapeutic training the author treats the educable, and also the institutional and family care of the low grade idiots. The illustrations are of the various types of imbeciles and idiots.

THE COMMONER DISEASES, THEIR CAUSES AND EFFECTS. By Dr. Leonard Jores, O.O., Professor der Allgemeinen Pathologie an der Universität Marburg. Authorized English Translation by William H. Woglom, M.D., Assistant Professor in Columbia University. Cloth. Price, \$4. Pp. 424, with 250 illustrations. Philadelphia: J. B. Lippincott Company, 1915.

This book is the first portion of a more complete series to be published later. It is written to emphasize the relation of anatomic alteration to physiologic derangement, but does not consider questions of pure morphology or of differential diagnosis. The photographs are the actual valuable material in the book. It really is a series of articles on special pathology, beautifully illustrated with photographs of gross lesions and wash drawings, in colors, of microscopic appearances. The student of post-mortem diagnosis who masters the appearances of the lesions illustrated should not fail to recognize similar lesions in the subject. In the discussions in the text the author puts aside theory, omitting all problems which are still unsettled.

HANDBOOK OF MEDICAL ENTOMOLOGY. By William A. Riley, Ph.D., Professor of Insect Morphology and Parasitology, Cornell University, and O. A. Johannsen, Ph.D., Professor of Biology, Cornell University. Cloth. Price \$2.20. Pp. 348, with 172 illustrations. Ithaca, N. Y.: Comstock Publishing Company, 1915.

The basis of this book is the previous work of the senior author, "Notes on the Relation of Insects to Disease," published in 1912. Naturally it depends for its completeness on a survey of a large amount of periodical literature lately published on this subject. The authors evidently have scanned this literature thoroughly, and they append a large alphabetical bibliography to the book which is brought up to date. The various insects which bear even a remote relation to human pathology are listed, classified, described and most of them illustrated. Hints are given on methods of treating the lesions and eliminating the pests, and suggestions regarding easily accessible literature give more information on these points.

THE ANATOMY OF DOMESTIC ANIMALS. By Septimus Sisson, S.B., V.S., Professor of Comparative Anatomy in the Ohio State University. Second Edition. Cloth. Price, \$7 net. Pp. 930, with 724 illustrations. Philadelphia: W. B. Saunders, Company, 1914.

This revision of the author's excellent book on veterinary anatomy under a new title is the result of a careful review of the later literature, a further study of frozen sections and hardened specimens, which has caused a modification of many statements in the interest of scientific accuracy, and the addition of over 200 new illustrations, chiefly from photographs by the author. Synonyms have been dropped or placed in footnotes, and the nomenclature, so far as possible, has been improved by adopting the changes recommended by a recent committee of the American Veterinary Medical Association. The illustrations and type work are excellent, and the book remains a leading work on the anatomy of the domestic animals for the use of teachers, practitioners and students.

INFANT FEEDING. ITS PRINCIPLES AND PRACTICE. By F. L. Wachenheim, M.D., Attending Pediatricist, Sydenham Hospital, New York. Cloth. Price, \$2 net. Pp. 340. Philadelphia: Lea & Febiger, 1915.

This is a comprehensive and concisely written volume, and, on the whole, an excellent guide to infant feeding. Especially valuable are the three chapters on milk modification, and that on the feeding of older infants. While the author mentions the different methods of feeding, he adheres strictly to the four-hour interval and the simple formulas, in which he follows closely the modern ideas on the subject. The book is especially full in its references, and the only criticism is that perhaps the author has not infused enough of his personality into the volume.

THE BACKWARD BABY. A Treatise on Idiocy and the Allied Mental Deficiencies in Infancy and Early Childhood. By Herman B. Sheffield, M.D. Cloth. Price, \$1 net. Pp. 184, with 22 illustrations. New York: Rebman Company, 1915.

This is a rather loosely joined exposition of the subject. Chapters 4 and 5 on prophylaxis, prognosis and treatment are the redeeming chapters in the book.

Miscellany

Obligations of Patients to Their Physicians

[From the Code of Ethics of the American Medical Association, 1847]

1. The members of the medical profession, upon whom is enjoined the performance of so many important and arduous duties toward the community, and who are required to make so many sacrifices of comfort, ease and health for the welfare of those who avail themselves of their services, certainly have a right to expect and require that their patients should entertain a just sense of the duties which they owe to their medical attendants.

2. The first duty of a patient is to select as his medical adviser one who has received a regular professional education. In no trade or occupation do mankind rely on the skill of an untaught artist; and in medicine, confessedly the most difficult and intricate of the sciences, the world ought not to suppose that knowledge is intuitive.

3. Patients should prefer a physician whose habits of life are regular, and who is not devoted to company, pleasure or to any pursuit incompatible with his professional obligations. A patient should, also, confide the care of himself and family, as much as possible, to one physician; for a medical man who has become acquainted with the peculiarities of constitution, habits and predispositions of those he attends is more likely to be successful in his treatment than one who does not possess that knowledge.

A patient who has thus selected his physician should always apply for advice in what may appear to him trivial cases, for the most fatal results often supervene on the slightest accidents. It is of still more importance that he should apply for assistance in the forming stage of violent diseases; it is to a neglect of this precept that medicine owes much of the uncertainty and imperfection with which it has been reproached.

4. Patients should faithfully and unreservedly communicate to their physician the supposed cause of their disease. This is the more important, as many diseases of mental origin simulate those depending on external causes, and yet are only to be cured by ministering to the mind diseased. A patient should never be afraid of thus making his physician his friend and adviser; he should always bear in mind that a medical man is under the strongest obligations of secrecy. Even the female sex should never allow feelings of shame or delicacy to prevent their disclosing the seat, symptoms and causes of complaints peculiar to them. However commendable a modest reserve may be in the common occurrences of life, its strict observance in medicine is often attended with the most serious consequences, and a patient may sink under a painful and loathsome disease, which might have been readily prevented had timely intimation been given to the physician.

5. A patient should never weary his physician with a tedious detail of events or matters not appertaining to his disease. Even as relates to his actual symptoms, he will convey much more real information by giving clear answers to interrogatories, than by the most minute account of his own framing. Neither should he obtrude upon his physician the details of his business or the history of his family concerns.

6. The obedience of a patient to the prescriptions of his physician should be prompt and implicit. He should never permit his own crude opinions as to their fitness to influence his attention to them. A failure in one particular may render an otherwise judicious treatment dangerous, and even fatal. This remark is equally applicable to diet, drink and exercise. As patients become convalescent, they are very apt to suppose that the rules prescribed for them may be disregarded, and the consequence, but too often, is a relapse. Patients should never allow themselves to be persuaded to take any medicine whatever, that may be recommended to them by the self-constituted doctors and doctresses who are so frequently met with, and who pretend to possess infallible remedies for the cure of every disease. However simple some of their

prescriptions may appear to be, it often happens that they are productive of much mischief, and in all cases they are injurious, by contravening the plan of treatment adopted by the physician.

7. A patient should, if possible, avoid even the friendly visits of a physician who is not attending him—and when he does receive them, he should never converse on the subject of his disease, as an observation may be made, without any intention of interference, which may destroy his confidence in the course he is pursuing, and induce him to neglect the directions prescribed to him. A patient should never send for a consulting physician without the express consent of his own medical attendant. It is of great importance that physicians should act in concert; for, although their modes of treatment may be attended with equal success when employed singly, yet conjointly they are very likely to be productive of disastrous results.

8. When a patient wishes to dismiss his physician, justice and common courtesy require that he should declare his reasons for so doing.

9. Patients should always, when practicable, send for their physician in the morning, before his usual hour of going out; for, by being early aware of the visits he has to pay during the day, the physician is able to apportion his time in such a manner as to prevent an interference of engagements. Patients should also avoid calling on their medical adviser unnecessarily during the hours devoted to meals or sleep. They should always be in readiness to receive the visits of their physician, as the detention of a few minutes is often of serious inconvenience to him.

10. A patient should, after his recovery, entertain a just and enduring sense of the value of the services rendered him by his physician; for these are of such a character that no mere pecuniary acknowledgment can repay or cancel them.

IF YOU

SPIT ON THE FLOOR

AT HOME

SPIT ON THE FLOOR HERE

WE WANT YOU TO

FEEL PERFECTLY AT HOME

• STATE BOARD OF HEALTH
RALEIGH, N. C.

Reduction about one half.

Enter Prayer, Exit Pill

The day that the average physician displays a name plate on his door announcing that he is ready for practice, it is safe to assume that an investment has been made in his education approximately as follows:

From four to seven years at a university, representing a <i>minimum</i> of	\$3,000.00
Living expenses during university course, <i>minimum</i>	3,000.00
Books, instruments, laboratory charges, etc.....	1,000.00
Expenses during hospital internship.....	1,000.00
Total cost of medical education.....	\$8,000.00

In the course of this training, extending over from five to ten years of his life, the physician has received instruction at the hands of men whose entire careers have been devoted to mastering the practice of medicine. Until he is past 35, his career is one constant, painstaking *preparation* for the protection of humanity against disease. A law pending in New York proposes to set all this preparedness at naught. The legislature of that state has been asked by the Christian Scientists to legalize the "practicing" of their healers.

The Christian Science "healer" enters upon his activities with the following stock in trade:

One copy of "Science and Health," by Mary Baker Eddy.....	\$ 3.00
One satin-faced Prince Albert.....	35.00
	<hr/> \$38.00

Thus equipped, he can pray over a virulent case of smallpox until the infection sweeps the neighborhood. He should worry! There is no such thing as smallpox; the patient is merely in "error." Epidemics under the healer's benignant influence might ravage communities; it would be quite unnecessary to take steps to check them; there is no such thing as illness. As soon as the unfortunate victims receive faith through Mrs. Eddy's tract at \$3 a copy, the scourge will subside.

It is all very simple—*buy the book!*

Weird incantations over the grievously ill passed out of American history when the last Kickapoo turned his toes to the setting sun. Before the steady stride of enlightenment, the old lady who wore red yarn around her ankle to ward off chilblains has linked arms with her consort who carried a shriveled horsechestnut in his vest pocket as a cure for rheumatism, and together they have passed into the Great Beyond, a little earlier, perhaps, than had their ailments been attended to by a skilled physician.

Superstition, whether set forth in "Science and Health" or Hostetter's Almanac, is banished from most intelligent minds. Diseases that a generation ago spelled certain fatality are now under the doctor's control. They are not cured by prayer, nor by sorcery. Mary Baker Eddy was an extremely commonplace New England woman. It has been our privilege to read some of her early correspondence in the original; much of it was illiterate and none of it convincing.

Licensing the Christian Science healer is a dangerous retrogression. If it meant the substitution of prayer for Peruna, we would advocate it; but we cannot imagine a condition which might place control over a deadly epidemic in the hands of a zealot who enters upon his medical career with an investment of thirty-eight dollars.—*Puck*, April 10, 1915.

Social Service in Toronto Hospitals

A social service clinic was established in connection with the Toronto General Hospital in April, 1914. It is under the immediate direction of the medical superintendent, Dr. Charles K. Clarke; and Dr. Oswald C. Withrow and Dr. Clarence M. Hincks are the assistants. Up to Sept. 30, 1914, more than 100 patients were examined, being referred from the juvenile court, different schools, orphanages, etc. In all Ontario it is computed there are something over 5,000 defectives—two or three per thousand of the population. In Toronto alone they number from 300 to 500. The city of Toronto has approved the establishing of a training school, and the minister of education in Ontario has had prepared a handbook on "auxiliary classes," and will establish in 1915 a summer school for the training of teachers of these classes. In the institutions for children in Toronto for the year ended Sept. 30, 1914, there were 937 children under 3 years of age in two of the large institutions of the city. One hundred and seventeen of these died, or 12.4 per cent., although many of them were receiving breast milk. Among 258 illegitimate children, most under 1 year of age, placed in private families, all of them bottle fed, there were forty-three deaths in three years—16.6 per cent. Eight institutions in Toronto with a population of 2,101 boys and girls, receive assistance from the Ontario government. The cost of maintenance of each child per week is \$1.60. Dr. W. Harley Smith, the inspector of these institutions in Toronto, states there is a foolish prejudice against children born out of wedlock. After an experience of many years, he asserts that these, if given a chance, and placed in favorable surroundings, become as good, serviceable men and women as any children born in wedlock. He believes that the crèche is an institution of ephemeral existence. Mothers and widows should be paid a living wage to stay at home and devote their time to bringing up their own children.

Health Conditions in China

The death rate in China is higher than that of any other country, it is said, and the Chinese have been quoted as saying that this is not wholly undesirable, on account of the fecundity of the race and the limitation of the food supply. In discussing this question the report of the China Medical Commission of the Rockefeller Foundation says that aside from the humanitarian bearing of such an attitude the enormous importance of the economic effects of widespread disease is ignored; that if a nation is healthy and energetic and efficient it will be able greatly to increase its productive power. It is said that while some districts are very much congested, there are still large areas of arable land that are not utilized and also other large sources of national wealth that are practically untouched. Mines of various metals are known and doubtless other deposits of coal, iron, copper, etc., will be disclosed by investigation. The development of railroads, the reforestation of large areas of denuded hill country, the opening of mines and the reclamation of barren and flooded areas suitable for agriculture will afford large outlet for labor. It is believed to be not only possible for the population of the country to be supported in comfort at the present rapid rate of increase, but also at a much larger rate. The present rate of increase, in which possibly religious beliefs and practices figure, will no doubt be modified by the development of western ideas, the tendency of which in western countries has been the unfailing lessening of the birth rate. It is said that though this tendency may be somewhat checked by special conditions in China, in the long run such a condition will prevail.

Injuries to Airmen

Hardy V. Wells, R. N., in the *Journal of the Royal Naval Medical Service*, describes accidents to pilots in the aviation service. With the speed of aeroplanes now increased to seventy miles an hour, the crushing effect is very great when one of these planes falls to the earth, even from a moderate height. Cases occur in which the pilot is not crushed, but is injured, his head or a portion of the body striking some part of the machine as it hits the earth. Many of the modern planes have the engine in front and the pilot is well back. In these machines the engine takes the chief shock and the portion of the machine immediately behind crumples up while the pilot's seat may suffer little damage. Usually it is the pilot's head that is injured. His body is stopped either by a safety belt or by an outstretched hand, while the head bends forcibly forward, striking some portion of the machine causing wounds or violently wrenching the neck. One instance is described in which the neck was broken. Some pilots object to wearing safety belts on account of the difficulty of releasing themselves in case of accident and crushing of the planes. In some instances pilots have been burned on account of failure to release themselves from the wrecked machine. Most pilots, however, favor the use of belts. Releasing devices have been arranged, by which the belt with a slight manipulation is released from the machine. These sometimes fail to work in emergencies. Sometimes accidents occur to pilots by being thrown from the seat when not strapped in which the aeroplane strikes a bad "hole" in the air, their feet being thrown from the controls. Helmets protect the head from injuries by spars and wires when a machine is crushed, though some pilots object to them on account of being uncomfortable and offering head resistance to the air, forcing the head back in an annoying manner.

Suicides in Italy.—The mortality from suicide in Italy in the five years ending with 1910 ranged from 2,319 to 2,969, the deaths from chronic alcoholism from 702 to 1,408. These figures are given in the *Policlinico* which states that the average of suicides per 100,000 inhabitants was for Paris, 42; Petrograd, 27; Berlin, 36; London, 23; Rome, 8; Brussels, 15; Amsterdam, 14; Lisbon, 2; Stockholm, 27; Constantinople, 12, and Geneva, 11.

Medicolegal

Defects in Information and Trial for Unlawfully Practicing Medicine

(*Collins vs. State (Tex.)*, 171 S. W. R. 729)

The Court of Criminal Appeals of Texas reverses a conviction of the defendant of unlawfully practicing medicine and remands the case for a new trial. The court says that in order to obtain the enhanced punishment authorized by the penal code where the party has been previously convicted of similar offenses, the information charged that the defendant had been before convicted of the same offense, setting out two instances in which he had been previously convicted of the same offense. This did not properly charge this character of case. This question was again raised when the state offered in evidence the records of prior convictions. The trial court permitted these judgments to go to the jury, but instructed the jury in the charge not to consider the prior convictions. The indictment was not sufficient in this respect. The court was in error in permitting the evidence to go before the jury to be considered by them, which error was not cured by withdrawing the illegal testimony in the charge. Then, it was error to authorize the jury to convict the defendant if, among other things, he charged any money of any sort for medical treatment. The information alleged that he charged \$2 current money of the United States of America for his services. The evidence did not show what kind of money was paid. The witness said "\$2." If it was not current money of the United States, of course that allegation would not be met, and the court should have confined the jury to finding the money to be current money of the United States. It was also objectionable under the circumstances to permit the introduction of evidence that the defendant had a credit of \$247 on the books on a newspaper publishing company. Possibly or probably it might be connected up so as to make it admissible. If the state was trying to show that he was publishing to the world through a newspaper that he was practicing medicine and this money was placed there to pay for such advertisements in that paper, it might be admissible, but it must be connected in some way so as to make it admissible. Where a newspaper advertisement of an osteopathic infirmity named the defendant as physician and surgeon in chief and advertised the infirmity as a hospital, for the cure of diseased persons, if the defendant authorized the publication, it would be admissible against him, but until that was shown in some way, the mere fact that the infirmity published his name with it would not make him responsible. If he was connected with that infirmity, and it was so shown, this evidence might be admissible to show that he was engaged in that particular character of practice of medicine, but unless it was connected in some way, the testimony would not be admissible.

Infirmities from Old Age, Insane Delusions, Prejudices, Beliefs, Insanity and Testamentary Capacity

(*Carnahan vs. Hamilton (Ill.)*, 107 N. E. R. 210)

The Supreme Court of Illinois reverses a judgment obtained by the plaintiff in her contest of the will of her grandfather. The court says that infirmity from old age does not render a person incapable of making a will, unless such infirmity has so far impaired the testator's mind that he is incapable of understanding his business at the time he is engaged in making the will. To sustain an allegation of want of testamentary capacity something more must be shown than mere physical disease and old age on the part of the testator.

An "insane delusion" which will render one incapable of making a will is difficult to define. This court has said that it is a belief in a state or condition of things in the existence of which no rational person would believe. Again, it has been stated that an insane delusion is a belief in something impossible in the nature of things, or impossible under the circumstances surrounding the individual, which refuses to yield either to evidence or reason.

Prejudice of the testator against a relative is not ground for setting aside a will unless it can be explained on no other ground than that of an insane delusion. A person may be prejudiced against some of his children or persons who are the natural objects of his bounty and make unfair remarks about them without having a proper foundation for his conduct, but it does not necessarily follow that he is without testamentary capacity. Unreasonable prejudice against relatives is not ordinarily ground for invalidating a will. That can only be done when the testator's aversion is shown to be the result of an insane delusion, his conduct not being able to be explained on any other ground.

An unequal division of the testator's property among his heirs does not, of itself, justify the court in holding that he did not possess testamentary capacity. It is only a circumstance which the jury may consider, with other evidence, in passing on the soundness of mind of the testator.

It cannot be presumed that the testator is insane merely because his father was insane. Until the disease manifests its presence the court cannot infer its existence in the mind of the person in question.

The fact that a person believes in witchcraft, clairvoyance, spiritual influences, presentiments of the occurrences of future events, dreams, mind-reading, and the like, does not necessarily affect the validity of his will. Manifestly, a man's belief cannot be made a test of sanity. When we leave the domain of experience or knowledge and enter on the field of belief the range is limitless, extending from the highest degree of rationality to the wildest dreams of superstition. What to one man may be a reasonable belief is to another wholly unreasonable. While, under certain circumstances, belief in what men generally understand to be supernatural may tend to prove insanity, it is well known that some of the brightest and clearest intellects have honestly believed in spiritualism and other apparently supernatural influences. It is the settled law that testamentary capacity cannot be determined, alone, by what one believes, nor by the character of the tales he tells concerning hidden treasure, spirits, spooks, and supernatural things.

Whether hardening of the arteries has affected the mind is not a question of what the tendency of that disease is, but the proof must be as to its effect in the particular case. That an old man in the condition of this testator after his daughter's death should want a home and would be looking for a wife and companion cannot be very strong proof of unsoundness of mind. Such a desire is usually recognized as strong proof of a sane mind.

Company Not Liable for Services Rendered to Injured Employee

(*Vanderboget vs. Campbell Mill Co. (Wash.)*, 144 Pac. R. 905)

The Supreme Court of Washington reverses a judgment obtained by the plaintiff for services rendered in the care of an injured employee, who died three days after he met his injury, the court directing that the plaintiff's action be dismissed. After the employee was injured the company's superintendent directed a lumber salesman to take him to a hospital, and telephoned to an uncle to meet him. The uncle told the physician employed by the hospital association to treat the company's employees that his services would not be required; that the plaintiff would have charge of the case. He said he told the salesman that he wanted his family physician to attend his nephew, receiving the answer, "That is all right; go ahead." The uncle further testified that, after his nephew died he telephoned to the salesman that there were physicians' and nurse's charges, and was answered: "We will see that all settled." The salesman, on the other hand, testified that he told the uncle that the company would not pay for the services of a physician. But assuming that the uncle correctly related his conversation with the salesman, the court holds that the company was not liable. It had arranged in advance for medical and hospital care for the injured employee, in obedience to its contract with him. It exacted and withheld \$1 per month from the wages of each employee and paid it to the hospital association.

This entitled the employee to medical attendance at the hospital. The arrangement had the implied assent of the injured employee. The salesman was a subordinate employee, and under the circumstances had no authority to obligate the company to pay for medical and surgical assistance. It has been held in some jurisdictions that, while a corporation is not responsible generally for medical or surgical aid to a sick or injured employee, it is obligated to render an employee such assistance in extreme cases, where immediate attention is required to save life or prevent great injury. It is said that the duty begins and ends with the emergency. It has been held that, in a railroad accident, where an employee is seriously injured on the road at a place remote from the center of authority, the highest representative of the company present, from the necessities of the case, has authority to employ medical and surgical aid. The rule has usually, if not always, been applied to railroad corporations, and the liability has been limited to cases in which there was an extreme emergency calling for immediate medical or surgical attention. Though this court should adopt the rule of these cases, and it has been rejected by many courts of the highest learning and respectability, no emergency was shown in this case which would enlarge the powers of a subordinate representative, such as the salesman, for two reasons: (a) The company had already made reasonable provision for medical and surgical attention and hospital care; and (b) the company's place of business was near the city in which the hospital was, had telephonic communication with it, and its representative officers could have been readily communicated with. Nor was it liable in this case because it exacted and withheld a portion of the employee's wages. That imposed a duty on it to provide reasonable care and attention. This it had arranged for in advance.

Funds Not Recoverable by "Company Doctor"

(*Wagner vs. Brady et al. (Tenn.)*, 171 S. W. R. 1179)

The Supreme Court of Tennessee reverses a decree obtained by the complainant, a physician, who sought a decree against the defendant Brady for certain sums of money collected by Brady through his agents from laborers and employees engaged in the construction of a lock and dam. It was averred that said sums were collected out of the wages of the laborers and employees on "representations made to them that the funds thus collected would go to the company doctor and for their benefit in the way of purchasing medicines, providing hospital equipment, etc." The court says that it was clear from the proof, and the complainant expressly admitted in his evidence, that he never contracted with the defendant Brady for any part of the sum so collected from employees and laborers. The complainant relied on no contract right to any interest in this fund, but relied wholly on the provisions of chapter 259 of the Acts of Tennessee of 1889, and must make out his case by a preponderance of all the proof under the terms of that act. In order to fall within its terms, he must show that a specific fund was in the hands of the defendants, withheld from the wages of employees and laborers, for the avowed purpose of paying his salary as "company doctor"; and proof of a general understanding among the employees and laborers as to the avowed purpose for which the fund was withheld was not sufficient under the statute. In the only cases where recoveries under this statute have been approved by this court, there was proof, not only as to the amount of the fund, but of the fact that it was withheld for the avowed purpose expressed in the statute. On the whole case, it is the conclusion of the court that, according to the preponderance of the proof in the record, the complainant failed to show the existence of a fund in which he had, or ever had, any interest under the act of 1889. The proof did not show, within the meaning of that act, that the fund which did exist was withheld under an avowed purpose which would bring it within the terms of that act as a fund held in trust for the complainant. The court has no warrant of law to expand the terms of that act; it can only apply the act when a case is within its terms. The complainant's bill must be dismissed.

Skill Required of Surgeon and Bases of Damages for Malpractice

(*Fowler vs. Burris (Mo.)*, 171 S. W. R. 620)

The Springfield (Mo.) Court of Appeals reverses a judgment obtained by the plaintiff for alleged malpractice on the part of the defendant, a physician, in treating the plaintiff's broken arm, remanding the case for a new trial. The court says the evidence showed that the defendant treated the plaintiff's injuries only once. At that time the arm was considerably swollen, and the evidence tended to show that it would be difficult to determine the kind or extent of the injuries. The defendant stated that he expected the plaintiff to come to his office for further treatment; but there was other evidence to the effect that he gave no directions for her to do so, but, on the contrary, said that his first treatment was all that was necessary.

According to one instruction given to the jury, the care and skill a surgeon should use in his practice should be proportionate to the character of the injury he treats. The court thinks that this is true with reference to the care and diligence which he should use in attending an injured person, but it can hardly be said that his skill should increase in proportion to the severity of the injury. One's skill is a matter of slow growth and cannot be increased on short notice. The court thinks also that this instruction required too great a degree of skill and diligence in treating an injury to say that this should be proportionate to the character of the injury "within the limits of all ordinary skill and knowledge."

Another instruction proceeded on the theory that the plaintiff should be awarded damages for her entire injury and the physical pain and mental anguish resulting therefrom, and held the defendant accountable for all impairment of her earning power, provided the jury found for the plaintiff on the ground of the defendant's negligence in treating the injury. But the evidence in this case showed, and common sense teaches us, that a broken arm is itself a serious injury, regardless of the way in which it is treated by the attending physician, and that it necessarily results in much bodily pain and mental anguish, and that it takes considerable time for the injured member to regain its normal strength and efficiency, and that in many, if not most, cases the injury is more or less permanent and the usefulness of the arm impaired even with skilful surgical treatment. The attending surgeon, therefore, cannot be held liable for all the damages growing out of the injury. He is not responsible for the original injury and its usual and natural consequences with proper treatment. It would be proper for the jury to be told that in estimating the amount of damages they should not take into account the injury and pain of body and mind, or any impairment of the plaintiff's strength or earning power due to the breaking of the arm, and that the defendant, if found negligent, was only to be held in damages for any increased injury and pain of body and mind, or impairment of the use of the arm occasioned by his negligence in his manner of treating the same. Furthermore, the court knows of no case holding that, in an action for actual damages based on negligence, the question of the plaintiff's poverty or the defendant's wealth has any proper place either in showing the defendant's negligence or as a basis for estimating the plaintiff's damages.

Use of Medical Books in the Refutation and Cross-examination of Expert Witnesses

(*State vs. Brunette (N. D.)*, 150 N. W. R. 271)

The Supreme Court of North Dakota holds that, before the contents of medical books may be introduced in evidence and read to the jury for the purpose of refuting the testimony of a medical expert, it is necessary that the attention of the witness shall be first called to such books, and that he shall have based his opinion on the same. It would be a mere evasion of the rule to allow counsel, in the cross-examination of a witness who has not either based his opinion on the specific book or on the authorities generally, nor whose

opinion in the nature of things must necessarily be based on authorities, to read to such witness portions of a medical work, and to ask him if he concurs in or differs from the opinions therein expressed. Such a proceeding would be nothing more nor less than impeaching the witness by a text-book on which he has in no way relied, and where no foundation for his impeachment has been laid, and by an authority who is not in court and cannot be cross-examined. Where, however, a medical witness has in his examination in chief based his opinion on the medical authorities generally, rather than on the result of his own personal experience, it is permissible in cross-examination to read to him portions of medical works and to ask if he concurs therewith or differs therefrom, and to thus test his knowledge and reading and accuracy, even though he has not, in his direct or cross-examination, referred to any specific work. Where this is done, however, the proper practice is for the court to caution the jury that it is the testimony of the witness, and not what is read from the book, that constitutes evidence in the case.

Medical Practice Act Constitutional

(*People vs. Ah Fong (Cal.)*, 145 Pac. R. 153)

The district Court of Appeals of California, First District, affirms a judgment of conviction of the defendant, who was charged with violating an act for the regulation of the practice of medicine and surgery, etc., approved June 2, 1913. The court says that there was no merit in the contention that the statute under which the defendant was prosecuted and convicted is unconstitutional. In the judgment of the court, the title of the act indicates with sufficient detail the entire subject matter of the act; and the court is satisfied that there is not in the body of the statute in question anything which is in conflict with its title or not included within the scope thereof. The court is also satisfied, from a reading of the entire evidence in the case, that it was sufficient to sustain the verdict and the judgment against the defendant.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, SAN FRANCISCO, JUNE 21-25.

Alabama State Medical Association, Birmingham, Apr. 20-23.
Am. Assn. Gen.-Urin. Surgs., White Sulphur Springs, W. Va., May 18-20.
American Association of Immunologists, Washington, May 10.
American Dermatological Association, New York, May 13-15.
American Gastro-Enterological Association, Baltimore, May 10-11.
Amer. Gynecological Society, White Sulphur Springs, W. Va., May 18-20.
American Laryngological Association, Niagara Falls, June 1-3.
American Medico-Psychological Assn., Fortress Monroe, Va., May 11-14.
American Neurological Association, New York City, May 6-8.
American Orthopedic Association, Detroit, May 6-8.
American Otological Society, Niagara Falls, June 3-4.
American Pediatric Society, Lakewood, N. J., May 25-27.
American Psychopathological Association, New York, May 5.
American Surgical Association, Rochester, Minn., June 9-11.
Arkansas Medical Society, Little Rock, May 3-6.
Association of American Physicians, Washington, May 11-12.
Conf. of State and Prov. Boards of North America, Washington, May 14.
Connecticut State Medical Society, Hartford, May 19-20.
Florida Medical Association, De Land, May 12-14.
Georgia Medical Association, Macon, April 21-23.
Illinois State Medical Society, Springfield, May 19-20.
Iowa State Medical Society, Waterloo, May 12-14.
Kansas Medical Society, Kansas City, May 5-6.
Louisiana State Medical Society, Lake Charles, April 20-22.
Maine Medical Association, Poland Springs, June 9-10.
Maryland Medical and Chir. Faculty, Baltimore, April 27-29.
Massachusetts Medical Society, Boston, June 8-9.
Mississippi State Med. Association, Hattiesburg, May 11.
Missouri State Medical Association, St. Joseph, May 10-12.
Nat'l Assn. for the Study of Epilepsy, Old Point Comfort, Va., May 10.
Nebraska State Medical Association, Hastings, May 18-20.
New Hampshire Medical Society, Concord, May 19.
New York State Medical Society, Buffalo, April 27-29.
North Dakota State Medical Association, Bismarck, May 12-13.
Ohio State Medical Association, Cincinnati, May 4-6.
Oklahoma State Medical Association, Bartlesville, May 11-13.
Rhode Island Medical Society, Providence, June 3.
South Carolina Medical Association, Greenwood, April 20-22.
Texas State Medical Association, Ft. Worth, May 4-6.
West Virginia State Medical Association, Huntington, May 12-14.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Albany (N. Y.) Medical Annals

March, XXXVI, No. 3, pp. 101-150

- 1 Pathology of Exophthalmic Goiter. E. Kellert, Boston.
- 2 Physiology and Pathologic Chemistry of Exophthalmic Goiter. A. Knudson, Albany.
- 3 Exophthalmic Goiter; Etiology and Symptomatology.* C. B. Hawn, Albany.
- 4 Medical Therapeutics of Exophthalmic Goiter. E. Corning, Albany.
- 5 Surgical Treatment of Exophthalmic Goiter. A. H. Traver, Albany.

Archives of Ophthalmology, New Rochelle, N. Y.

March, XLIV, No. 2, pp. 109-220

- 6 Topical Diagnostic and Psychiatric Value of Wilbrand Test with New Clinical Instrument. C. B. Walker, Boston.
- 7 Histologic Findings after Successful Sclerostomy. F. H. Verhoeff, Boston.
- 8 Traumatic Pulsating Exophthalmos, with Complete Bibliography. A. J. Bedell, Albany.
- 9 Removal of Eyeball. H. S. Gradle, Chicago.
- 10 Technic of Evisceration. H. Gifford, Omaha.
- 11 Operative Treatment of Retinal Detachment. A. Elschmig.
- 12 Method of Preserving Macroscopic Eye Specimens in Their Natural Colors. R. Greeff, Berlin.
- 13 Conservation of Vision. G. S. Derby and H. C. Greene, Boston.

Boston Medical and Surgical Journal

April 1, CLXXII, No. 13, pp. 467-502

- 14 Changed Position of Profession of Medicine. D. W. Cheever, Boston.
- 15 Menace of Syphilis to Clean Living Public. J. H. Blaisdell, Boston.
- 16 *Undescribed Ulnar Nerve Trouble, Due to Tension from Scar and Its Cure. F. J. Cotton, Boston.
- 17 Some Nervous Affections in which Massage Deserves More Frequent Use. (Wryneck and Writers' Cramp.) J. W. Courtney, Boston.

16. Ulnar Nerve Trouble, Due to Tension from Scar and Its Cure.—From observations, of the last three years, Cotton has come to regard as a separate class (apparently unrecognized hitherto) lesions of the ulnar nerve at the elbow, due to the intermittent tension produced by elbow motion on a nerve held rigidly fixed by deep scar. Not all these cases have had any fracture at all, and none of them any compression of the nerve, even by scar, so far as could be determined. The mechanism is purely fixation of the nerve by scar tissue, at the turn of the elbow, in which it lies in the epitrochlear groove, or in the inch next below this point. Given a nerve so fixed, it must necessarily happen that flexion of the elbow must pull on it, and ordinary use of the arm must give intermittent traction on the nerve trunk.

The result may be in some measure a paresis in the muscles supplied by the nerve, sometimes with marked atrophy in the muscles of the hand, but more particularly, the damage expresses itself in pain; pain radiating from the elbow down to the last two fingers, with numbness to touch in this region; a numbness not usually serious in itself, but important as an indication of real trouble. Pain and a partial paresis of the intrinsic muscles of the hand, expressed in weakness and clumsiness in executing the finer movements of the fingers, are the factors which principally form the list of complaints from the patient. Relief of this condition is surgical. Just as in the cases of intermittent nerve-pressure symptoms from recurrent luxation of the nerve at the elbow, so here also, the only remedy is removal of the nerve to a more favorable site; Cotton can relieve symptoms by dissecting out the nerve, carrying it forward and imbedding it in loose fat and muscle. Seven cases are reported.

Colorado Medicine, Denver

March, XII, No. 3, pp. 65-100

- 18 Therapeutic Importance of Mental Attitude of Patient. E. J. A. Rogers, Denver.
- 19 Psychotherapy. Report of Case. E. W. Lazell, Denver.
- 20 Prevention of False Keloids in Scars by Underlining of Incisions with Strips of Fascia Lata. L. Freeman, Denver.
- 21 Nasopharyngeal Polypus. R. Levy, Denver.

- 22 Modern Pseudomedical Cults. 1. Osteopathy. C. Powell, Denver.
23 Diagnosis of Gonococcal Affections by Complement-Fixation Test. W. W. Williams, Denver.

Georgia Medical Association Journal, Augusta

March, IV, No. 11, pp. 311-336

- 24 Medical Inspection of School Children. W. L. Funkhouser, Rome.
25 Treatment of Pneumonia. W. F. Peacock, Vidalia.
26 Pneumonia, Preceded by Pleurisy and Accompanied by Jaundice. S. R. Roberts, Atlanta.
27 Adenoid Tissue, Its Relation to Middle Ear; Consequences. B. H. Minchew, Waycross.
28 Case of Vincent's Angina. J. M. Smith, Valdosta.
29 Why I Want To Be A Physician. H. P. Smith, Pearson.
30 Inflammatory Affections of Nasal Mucosa and Accessory Sinuses in Children. H. C. Whelchel, Douglas.
31 Examining Physician's Relation to Insurance Company, Its Agent and Applicant. J. W. Simmons, Brunswick.

Journal of Biological Chemistry, Baltimore

March, XX, No. 3, pp. 179-461

- 32 Use of Colloidal Iron in Determination of Lactose in Milk. R. L. Hill, Ithaca, N. Y.
33 Spectroscopic Investigation of Reduction of Hemoglobin by Tissue Reductase. D. F. Harris, Halifax, N. S., and H. J. M. Creighton, Swarthmore, Canada.
34 Studies in Carbohydrate Metabolism. Influence of Hydrazin on Utilization of Dextrose. F. P. Underhill and A. G. Hogan, New Haven, Conn.
35 Id. Influence of Hydrazin on Glyoxalase Activity of Liver. F. P. Underhill and A. G. Hogan, New Haven, Conn.
36 *Colorimetric Method for Estimation of Amino-Acid α -Nitrogen. V. J. Harding and R. M. MacLean, Montreal.
37 Metabolism of Vegetarians as Compared with Metabolism of Non-Vegetarians of Like Weight and Height. F. G. Benedict, Boston, and P. Roth, Battle Creek, Mich.
38 Metabolism of Athletes as Compared with Normal Individuals of Similar Height and Weight. F. G. Benedict, Boston, and H. M. Smith, Syracuse, N. Y.
39 Comparison of Basal Metabolism of Normal Men and Women. F. G. Benedict and L. E. Emmes, Boston.
40 Factors Affecting Basal Metabolism. F. G. Benedict, Boston.
41 Respiration Apparatus for Small Animals. F. G. Benedict, Boston.
42 Simple Quartz Mercury-Vapor Lamps for Biologic and Photochemical Investigations. W. T. Bovie, Cambridge, Mass.
43 *Metabolic Relationship of Proteins to Glucose. N. W. Janney, New York.
44 Comparative Nutritive Value of Certain Proteins in Growth and Problem of Protein Minimum. T. B. Osborne and L. B. Mendel, New Haven, Conn.
45 *Influence of Natural Fats on Growth. T. B. Osborne and L. B. Mendel, New Haven, Conn.
46 Non-Protein Nitrogenous Compounds of Blood in Nephritis, with Special Reference to Creatinin and Uric Acid. V. C. Myers and M. S. Fine, New York.
47 Method for Quantitative Estimation of Certain Groups in Phospholipins. M. L. Foster, Chicago.
48 *Influence of Plane of Protein Intake on Growth. E. V. McCollum and M. Davis, Madison, Wis.
49 Mutarotation of Phenylsazones of Pentoses and Hexoses. P. A. Levene and F. B. La Forge, New York.
50 Chondroitin Sulphuric Acid. P. A. Levene and F. B. La Forge, New York.
51 Behavior of Bacteria Toward Purified Animal and Vegetable Proteins. J. A. Sperry and L. F. Rettger, New Haven, Conn.

36. **Estimation of Amino-Acid α -Nitrogen.**—A method has been devised by Harding and MacLean for the estimation of amino-acid α -nitrogen by the use of triketohydrindene hydrate and pyridin. It will estimate within the ranges of 0.005 mg. to 0.05 mg. amino-acid α -nitrogen per cubic centimeter. The method is inaccurate, however, for cystin. It is applicable to the determination of amino-acid α -nitrogen (in neutral solution) set free in protein hydrolysis.

43. **Metabolic Relationship of Proteins to Glucose.**—Vegetable and animal proteins, Janney states, are metabolized at the same rate in the animal organism. All the extra glucose and nitrogen are eliminated by the ninth hour after ingestion. Each protein produces a definite amount of glucose in the phlorhizinized organism. The various yields represent 50 to 80 per cent. by weight of the protein administered. These yields approximate the ratios which the glucogenetic amino-acids of the proteins in each case bear to the total amino-acids, as actually determined by hydrolysis.

45. **Influence of Natural Fats on Growth.**—The new features of this communication are summarized by Osborne and Mendel as follows: The failure of lard to promote growth in the same manner as other natural fats (namely, butter fat,

egg-yolk fat, cod liver oil) do, is not attributable to deteriorating changes arising from heat or chemical agents in the commercial manufacture of the product. Heating butter fat with steam does not destroy its growth-promoting efficiency. Beef fat also renders the inefficient diets used by us more suitable for producing growth in rats than does lard. When butter fat and beef fat are subjected to fractional crystallization from alcohol, the growth-promoting factor remains in the mother liquor or "oil" fractions. The fractions containing the fats with high melting points are ineffective. Some quantitative aspects of the growth-promoting efficiency of the natural fats are discussed.

48. **Influence of Protein Intake on Growth.**—It is evident from the curves shown by McCollum and Davis that the lowest plane of protein intake derived from milk which can maintain young rats without loss of body weight is 3 per cent. of the food mixture. There is a progressive increase in the rate of growth with rations derived from milk, as the plane of protein intake is raised between 3 and 8 per cent. of the diet. It is evident that for a time at least rats may grow at about half the normal rate when the protein is supplied by the wheat kernel to the extent of 6 per cent. of the food mixture; 2.45 per cent. of protein derived from desiccated egg is not sufficient to maintain young rats without loss of body weight. During six weeks a ration carrying but 4 per cent. of protein from wheat embryo compares favorably with a similar plane of protein intake derived from milk powder, and is somewhat better than 6 per cent. of protein from entire kernel. McCollum and Davis believe that this plan of experimentation offers a valuable method of comparison of the proteins from various sources, provided all deficiencies are made up by suitable additions.

Journal of Infectious Diseases, Chicago

March, XVI, No. 2, pp. 109-347

- 52 *Mechanism of Phagocytosis. G. L. Kite and W. B. Wherry, Woods Hole, Mass.
53 *Technic of Wassermann Reaction. R. Ottenberg and B. Frazier, New York.
54 *Comparison of Immunizing Effects of Subcutaneous and Intraperitoneal Administrations of Tumor Cells Against Growth or Carcinoma in Mice. M. G. Seelig and M. S. Fleisher, St. Louis.
55 *Experimental Study of Distribution and Habitat of Tetanus Bacillus. W. Noble, New Haven, Conn.
56 *Syphilitic Leptomenigitis. E. R. LeCount and K. Dewey, Chicago.
57 *Studies on Cultivation of Virus of Vaccinia. E. Steinhardt and M. Grund, New York.
58 Study of So-Called Implantation of Bacillus Bulgaricus. A. H. Rahe, New York.
59 Variability of Two Strains of Streptococcus Lacticus. P. G. Heinemann, Chicago.
60 *Bacteriology of Appendicitis and Its Production by Intravenous Injection of Streptococci and Colon Bacilli. E. C. Rosenow, Chicago.
61 Spirochetal Infection of Ulcers in China. H. E. Eggers, Shanghai, China.
62 Relation of Number of Streptococcus Lacticus to Amount of Acid Formed in Milk and Cream. P. G. Heinemann, Chicago.
63 Bacteremia Due to Bacillus Diphtheriae. Report of Case. H. W. Wade, New Orleans.
64 Complement Fixation in Diagnosis of Gonococcal Infections. E. E. Irons and H. K. Nicoll, Chicago.
65 Method of Transmitting Blood Parasites. J. A. Kolmer, Philadelphia.
66 Production, Through Immunization of Specific Ferments Against Bacteria as Detected by Abderhalden Test. G. H. Smith, Glenolden, Pa.
67 Production and Detection of Specific Ferments for Typhoid-Coli Group. G. H. Smith, Glenolden, Pa.
68 *Study of Correlation of Agglutination and Fermentation Reactions Among Streptococci. I. J. Kligler, New York.
69 *Diagnostic Value of Intracutaneous Injection of Diphtheria Toxin (Schick Reaction). G. H. Weaver and L. K. Maher, Chicago.

52. **Mechanism of Phagocytosis.**—Following observations on the adhesive character of the surface of certain amebae and certain vertebrate leukocytes by Kite, experiments were undertaken by Kite and Wherry which show that when separately incubated mixtures of leukocytes and serum and serum and bacteria are agitated together many of the bacteria stick to the leukocytes and are rolled into their substance. That the bacteria are actually within the cells is judged by observations on their digestion as shown both in fresh and in stained preparations. By this method, several

of the classical experiments on phagocytosis have been repeated. Experiments with a minimum amount of agitation show that here "phagocytosis" is reduced.

Kite and Wherry offer the suggestion that foreign particles, as carbon, are taken up by leukocytes because the latter have sticky surfaces; that bodies similar to many bacteria stick to leukocytes best in the presence of unheated serum because they adsorb something from the serum which makes them more sticky or are in some way rendered more sticky, and hence the chances of their adhering to the surfaces of leukocytes are increased. There is evidence that, even in the absence of serum, certain leukocytes are sticky enough to allow some bacteria to adhere. Preliminary experiments on the influence of temperature on the power of serum to make staphylococci sticky seem to indicate that this may occur as well at 11 C. as at 37 C., but that the action is diminished considerably at 1 C.

53. Technic for Wassermann Reaction.—Ottenberg and Frazier emphasize that if attention is not paid to natural amboceptor a certain, though small, percentage of positive results will be overlooked. If Thomas and Ivy's method of titrating complement is used, it is essential to select negative serums which have no natural amboceptor.

54. Immunizing Effects of Tumor Cells.—Seelig and Fleisher conclude that both intraperitoneal as well as subcutaneous tumors have a mutual inhibiting action on each other if they are virulent or moderately virulent, but that an intraperitoneal tumor has a relatively stronger inhibiting power than a subcutaneous tumor. The greater inhibiting action of an intraperitoneal tumor on a subcutaneous tumor appears when compared with the action of a first subcutaneous tumor on a second subcutaneous tumor, as well as on a second intraperitoneal tumor. A second intraperitoneal tumor is relatively more strongly inhibited by a first subcutaneous tumor than is a second subcutaneous tumor.

55. Distribution of Tetanus Bacillus.—The tetanus bacillus, Noble states, appears in the intestines of many normal animals, especially of the herbivora, but apparently it seems impossible, with the methods at our disposal, to detect it there unless it is present in relatively large numbers. Experimental evidence shows that the tetanus bacillus may multiply in the intestines of such animals. The intestines, or rather the intestinal contents of certain individual animals, seem to offer especially favorable conditions for the growth of the tetanus bacillus; such animals are "tetanus carriers" comparable, in regard to the distribution of the organism, with typhoid or cholera carriers among human beings. The presence of tetanus spores in soils, street dust, fresh vegetables, and on clothing and the skin in undoubtedly due to fecal contamination.

56. Syphilitic Leptomeningitis.—While it is not assumed by LeCount and Dewey the minute scars in the cerebral leptomeninx in all the instances studied by them (55) were caused by syphilis, for other infections may be responsible for them, nevertheless, they believe that a review of all the evidence presented will convince others, as it has them that it will be necessary to exclude syphilis before associating these scars with other infections. They bring further evidence of the truly focal character of the lesions of acquired syphilis and should be given a value equal to lesions in other places, as the aorta or liver, in the final summing up of the evidences for a syphilitic infection obtained by post-mortem examination.

It seems likely that in many instances when syphilis becomes generalized in the human body, perhaps at the time when there is a macular rash, fever, and perhaps a spirochetemia, that among other places in which the organisms locate, proliferate, and produce gummas are the membranes of the vertex as well as the base of the brain. Like the scars and minute gummas in the very periphery of the hepatic circulation just beneath the capsule, which are so common in the liver, these arachnoid scars show that the arachnoid is one of the relatively few places in which the organisms find conditions suitable for a limited multiplication after a gen-

eralized spirochetemia. In conclusion, LeCount and Dewey call attention to the inadequate character of the evidence that alcohol may produce a fibrous leptomeningitis with discrete focal lesions.

57. Cultivation of Virus of Vaccinia.—Cultural experiments made by Steinhardt and Grund with the virus of vaccinia, with usual or special bacteriologic methods, were negative. There was no evidence of a multiplication of the virus. The virus, streaked on agar plates and kept anaerobically, has remained alive for eight weeks at 33 C. An acid reaction of medium appears favorable to the virus. A comparative study of the action in the cold of glycerin on organisms of a known nature shows the resistance to be a variable one, not always paralleled by resistance to drying. Of the organisms tested, the tubercle bacilli were the most resistant, then the staphylococci and colon bacilli.

60. Bacteriology of Appendicitis.—Cultures from the removed appendix were made by Rosenow in fourteen cases of acute appendicitis and six cases of chronic appendicitis. Streptococci, usually in predominating numbers, were isolated from the tissues of the appendix in seventeen cases. The colon bacillus was found in pure cultures in the pus within the lumen in six cases and in predominating numbers, but with streptococci or other organisms in the rest. The results of the cultures from the wall, after thorough washing, showed that here the chief bacteria were streptococci. The fusiform bacillus was isolated from the wall of the appendix in three cases; other anaerobic bacilli and spirilla were found in some cases, but were not identified; the bacillus welchii in two; a diphtheroid bacillus in two, the staphylococcus aureus in one; the bacillus pyocyaneus in one, and unidentified cocci and bacilli in two.

The results of Rosenow's experiments indicate that appendicitis, in the absence of foreign bodies, commonly is a hematogenous infection, secondary to some distant focus; that it develops when, for some reason or other, the organisms in the focus, usually streptococci, have acquired an elective affinity for the appendix and at the same time gain entrance into the circulation. The results bear out his theory that a focus of infection is to be looked on, not only as the place of entrance of bacteria, but also as the place in which they may acquire the varying affinities necessary to infect distant organs and tissues.

From the results in the animals, it seems, as emphasized also by others, that appendicitis is a serious disease, not so much on account of the virulence of the infecting microorganisms as on account of the anatomy of the appendix favoring strangulation and thus the growth especially of facultative and strict anaerobes. The importance of thorough search for and removal of possible foci of infection from which appendicitis may originate is emphasized. Finally, it is pointed out that the frequent occurrence of appendicitis, at times almost in epidemic form when throat infections are particularly prevalent, now is easily understood.

68. Agglutination and Fermentation Among Streptococcus.—Sixty strains of streptococci from various pathologic conditions were studied by Kligler with respect to their agglutinative and fermentative properties. The agglutination reaction was not found to separate the streptococci into large groups. However, by its correlation with the fermentation reactions, the probable relationship of these types is indicated. The agglutination tests tend to show that a division of the streptococci on the basis of hemolysis is not warranted, whereas a separation according to the fermentation reactions appears to coincide more closely with their natural relationship. The groups suggested are:

Streptococcus pyogenes.—Salicin fermenters. *Streptococcus salivarius*.—Raffinose fermenters. *Streptococcus fecalis*.—Mannite fermenters.

69. Diagnostic Value of Schick Reaction.—According to Weaver and Maher in normal persons a negative result from the intracutaneous injection of diphtheria toxin constantly indicates the presence in the blood of diphtheria antitoxin with a consequent immunity to diphtheria, at least for the

time being. A typical positive result points to an absence of antitoxin and a resulting susceptibility to infection by diphtheria. In the presence of exposure to diphtheria, immunization by injections of antitoxin is not indicated in persons who give negative reactions, but only in those who give positive reactions. Intracutaneous injections of diphtheria toxin are valuable in separating cases of infection by diphtheria bacilli from cases of angina and rhinitis due to other causes. They also serve to distinguish cases which are diphtheria from those which are only bacillus carriers. Diphtheria bacillus carriers usually develop relatively large amounts of antitoxin in the blood. In the acute stage of diphtheria, before any antitoxin has been injected, the patient's blood contains little or no antitoxin. In cases of acute diphtheria, full doses of antitoxin given simultaneously with the toxin injection, frequently modify or completely inhibit the cutaneous reaction.

Lancet-Clinic, Cincinnati

March 13, CXIII, No. 11, pp. 279-306

- 70 Constipation in Relation to Various Diseases. C. A. L. Reed, Cincinnati.
- 71 Modern Radiotherapy in Malignant Tumors and in Localized Tuberculosis. G. Kolischer, Chicago.
- 72 Radium in Treatment of Cancer of Uterus. J. L. Ransohoff, Cincinnati.
- 73 Colon Stasis. J. R. Eastman, Indianapolis.
- 74 Insanities of Puerperal State. F. W. Langdon, Cincinnati.
- 75 Resection of Posterior Roots for Cure of Little's Disease. E. M. Bland, Cleveland.

March 20, No. 12, pp. 307-342

- 76 *Gastric and Duodenal Ulcer; Etiology, Diagnosis and Present-Day Treatment. C. W. Dowden and C. Weidner, Jr., West Baden, Ind.
- 77 *Use of Abderhalden Reaction with Normal and Pathologic Human Serums. E. L. Ross and H. D. Singer, Kankakee, Ill.
- 78 Personal Results in New Methods of Medical Diagnosis and Treatment. E. Zueblin, Baltimore.
- 79 Autobiography of an Inmate. E. A. Fennel, Cincinnati.
- 80 Democracy and Medical Education. H. S. Pritchett, New York.

76 and 77. Abstracted in THE JOURNAL, Nov. 14, 1914, pp. 1786 and 1787.

Kansas Medical Society Journal, Topeka

March, XV, No. 3, pp. 71-104

- 81 Retrodisplacement of Uterus. L. A. Clary, Hutchinson.
- 82 Appendicitis in Children—Surgical Problem. E. D. Ebright, Wichita.
- 83 Splenectomy. Report of Case. P. Christmann, Parsons.
- 84 Would Medical Profession Suicide? T. A. Stevens, Caney.
- 85 Physician's Business Methods. M. Miller, Newton.

Medical Record, New York

April 3, LXXXVII, No. 14, pp. 547-588

- 86 Relation of Hernia to Workmen's Compensation Law. A. V. Moschowitz, New York.
- 87 *New Non-Operative Treatment of Disease of Accessory Sinuses of Nose. L. A. Coffin, New York.
- 88 Study of Chronic Appendicitis. C. Savini, New York.
- 89 Bugbear of Drug Eruptions. W. P. Cunningham, New York.
- 90 Dangers of Impure Air. H. Greeley, Brooklyn.
- 91 Physician's Interests in Workmen's Compensation Law. H. S. Stark, New York.
- 92 Permanent Enlargement of Contracted Pelvic Outlet. F. D. Smith, Chicago.

87. **Non-Operative Treatment of Disease of Accessory Sinuses of Nose.**—By means of positive pressure obtained from an oxygen tank Coffin throws medicated vapor well into the nasal accessory sinuses. After all the pus or mucus that can be obtained by suction has been taken from the cavities, and the nasal chambers proper have been thoroughly cleaned. By using for a time alternating suction and pressure currents much more pus can be obtained. The pressure current seems to sweep it off the walls of the cavities as it were and into such position that the suction current can pick it up.

Michigan State Medical Society Journal, Grand Rapids

April, XIV, No. 4, pp. 213-250

- 93 Some Phases of Surgery of Sigmoid. L. J. Hirschman, Detroit.
- 94 Syphilis—Its Modern Status. C. W. Hitchcock, Detroit.
- 95 Syphilis—Its Modern Status from Standpoint of Internist. W. M. Donald, Detroit.
- 96 Syphilis from Neurologist's Point of View. W. Taylor, Detroit.

- 97 Prevention, Diagnosis and Treatment of Early Syphilis. H. R. Varney, Detroit.
- 98 *Painless Method of Intramuscular Injections of Mercury Salicylate. C. L. Candler, Detroit.
- 99 *Effect of Pituitary Substances on Fever Pulse. A. W. Hewlett, Ann Arbor.
- 100 Acute Alcoholic Hallucinoses in General Paralysis with Additional Complication of Herpes Zoster Following Intraspinal Injection of Salvarsanized Serum. R. H. Haskell, Ann Arbor.
- 101 Roentgen Ray Diagnosis of Peptic Ulcer. J. G. Van Zwaluwenburg, Ann Arbor.
- 102 Case of Dermatitis Herpetiformis. J. H. Stokes, Ann Arbor.

98. **Painless Method of Intramuscular Injections of Mercury Salicylate.**—Candler uses a 10 per cent. solution of mercury salicylate in liquid petrolatum and 1 grain of novocain to the ounce. Of this solution he usually injects 1 c.c. which contains approximately $1\frac{1}{2}$ grains of mercury salicylate and $\frac{1}{32}$ grain of novocain, using an ordinary steel slip-on needle, gage 26 and length 4 cm. with a ground-glass syringe. Insert the needle separately, then wait a second or two to determine whether or not one has accidentally hit a vein and then attach the syringe and inject the mercury. The application of a hot, moist towel following the injection favors the early absorption of the mass and together with the novocain practically eliminates all pain and tenderness.

99. **Effect of Pituitary Substances on Fever Pulse.**—Pituitary extract, Hewlett says, is the only drug which will convert the abnormal pulse form so frequently seen in fever into a relatively normal pulse form. Whether it will prove of value in febrile collapse can only be determined by actual trial at the bedside.

New Mexico Medical Journal, Las Cruces

March, XIII, No. 6, pp. 187-222

- 103 Acetonemia; Report of Case. F. W. Noble, Tucumcari.
- 104 Sarcoma of Kidney. S. W. Swope, Deming.
- 105 Anatomic, Clinical and Surgical Considerations of Tonsil. J. J. Pattee, Pueblo, Colo.
- 106 Certain Protozoal Infections of Digestive System. E. C. Prentiss, El Paso, Tex.
- 107 Many Years Professional Experience in Aztec Land—Mexican Republic. G. F. Brooks, Las Cruces.

New York Medical Journal

April 3, CI, No. 14, pp. 653-708

- 108 *Modern Treatment of Diabetes Mellitus. J. Tyson, Philadelphia.
- 109 Growth and Overgrowth. P. G. Woolley, Cincinnati.
- 110 *Two Cases of Subpectoral Abscess. D. Riesman, Philadelphia.
- 111 Suggestions as to Blood Cultures. W. Lintz, New York.
- 112 Sex Gland Implantation. G. F. Lydston, Chicago.
- 113 Action of Spartein. G. E. Pettes, Memphis, Tenn.
- 114 Multiple Fibroids of Uterus Complicated by Pregnancy. H. Grad, New York.
- 115 Nails as an Index in Diagnosis. W. P. Cunningham, New York.
- 116 Functional Intestinal Stasis: Its Cause and Effect. W. C. K. Berlin, Denver.
- 117 *Boiling Water in Hyperthyroidism. J. C. O'Day, Portland, Ore.

108. **Modern Treatment of Diabetes Mellitus.**—As to medicines in the earlier stages of diabetes, Tyson says, they have not much value; still less in the later stages. Their utility has been for the most part determined empirically. The administration of salicylates is followed at times by a temporary reduction in the amount of sugar in the urine, especially in cases in which there is much muscular pain. Opium and its alkaloids, morphin, codein and heroin are effective, probably because of their sedative effect, lowering the stimulus sent down from the central nervous system to the "sugar factory." The bromids may act similarly. On the other hand, the opiates generally constipate, and constipation is a drawback to successful treatment, while the possibility of acquiring the opium habit must always be borne in mind.

Arsenic is of some value in a few cases. If a glycosuria is produced by a syphilitic brain tumor, iodid of potassium will reduce it; but such an affection can hardly be called diabetes mellitus. In prescribing arsenic, it is better to give doses so small that they may be kept up continuously, rather than large doses that must be interrupted by the physiologic effect.

Certain mineral waters have a reputation. Those which are effectual in a degree are alkaline. Their operation is probably similar to that of sodium carbonate. They should be freely drunk. Additional effect is doubtless produced by

the diet provided at the various springs and the relaxation due to absence from the cares and responsibilities of business life. An important measure in the treatment of diabetes is rest, especially in bad cases. Its efficiency is easily shown by urinalysis, before and after a rest of a couple of days in bed.

110. Subpectoral Abscess.—The constitutional symptoms of subpectoral abscess from the very beginning, Riesman states, are out of proportion to the local manifestations. This is due to the fact that the streptococcus is the causative organism and that the free lymph circulation of the thorax permits of easy dissemination of the infection. In the treatment of subpectoral abscess the question arises whether it is better to wait for definite localization of the pus or to make an incision as soon as the diagnosis is established. The question can no doubt be settled best by surgeons, but Riesman believes it is wiser not to wait, but to make at once a free incision.

117. Boiling Water in Hyperthyroidism.—Two cases are cited by O'Day in which glycosuria and enlarged thyroid were associated. In each case the diabetic condition disappeared in direct ratio with the steps of the boiling water destruction of the thyroid, according to M. F. Porter's method.

Surgery, Gynecology and Obstetrics, Chicago

April, XX, No. 4, pp. 381-500

- 118 *Futility of Arteriovenous Anastomosis in Treatment of Impending Gangrene of Lower Extremity. D. Stetten, New York.
- 119 Local Infection Due to Intravascular Dissemination of Bacteria; Association of Diphtheroid Bacilli with Various Disease Conditions. E. C. Rosenow, Chicago.
- 120 Case of Chorio-Epithelioma Malignum Complicating Two-Months' Pregnancy and Degenerated Uterine Fibroma. J. W. Bovée, Washington, D. C.
- 121 *Unusual Hematoma Following Labor. C. W. Wahrer, Fort Madison, Ia.
- 122 *Intestinal Polyposis. W. C. Carroll, Rochester, Minn.
- 123 *Kinetic Theory of Peritonitis. G. W. Crile, Cleveland.
- 124 *Sarcoma of Both Ovaries in Child of Three Years. F. H. Smith and J. C. Motley, Abingdon, Va.
- 125 Excessive Mortality of High Intestinal Obstruction. Report of Cases. W. W. Grant, Denver.
- 126 Giant Cell Tumor of Bone. F. G. Connell, Oshkosh, Wis.
- 127 Roentgen Diagnosis in Gynecology with Aid of Intra-Uterine Colargol Injection. I. C. Rubin, New York.
- 128 *Case of Hemangio-Endothelio-Blastoma of Stomach. J. G. Sherrill and F. S. Graves, Louisville, Ky.
- 129. Case of End-To-End Anastomosis of Axillary Artery. E. O. Grant, Louisville, Ky.
- 130 Ten Cases of Arthritis of Joints of Hand Following Colles' Fracture. P. Le Breton, Buffalo.
- 131 Intra gastric Adhesion. Report of Case. C. H. McKenna, Chicago.
- 132 Thrombosis and Embolism. A. McLean, Detroit.
- 133 Ureter Stones; Technic of Their Removal by Cystoscopic Methods. Report of Cases. B. Lewis, St. Louis.
- 134 Complete Dislocation of Inner End of Clavicle. W. L. Brown and C. P. Brown, El Paso, Tex.
- 135 Surgical Experiences in Puerperal Sepsis. A. Schwyzer, St. Paul, Minn.
- 136 Prostatectomy Under Local Anesthesia. C. W. Allen, New Orleans.
- 137 Hemostatic Safety Pin for Use in Cranial Surgery. L. Friedman, New York.
- 138 *Plaiting Round Ligaments. S. F. Wilcox, New York.
- 139 Case of Tumor of Carotid Body. C. Collier, Memphis.
- 140 Destruction of Spinal Cord by Molecular Vibration. Report of Case. A. P. Butt, Davis, W. Va.
- 141 *Simple Method of Establishing Vaginal Drainage. J. C. Wood, Cleveland.
- 142 Practical Obstetric Bed. E. Cary, Chicago.

118. Arteriovenous Anastomosis in Impending Gangrene.—The utility of arteriovenous anastomosis as a therapeutic measure, Stetten says, is open to grave question. He shows by experiments that the arterial circulation to the periphery, even in very advanced arterial disease, is in every respect better and easier than the retrograde venous circulation, mainly because of the obstruction offered by the valves and the short circuiting of the blood through anastomoses of neighboring venous collaterals. The operation is dangerous and the results have been most unsatisfactory except in a very small percentage of cases. The few so-called successful results, Stetten says, have probably been obtained more in spite of than because of the operation, inasmuch as various factors play a rôle in the improvement of these cases, as improvement has been recorded after definite closure of the

anastomosis, and as failure has occurred with perfect patency of the arteriovenous fistula. Even if the anastomosis functionates, which it rarely does, there is no possibility of circulatory improvement, but rather quite the reverse. The term "reversal of the circulation," at least as far as clinical cases are concerned is termed absurd. Even if the usefulness of the operation were proved beyond question, the possible indications would be restricted to an unappreciable minimum. Stetten advises that this procedure be entirely eliminated from our surgical repertoire.

121. Hematoma Following Labor.—In Wahrer's case the exact origin of the bleeding was not determined with certainty; it may have been due to an incomplete rupture of the uterus or may belong to the class of large hematomas without uterine lesion.

122. Intestinal Polyposis.—A resection was done of the affected portion of bowel in the case cited by Carroll. It included 6 inches of the ileum, cecum, ascending colon and a portion of the transverse. The entire mucous membrane was covered with growths, some of which formed small rounded elevations; others on long pedicles, which varied in length and size, while in many places branched filaments were found. Microscopically the mucous membrane consisted of one layer of columnar epithelium similar to that which lines the normal intestine. There was a marked increase in the glands, and they were long, tortuous and branched. These glands were lined with columnar epithelium, among which were a great many goblet cells. In certain areas retained secretion, clinging to the surface of the cells were seen. Blood vessels showed some congestion, and the whole thickness of the specimen showed a distinct infiltration of lymphocytes.

123. Abstracted in THE JOURNAL, Jan. 31, 1915, p. 404.

124. Abstracted in THE JOURNAL, Nov. 28, 1914, p. 1978.

128. Hemangio-Endothelio-Blastoma of Stomach.—Some time prior to consulting Sherrill the woman whose case is reported fell, striking her epigastrium against the corner of a table. Soon after this she began to complain of loss of appetite, nausea, symptoms of indigestion and epigastric discomfort. She was tender over the region of the stomach and a palpable thickening could be felt in the epigastrium. The mass moved up and down with respiration. At times it could not be felt. Later a diagnosis of gastric ulcer was made and the patient was sent to the hospital with a view to bringing her into condition for operation if relief did not follow treatment. Rest in bed, carefully selected diet, and treatment of the ulcer brought prompt improvement. Subsequently this improvement seemed to be hastened by anti-syphilitic treatment.

Oct. 4, 1914, the mass had reached almost the size of a kidney and had the wide range of mobility seen in floating kidney. On opening the abdomen on Oct. 5, 1914, a reniform mass, growing from the greater curvature of the stomach near the pylorus and covered by the greater omentum presented to view. This mass was mottled, purplish in color and had a rather broad attachment to the stomach. A portion of the stomach about 4 inches in length along the convex border and 2½ inches along the concave border was removed, together with the mass and a portion of the upper part of the duodenum including the pylorus, and the gastroduodenostomy was completed in the usual manner. Examining the growth after its removal, three small openings in the mucous membrane were noted, one of which extended entirely through the gastric wall and communicated directly with the inside of the growth. Through this opening the little finger could readily be passed. The center of the growth seemed to be broken down but contained only delicate tissue and no appreciable fluid. The microscopic diagnosis was hemangio-endothelio-blastoma.

138. Plaiting Round Ligaments.—Wilcox's addition to Martin's operation consists of passing the small end of each ligament several times through the thick part of the other one, and, to make the hold doubly sure the end of each ligament may be threaded back through itself. The two

ligaments are then stitched together with a few sutures of ten-day chromicized catgut and the wounds closed. These sutures should pass parallel with the long axis of the ligament so that the circulation shall not be cut off.

141. Simple Vaginal Drainage.—A large-sized full curved Pean forceps is converted into a trocar pointed instrument, with a hole drilled transversely through its tip large enough to care for a medium-sized catgut ligature. When it is probable that vaginal drainage will be required, the vagina is sterilized and all necessary work from below completed. A short, full curved needle with a No. 0 plain catgut is carried through the mucosa of the posterior fornix at a point in which the culdesac of Douglas can be most easily and safely penetrated. This ligature is now carried through the opening in the tip of the forceps and firmly tied, the point of the instrument being thus held in close proximity to the mucous membrane in the posterior fornix by a ligature easily broken.

The forceps should be long enough to project some 6 or 8 inches from the vaginal ostium. The catgut is only strong enough to hold the instrument in position, while the work from above is being completed. After its completion, and under the eye and touch of the operator, a nurse, who need not necessarily be sterile, is instructed to pass her hand under the protective sheets from below, force the blades of the instrument into the culdesac of Douglas, and expand them so as to make the vaginal opening large enough to draw into the vagina a strip of gauze or a drainage tube, as the case may require. In case drainage from below is not deemed advisable, the forceps can be easily withdrawn without the least danger of disturbing the uterus, providing a No. 0 or a No. 00 catgut is used.

Tennessee State Medical Association Journal, Nashville

February, VII, No. 10, pp. 403-442

- 143 Nitrous Oxid Oxygen Anesthesia. E. R. Zemp, Knoxville.
- 144 Report of Cases of Abdominal Surgery. C. P. Fox, Greenville.
- 145 Syphilis of Liver. W. A. Oughterson, Nashville.
- 146 Diagnosis of Gastric and Duodenal Ulcers. W. C. Dixon, Nashville.
- 147 Catarrhal Pneumonia. J. S. Cain, Sewanee.
- 148 Static Foot Disorders. R. W. Billington, Nashville.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Tropical Medicine and Parasitology, London

March, IX, No. 1, pp. 1-212

- 1 *Leprosy: Perspective of Results of Experimental Study of Disease. H. Bayon.
- 2 Protein Metabolism of White Races Living in Tropics. W. J. Young.
- 3 Species of Paragonimus and Their Differentiation. H. B. Ward and E. F. Hirsch.
- 4 Mosquitos of Kabinda (Lomami), Belgian Congo. J. Schwetz.
- 5 Peculiar Morphologic Appearances of Malaria Parasite. J. W. W. Stephens.
- 6 Some Previously Undescribed Tabanidae from Africa. H. F. Carter.
- 7 Experiments with Salvarsan Copper in Trypanosomiasis. H. Seidelin.
- 8 Relationship of Quinin to Blackwater Fever. J. W. W. Stephens and W. Stott.

1. **Leprosy.**—In addition to the nodular, maculo-anesthetic and mixed types, Bayon states that a further variety of leprosy is recognizable, with thick raised patches, which may be more or less confluent and circinate, containing numerous giant cells, and very scanty acid-fast rods. In dermal nodules and corresponding lepromas of inner organs, there occur numerous matted masses of acid-fast rods, intracellularly and extracellularly situated, very slight tissue reaction and scanty giant cells. The lesions of inner organs which show caseation, necrosis or numerous giant cells of Langhans type, appear in some cases to be due to tuberculous complications. Guinea pig inoculations only can conclusively decide the nature of such appearances. Maculae show the features of slight chronic irritation due to the action of minute doses of bacterial toxins. This, in addition to the external resemblance between maculae and the erythema

produced by injecting the water soluble contents of various acid-fast cultures into lepers, seems to postulate that leprotic maculae may be the result of a local reaction similar to the one resulting in von Pirquet's and similar tests for tuberculosis.

Wassermann's test is incapable of distinguishing in every case syphilis from leprosy. The same applies to Eitner's test. Noguchi's luetin test is negative in lepers whose disease is not complicated by syphilis. Leprotic serum often shows spontaneous absorption of complement. The serologic distinction of leprosy and tuberculosis is not possible in every case. Tuberculin tests may be present in lepers showing no clinical symptoms of tuberculosis. Agglutination is so far of little value owing to self-clumping of acid-fast bacteria and low titer of leper serum. The communicability of leprosy by direct and indirect contact, especially under defective hygienic conditions, has been established by numerous repeated and independent clinical observations. Leprosy, especially the macular variety, is subject to spontaneous remissions and self-cures. Chaulmoogra oil is indicated for nodular cases; cultural extract for macular lepers (as far as the present experience goes). Bayon advises the registration and sanitary inspection of lepers' habitations; segregation in asylums, settlements, or colonies; early separation of children from leprous parents; betterment of hygienic conditions in cases in which leprosy has spread extensively.

British Medical Journal, London

March 20, I, No. 2829, pp. 493-536

- 9 *Diagnosis and Prophylaxis of Cerebrospinal Meningitis. A. Lundie, D. J. Thomas and S. Fleming.
- 10 Cerebrospinal Meningitis. J. A. Arkwright.
- 11 *Some Simple Anaerobic Methods. P. P. Laidlaw.
- 12 Theory and Technic of Treatment by Radium Emanation Needles. W. C. Stevenson.
- 13 Smoke as Factor Complicating Carbonic Oxid Poisoning in Colliery Disasters. E. Emrys-Roberts.
- 14 Serious Injury to an Eye from Bursting Golf Ball. R. H. Elliott and W. S. Inman.

9. **Cerebrospinal Meningitis.**—That the disease is more widespread than is usually recognized is the claim made by the authors. They state that it probably gives fair warning of its onset by catarrhal symptoms, and often goes no further. In its second stage it may run a long non-malignant course, giving plenty of time to arouse suspicion, and, if correctly diagnosed, would probably be cured by suitable treatment. During an epidemic, routine examination of all sore throats would probably be of more value in stopping the disease than the examination of a vast number of alleged contacts, most of whom are perfectly healthy, and the examination of cases in the second stage could be made a matter of consultation. As regards the treatment of the catarrhal stage, they express some doubt as to the efficacy of spraying. Sometimes a carrier may give a positive, a negative and then a positive result in succession, and it might be urged that the swabbing was inefficient, or that the condition had recurred, or that the spraying had no effect. All these are possibilities.

The authors advocate as an adjuvant to these measures the use of an autogenous vaccine, as it is certainly a valuable help in such throat conditions. One of them prepared three such vaccines for his own use at successive stages of a pharyngitis, and each time different organisms were used, and the eventual issue was satisfactory. The most striking effect was produced by the first dose. In their view, the probability is that by the use of autogenous vaccines many flabby uvulas and throats would be restored to a healthy condition and thereby prevented from offering a safe harbor to the meningococcus. It is hard to conceive that the meningococcus ever holds undisputed possession of any mucous membrane, or ever even obtains a hold at all, unless the vitality of the membrane has already been lowered by some means or other.

11. **Simple Anaerobic Methods.**—The methods described by Laidlaw are simple, and most of them require only the usual mediums which are used in any bacteriologic laboratory. They have been tested on such anaerobic bacteria as

B. botulinus, *B. tetani*, and the bacillus of malignant edema. They all depend on the properties which finely divided metals possess of adsorbing gases and other simple substances. Laidlaw uses porous platinum, colloidal platinum and colloidal platinum and sodium formate.

Indian Journal of Medical Research, Calcutta

January, II, No. 3, pp. 671-821

- 15 Sporogony of Hemoproteus Columba. H. Adie.
- 16 Respiration of Culicida. S. K. Sen.
- 17 Fertilization in Cimex. F. W. Cragg.
- 18 Blood Characters: Their Variability and Interdependence. W. F. Harvey and H. W. Acton.
- 19 Agglutinins in Blood of Cholera Cases. E. D. W. Greig.
- 20 Standardization of Bacterial Suspensions by Opacity. H. C. Brown and E. W. O. Kirwan.
- 21 *Effect of Addition of Common Salt to Samples of Water for Bacteriologic Analysis. V. G. Raju.
- 22 Distribution of Goiter in India. R. McCarrison.
- 23 Visit to Various European Ports in Reference to Existing Quarantine and Sanitary Arrangements and Measures Proposed Against Introduction of Yellow-Fever into India. W. C. Hossack.
- 24 *Creatin and Creatinin. H. S. Hutchison.
- 25 Alimentary Tract of Cimex. F. W. Cragg.

21. **Salt in Bacteriologic Water Analysis.**—Raju's experiments show that a solution containing sodium chlorid between 4 and 5 per cent. prevents rapid multiplication of bacteria in water. Any excess over 5 per cent. causes considerable reduction in their number. It does not seem possible to find a strength of salt solution which will keep constant the total bacterial count. Therefore, this method of preserving samples cannot be depended on so far as the total count goes. In the case of fecal bacteria, a salt solution over 2 per cent. causes a reduction in the number of fecal bacteria in twenty-four hours, and a solution below 2 per cent. cannot be depended on to keep the number of fecal bacteria constant. The addition of salt for the purpose of preserving waters for bacteriologic analysis appears to be quite unreliable.

24. **Creatin and Creatinin.**—Hutchison claims that there is no evidence that creatinin is formed in the liver; were such the case one would expect that recovery from liver abscess would lead to a more or less steady increase in creatinin excretion. The direct variation of creatinin and creatin with each other and the behavior of the creatinin-creatin index point to a conversion of creatin to creatinin. This conversion occurs under food influence, namely, of carbohydrate supplied by the liver. Hutchison considers that creatin is a special metabolite of muscle protein, probably derived from some guanidin-containing amino-acid like arginin and that it is not a mere excretory product. It has the function of linking on in muscle the sugar supplied by the liver and that during muscular katabolism, the sugar is utilized to supply energy while the creatin is dehydrated in muscle to form creatinin which is excreted.

In order that this creatin in muscle may be rendered stable, sugar is necessary and if this is not forthcoming, the creatin is excreted as such. In liver abscess and hepatitis the glycogenic function is upset and hence the necessary sugar is not available, while in diabetes the muscle cannot utilize the sugar presented to it. The excretion of creatinin does not depend on muscle tonus, since it is increased in fevers when tonus is diminished, and since it is not appreciably diminished during the night when tonus is lessened. The creatinin-creatin index is applicable to many conditions other than liver abscess. It may turn out to be a useful prognostic point, its diminution pointing to an unfavorable prognosis and its increase the opposite. In hepatitis there is little or no diminution in creatinin excreted. This might be used as a diagnostic point between liver abscess and hepatitis. Hutchison is of the opinion that any case giving an excretion of more than 1 gm. per day of creatinin is extremely unlikely to be one of liver abscess.

Journal of Tropical Medicine and Hygiene, London

March 15, XVIII, No. 6, pp. 61-72

- 26 *Internal Treatment of Yaws. A. Castellani.
- 27 Bronchial Spirochetosis. J. W. S. Macfie.

26. **Internal Treatment of Yaws.**—The mixture made by Castellani contains tartar emetic 1 grain, sodium salicylate 10 grains, potassium iodid 1 dram and bicarbonate of soda 15 grains, to 1 ounce of water. This dose is given diluted in 4 ounces of water, twice daily for adults and youngsters over 14 years of age, half doses to children 8 to 14 years of age, and one-third or less to younger children. Castellani has tried the mixture in eleven cases given in the doses mentioned for ten to fifteen days, then five or ten days' rest, then another course for another five, ten or fifteen days. The results were very satisfactory in recent and fairly recent cases in which the disease had started three to twelve months previously. In very old cases the results were much less satisfactory, and could not in any way be compared with those obtained with salvarsan and neosalvarsan. Very mild symptoms of iodism were noticed in three cases, but were not sufficiently severe to stop the treatment or decrease the doses; it was, in fact, remarkable how well borne were, in most cases, the huge doses of potassium iodid given. In four patients in which Castellani increased the tartar emetic to 2 grains per dose, nausea and vomiting occurred, and the tartar emetic had to be decreased again to 1 grain per dose. No symptoms pointing to any depressing action on the heart were noted.

Castellani concludes that salvarsan and neosalvarsan are without doubt the specific drugs for yaws. When, however, for any reason an internal treatment by easily obtainable drugs is desirable, the mixture suggested may be recommended, especially in recent cases. The active drugs in the mixture are the potassium iodid, and in a very much less degree, the tartar emetic. The sodium salicylate seems to hasten the disappearance of the crusts. The presence of a large amount of bicarbonate of soda, though making the mixture very inelegant, apparently prevents to a great extent the symptoms of iodism and decreases the emetic properties of the mixture, in this way rendering possible the administration of massive doses of potassium iodid and large doses of tartar emetic. As regards other drugs tried, such as mercury and liquid arsenicalis, their action in Castellani's experience is practically nil, though occasionally such drugs may be incorporated in the mixture.

Lancet, London

March 20, I, No. 4777, pp. 583-638

- 28 New Psychiatry. W. H. B. Stoddart.
- 29 Frost-Bite in Present War. C. M. Page.
- 30 Treatment of Acute Emphysematous Gangrene During Present War. J. B. Haycraft.
- 31 Inclusion Dermoids of Pharynx. F. J. Poynton, T. N. Higgins and G. R. Pirie.
- 32 *Bacillus Proteus Infection. C. S. Wallace and L. S. Dudgeon.
- 33 *Method of Treating Gunshot Wounds of Humerus. P. B. Roth.

32. **Bacillus Proteus Infection.**—Wallace and Dudgeon cite the case of a male aged 60, who suffered from complete retention from an enlarged prostate. A three-lobed tumor surrounded by some circumferential fibers was removed by the suprapubic route. A distinct shelf of mucous membrane was left between the bladder and the cavity from which the obstructing adenomata were removed. The course was uneventful, and the general condition of the patient was excellent, although at the end of five weeks no urine was passed by the natural route. The suprapubic sinus was enlarged, a finger introduced into the bladder, and a steel sound was passed along the urethra. It was found that the mucous membrane had healed completely over the entrance of the urethra into the bladder. The sound was pushed through and the edges of the obstructing membrane were divided radially with scissors.

The patient became gravely ill, with a sustained high temperature, and very rapidly showed considerable loss of flesh. The high degree of pyrexia was associated with definite rigors. Thirteen days from the onset of this acute illness thrombosis of the deep veins of the right leg was detected, together with great edema of the surrounding tissues. On several occasions it seemed as if suppuration had supervened, owing to several very painful areas in the boggy tissue of the enormously swollen thigh. A firm, tender cord along the course of the right femoral vein could be detected for several

inches. Three weeks from the onset of the thrombosis the patient developed a severe and sudden illness affecting the cardiorespiratory system, probably due to a pulmonary embolism. Once the limit of the acute illness was reached, he began to improve distinctly, and the progress toward recovery was as rapid as the downward course had been. From both blood and urine a bacillus was obtained which was pathogenic in guinea pigs when injected intraperitoneally. It was *B. proteus*.

33. Treatment of Gunshot Wounds of Humerus.—The method used by Roth consists of slinging the wrist to the neck. The patient is stripped to the waist, seated on a chair, and all dressings and splints removed. He is instructed to take hold of the hand of the injured arm with his other hand, and slowly to bend the elbow, raising the hand as near to his neck as possible, with the elbow hanging down. The hand is then fixed there in the sling described by H. O. Thomas of Liverpool as the "gauge halter." To apply this sling a 4-inch flannel bandage 3 yards long is knotted fairly closely round the neck, with the two ends hanging down equally. In case in which these two ends come opposite the upper border of the wrist, the elbow being flexed in the manner described, another knot is made and one end passed in front of the wrist and one behind it. The wrist is now pushed snugly up against this knot, and the end which passed in front is turned up behind, and the end which passed down behind is turned up in front, and the two tied above the wrist again in a third knot. Some wool is introduced between the bandage and the wrist to prevent chafing. Antiseptic dressings are then applied to the wound and are kept in position around the arm with a triangular bandage. The patient is put to bed and kept propped up with pillows in a sitting position so as to allow the elbow to hang down. As soon as he feels fit enough he is encouraged to get up and sit about the ward, and even walk about in the garden, the elbow hanging down the whole while.

Archives de Médecine des Enfants, Paris

January, XVIII, No. 1, pp. 1-60

- 34 *Tuberculosis Not Directly Inherited. (Les notions actuelles sur l'hérédité de la tuberculose.) M. Péhu and J. Chalié.
35 *Generalized Subcutaneous Emphysema in Measles; Two Cases. H. Méry and L. Girard.

February, No. 2, pp. 61-124

- 36 *Malignant Syndrome in Acute Infectious Diseases. (Syndrome malin dans les maladies infectieuses.) V. Hutinel.
37 *Pellagra in Children. J. Comby.

34. Inheritance of Tuberculosis.—Péhu and Chalié sift the literature on this subject which has accumulated during the last few years but can find nothing to show that there is any direct inheritance of tuberculosis. The defective development that may be observed in the offspring has no specific character, but the descendants of the tuberculous undoubtedly present a receptive soil for all diseases, not especially for tuberculosis. Transmission through the placenta has been known to occur but it is so rare that this method of inheritance need scarcely be taken into account.

35. Subcutaneous Emphysema in Measles.—In the case of which Méry and Girard give an illustrated description, the eruption had subsided normally when the boy's cheeks and neck became puffy. The emphysema spread to cover nearly the entire body and it persisted for three days, then gradually vanishing, although crepitation was perceptible in the back for a week longer. In a second case the emphysema developed with the eruption but kept up longer. In these as in four similar cases on record the measles was of a mild form without complications. The emphysema did not cause pain but there was some difficulty in breathing.

36. Malignant Form of Acute Infectious Diseases.—Hutinel remarks that we cannot speak of malignant scarlet fever, as there is no single type but a whole range of types of malignant scarlet fever. He gives a historical sketch of the disease and classifies the malignant types as the fulminating, the ataxo-dynamic, the syncopal, the hemorrhagic and the tardy malignant. There have been 34 cases of the malignant type in his service during the last fifteen months in a total

of 550 scarlet fever cases; in a previous series of 833 cases there were 37 that terminated fatally. The various features of the malignant types are reviewed and the complications. Recovery was the rule in the cases with destructive lesions in the throat; the defects in the tissues grew up in time and no operation was required. In this and other complications the loss of vitality in the tissues was evidently responsible for the destructiveness of the process, as the germs involved never seemed to be particularly virulent. Suppurative otitis was encountered in only 15 cases and it usually healed without complications, but in 4 cases mastoiditis developed.

37. Pellagra in Early Childhood.—This article is in the main a reproduction of Weston's "article des plus intéressants," as Comby calls it, in the *American Journal of Diseases of Children*.

Beiträge zur klinischen Chirurgie, Tübingen

December, XCV, No. 1, pp. 1-204

- 38 Non-Malignant Tumor in the Appendix; Eleventh Case on Record. W. E. Dandy (Baltimore).
39 Experimental Research on the Suprarenals Especially on the Function of the Interrenal Portion. S. J. Crowe and G. B. Wislocki (Baltimore).
40 Myeloid Chloroma on Both Breasts. Mont Reid (Baltimore).
41 Pigmented Giant-Cell Xanthosarcoma of the Dorsum of the Foot. F. Landors and Mont Reid (Baltimore).
42 *Migration of Foreign Bodies in the Lungs. (Das Wandern aspirierter Fremdkörper in der Lunge.) E. Schwarz.
43 *Osteoplastic Operations on the Limbs, with Special Regard to the Behavior of the Epiphyses. O. Jost.
44 Anomalies in the Sacrolumbar Region in the Roentgenogram and Their Clinical Importance. Els.
45 Herniotomies in Tavel's Service, 1909-1911. J. Züllig.
46 Experimental Deposits of Cholesterin (Xanthelasmas.) H. Hoessli.

42. Migration of Foreign Bodies in the Lungs.—Schwarz, the author of this article, was killed by the enemy's fire while working in a field hospital September 22. In one of the two cases he reports a metal pencil cap "swallowed the wrong way" by a boy, changed its position from the left to the right bronchus. The bronchoscope then failed to reveal it in the left bronchus—where it had been located by fluoroscopy—and tracheotomy became necessary. It was finally extracted without damage by working fine forceps into the metal cap, and spreading the blades. In another case a scrap of iron, 7 cm. long by 1 or 2 cm. wide and 1 cm. thick, had slipped into the air passages of a young man practicing to be a "sword swallower." He had cough and much sputum for months, and was treated for a catarrhal lung trouble in several hospitals, never mentioning the foreign-body episode. Finally, after two years, the Roentgen rays cleared up the diagnosis at once. The piece of iron was so heavy that it probably slid at once completely into the right bronchus, thus not inducing suffocation. It evidently had migrated further, leaving a track of cicatricial tissue behind it, until it was arrested by a rib. Where it finally lodged, in lung tissue, a pus pocket had developed. After this was opened from without and the foreign body removed, a suppurative process developed also in the lower lobe on the other side, but this healed spontaneously and the patient is now cured except for a small fistula. Flörcken has reported a similar case in which the foreign body had to be extracted by a thoracotomy, and manipulated out of the lung tissue. Hofmeister's patient, after removal of a shirt stud in this way, succumbed to metastatic abscess in the brain. Karewski had only two patients recover in his fourteen cases of thoracotomy for a foreign body.

43. Osteoplastic Operations Involving the Epiphyses.—Jost devotes nearly twenty pages to chronologically arranged summaries of osteoplastic operations undertaken to supply missing bones. In 67 per cent. of the 325 cases he has compiled, the patient's own bone tissue was taken for the implant, and the operation was a success in 66.8 per cent. The outcome was favorable also in 46.9 per cent. of the 71 homoplastic operations, and in 76 per cent. of the 34 heteroplastic. He compares with these cases two typical autoplasmic operations on a child and a youth of 17, kept long under Roentgen control. The trouble in both cases had been a sarcoma, and there have been no signs of recurrence to date, over five and

nearly two years, respectively. These cases apparently show that the foreign-body irritation (from the transplant) is what starts the epiphysis to growing. It remains inert as long as there is no stimulus.

Berliner klinische Wochenschrift

March 1, LII, No. 9, pp. 201-228

- 47 *Treatment of Furuncles and Abscesses in the Axillae. P. G. Unna.
- 48 Special Form of Healing of Alopecia Areata. E. Kuznitzky.
- 49 *Operative Treatment and Cure of Total Exstrophy of the Bladder. (Blasenektomie.) F. Heinsius.
- 50 *Nervous Retention of Urine. J. Cohn.
- 51 Perirenal Cystoid in Man and Animals. M. Schmey.
- 52 Wounds of the Nerves in War. K. Fleischhauer.
- 53 Localization of Sense of Taste. (Tastsinn.) F. Boenheim.

March 8, No. 10, pp. 229-256

- 54 Tetanus. A. Goldscheider. Concluded in No. 11.
- 55 *Simplified Intravenous Technic for Infusion. (Vereinfachte Methode der intravenösen Zufuhr von Medikamenten.) E. Jeger.
- 56 The Mental and Nervous Status of the Wounded. (Die Psyche des Verwundeten.) A. Münzer.
- 57 Slight Changes in the Heart among the Troops at the Front. (Leichte Herzveränderungen bei Kriegsteilnehmern.) Vollmer.
- 58 The Blood-Pumping Forces Outside of the Heart. (Extracardiale Kreislauftriebkraft und ihre Beziehung zum Adrenalin.) K. Hasebroek.
- 59 Generalized Form of Eczema Marginatum. W. Fischer.
- 60 *Typhus. (Ueber Flecktyphus.) H. Jürgens and B. Heymann.

47. **Furuncles.**—Unna recalls that all furuncles develop from the pus cocci getting into a hair follicle. The microscope shows how these cocci form at first only a narrow, hollow cylinder around the shaft of the hair, always in the center of the suppurating focus. It is thus easy to destroy them with a hot needle puncture: The skin is taken up in a fold, the furuncle at its tip, and the fold is gently squeezed for a few seconds until somewhere in the center a white, bloodless spot appears. This is the cylindrical coccus center. The direction in which the hairs grow in this region is noted, and the heated needle is plunged into the white spot, in the direction of the hair growth. The needle is introduced 3 or 4 mm. deep and the coccus focus is thus burnt out. At once the tension and the pains cease. The fold of skin is released and the burned spot is pressed with the finger. If tenderness exists the coccus nest has not been properly destroyed and the procedure should be repeated. The finest tip of the actual cautery or a darning needle run through a cork and heated in an alcohol flame can be used for the purpose. The usual crucial incision is painful and spreads the infection, it leaves a scar and requires to be dressed—all of which are avoided by the needle technic.

49. **Exstrophy of the Bladder.**—Heinsius gives an illustrated description of the technic with which he satisfactorily remedied exstrophy of the bladder in a girl of 6. His operation was based on Trendelenburg's suggestion to close the cleft by drawing the pubic bones together with a special apparatus with girdle. After the child had become accustomed to this, the sacroiliac synchondroses were severed on each side, under chloroform, and the pubic bones forced closer and closer together. Finally one pubic bone was divided also. The cleft before treatment was begun measured several centimeters, but by the end of seven months the gap between the pubic bones was only 2 or 3 mm.; the bladder was entirely covered, and the child urinated by the natural route. Three years have passed since then and the child has developed well and lives an active normal life. The operations and care were tedious but the ultimate outcome more than repaid it all.

50. **Nervous Retention of Urine.**—After excluding all other causes, we sometimes are obliged to accept a purely nervous origin for retention of urine, although such cases are much less frequent than used to be assumed. The manometer will indicate the contracting capacity of the bladder musculature. With hypertrophied prostate, stenosis or other causes to impede the voiding of urine, the bladder walls work with extra force, and the internal pressure is above normal. When there is no mechanical obstacle, the internal pressure is below normal. Cohn illustrates this with three cases in which there was inability to void more than a small amount of urine at a time, with frequent desires. The men were 28, 34 and 41

years old and in each the bladder showed pronounced fasciculation, the coarse ridges interlacing. The knee jerk was exaggerated in all and the manometer showed subnormal internal pressure in the bladder. No organic cause for the retention could be detected, and it seemed to be of exclusively nervous origin.

55. **Simplified Technic for Intravenous Infusion.**—Jeger, writing from Przemyśl, extols the advantages of the simple technic described. When there is reason to anticipate that several intravenous injections will have to be made, he has the vein exposed and ligated. It is then cut above the ligation and a rubber tube, 20 cm. long, with a silver or aluminum tube in it close to the end, is slipped into the central stump of the vein of which it thus forms an elongation. A ligature is thrown around the whole, the inner metal tube holding the lumen open. The infusion is then made in the outer end of this tube, which is kept ligated at other times. The end of the tube is cut anew each time to bring the syringe into a fresh place on the tube. It is an easy matter to go from patient to patient, when all have their tubes in place, and inject the saline or drug solution as called for. The oftener and the greater the quantity of fluid injected, the longer the interval before the walls of the vein stick together and impede the injection. He found it useful to flush the vein with saline after injecting a drug solution.

60. **Typhus.**—Jürgens deplores the presence of exanthematous typhus in many of the camps of prisoners of war in Germany. He reiterates that this disease in itself is not contagious; it seems to be transmitted exclusively by body lice. Heymann relates that he studied the development of nits in little bags which he wore in his clothes. His experiments proved that the ova of lice succumb as readily to the effects of heat, steam and sulphuric acid as adult lice. Dry heat at 60 C. for an hour kills them always. The young ones hatch out in three or four days. They are so small then that they can pass through very minute openings. If they find no opportunity to suck blood, they die off in from two to four days. Adult lice also die of hunger in from three to five days at body temperature. They survive for seven to nine days at a cooler temperature, and may hibernate a long time when it is quite cold. The practical conclusions are that clothing can be freed of vermin by leaving it in a tightly closed chest in a warm room for two weeks. Otherwise dry heat or steam is the best means of destroying lice; ironing the clothes, sprinkled or dry, heating them in an oven (not allowing the heat to be strong enough to yellow a sheet of writing paper laid in them), or in an improvised fireless cooker. Physicians must arrange their clothing so that vermin cannot get inside.

Correspondenz-Blatt für Schweizer Aerzte, Basel

March 6, XLV, No. 10, pp. 289-320

- 61 Modern Methods of Diagnosis and Treatment of Deafness. (Schwerhörigkeit.) F. R. Nager.

Deutsche medizinische Wochenschrift, Berlin

March 4, XLI, No. 10, pp. 273-300

- 62 *Permeability of the Cell Altered by Anesthetics. (Neue Versuche zur Theorie der Narkose.) R. Höber.
- 63 Study of the Oscillating Electric Current and Its Radiant Energy. T. Rumpf. Commenced in No. 9.
- 64 Canned Nutrient Mediums for Cultures. (In Büchsen konservierte Bakteriennährböden für den Feldgebrauch.) P. Uhlenhuth and T. Messerschmidt.
- 65 Improved Set for Agglutination Tests. (Die Agglutinationsbatterie.) L. Neumayer.
- 66 Typhoid at the Front. (Besonderheiten in Verlauf und Behandlung des Typhus im Felde.) J. Grober.
- 67 *Vermin. (Zur Behandlung und Prophylaxe der Kleiderläuse.) Galewsky.

62. **The Nature of Anesthesia.**—Höber's research seems to indicate that a change in the permeability of the cell follows contact with an anesthetic. A small amount of the anesthetic reduces the permeability and a larger amount increases it. Anesthesia may thus be defined as an inhibition of the increased permeability which is the characteristic of the cell under normal stimulation. This phenomenon is reversible if it does not surpass a certain intensity.

67-69. **Body Lice.**—Galewsky remarks that among the many surprises brought by the war comes the fact that the extermination of vermin has now become one of the most vital problems confronting the profession.

Pinkus commends Peruvian balsam as the most convenient and agreeable means by which to ward off vermin when it is impossible to bathe and change the clothing.

Medizinische Klinik, Berlin

February 28, XI, No. 9, pp. 237-264

- 68 Wounds of Peripheral Nerves in War. F. Cahen.
- 69 *Vermin. (Die Läuseplage.) F. Pinkus. See 67 above.
- 70 Systematic Gymnasium Work to Hasten Recovery from Wounds. (Turnen als Heilmittel.) Winkelmann.
- 71 Prophylaxis of Typhoid. (Typhusbekämpfung im VII. R. K.) W. Fromme.
- 72 Beneficial Action of Thermal Mineral Waters on Recent Wounds. F. Krieg.
- 73 Vaccination at Prague against Smallpox. (Erfolge der Schutzimpfung gegen Blattern.) R. von Jaksch.

March 7, No. 10, pp. 265-292

- 74 Dumdum Bullet Wounds. (Dum-Dum-Verletzungen.) F. Thöle.
- 75 Digestibility of German War Bread. (Ueber die Bekömmlichkeit der Kriegsgebäcke und die Herstellung reinen Weizengebäcks für Kranke.) C. von Noorden.
- 76 Treatment of Internal Diseases in the Field. F. Munk.
- 77 Changes in the Heart Among the Men at the Front. (Ueber Herzveränderungen bei Soldaten.) Münter.
- 78 Experiences of a Surgeon at the Front. (Kriegschirurgisches aus den ersten vier Monaten des Kriegs.) J. Voigt.
- 79 The Soy Bean. (Die Sojabohne—ein Volksnahrungsmittel.) G. Buschan.
- 80 *Inheritance of Acquired Properties. (Die Vererbung erworbener Eigenschaften im Lichte neuerer Forschungen.) V. Franz.
- 81 *Aleukemia and Treatment of Leukemia. B. Stein. Commenced in No. 9.

80. **Inheritance of Acquired Properties.**—Franz relates a number of the results of experimental research in the last ten years which have established beyond the question of a doubt that it is possible for certain acquired properties in some circumstances to be transmitted to the offspring. The living being is able to adapt itself to its environment in a far wider range of variation than we had supposed possible until recent years, and this adaptation can be transmitted to the offspring through several generations.

81. **Leukemia and Aleukemia.**—Stein gives full details of a number of instructive cases, one showing how the leukemic process was not affected by a severe intercurrent erysipelas although the blood findings characteristic of the latter developed also. Another case of myeloid leukemia developed with the aspect of hemolytic jaundice alone, but the lack of urobilinuria and the fact that the blood corpuscles did not seem abnormally fragile soon disproved this. As certain symptoms suggested trypanosomiasis, the large spleen was punctured, with negative diagnostic results, but the man died three hours later. Necropsy revealed incipient pneumonia and a large cake of clotted blood over the spleen. There was no injury of the spleen apparent, but its tissues may have been loosened up by the pneumonia infection, and the coagulating time of the blood may have been abnormally long from the same reason. The case warns that puncture of the spleen, even with scrupulous care, is not always a safe procedure.

Another patient presented an aleukemic blood picture with typical leukemic changes in the organs. In a woman of 66, myeloid leukemic infiltrates were found scattered through the lungs as well as in the suprarenals and other organs. The rapidly progressive cachexia in this case may probably be ascribed to localization of the leukemic process in the suprarenals. The case is noticeable also for the fact that a typical leukemic clinical picture gradually blended into an almost equally typical aleukemic stage. Jaksch has reported a similar case except that the aleukemia gradually gave way again to typical leukemia. The drop in the whites from 500,000 to 30,000 occurred under thyroid treatment, but this did not modify other cases and had no effect later in this case as the leukemic clinical picture returned.

Arsenic and benzol may improve the blood picture, but the "improvement" may be merely the result of the complete exhaustion of the blood-making apparatus. In one case of the latter kind the leukocytes dropped under benzol from

225,000 to 9,000 and the differential blood count became nearly normal. Stein published the case in 1912 as an example of the efficacy of benzol treatment. The patient was a woman of 68 with myeloid leukemia. She was further treated with arsenic and regained her earning capacity. The whites continued to decrease until they numbered only 2,000, but the reds increased. This transition into a subleukemic phase and the consequent marked general improvement kept up for eight months. The woman then died of intercurrent pneumonia. The effect of benzol treatment was equally marked in the case of a woman of 38, but it was a sham improvement. The aleukemic blood picture was only simulated, the drop in the leukocyte count being produced by total breakdown of the blood-producing apparatus, with mental disturbances, hemorrhagic diathesis, and finally not a trace of coagulation in the blood.

Necropsy in the first case disclosed the typical picture of myeloid leukemia, but in the second no signs of leukemia were found, merely those of retrogressive changes in the blood-producing apparatus, atrophy and destruction—the effect of the toxic action of the benzol. The woman kept up the benzol after the prescribed course, taking it for five weeks without medical oversight. The importance of differentiating between these two types of benzol action is obvious. It is possible, as a rule, only by examining the blood and taking warning from a developing tendency to a hemorrhagic diathesis, in short, by the picture of exogenous medullary anemia of the aplastic type. The "exhaustion" blood picture presented by the second patient was monotonous, the blood cells being half segmented neutrophil polynuclear, and half lymphocytic elements. The whites had dropped to 1,000.

Wiener klinische Wochenschrift, Vienna

February 25, XXVIII, No. 8, pp. 197-228

- 82 Importance of Agglutination Test for Exanthematous Typhus. (Bedeutung der Widalschen Reaktion für die Diagnose der Flecktyphus.) E. Weil and W. Spät.
 - 83 *Technic for Vaccination against Typhoid. (Schutzimpfung gegen Typhus.) P. Kirschbaum.
 - 84 *Vaccine Therapy of Typhoid. H. Eggerth.
- March 4, No. 9, pp. 229-260
- 85 *Vaccine Therapy of Typhoid. (Prophylaxe und Therapie des Typhus abdominalis mittels Impfstoffen.) E. Csernel, A. Marton and C. Feistmantel.
 - 86 Gangrene of the Lungs after Wounds in War. E. Haim.
 - 87 Vermin-Proof Over-Garment. (Ein laussicheres Uebergewand.) M. and R. Grassberger.
 - 88 *Superposed Epidemic Diseases. (Kombinierte Infektionen mit epidemischen Krankheiten.) K. Walko. Commenced in No. 8.

83. **Vaccination Against Typhoid.**—Kirschbaum states that disturbing reactions can be avoided by allowing two weeks between the first and second inoculations and one week between the second and third. He gives as a first dose, 0.2 c.c.; the second, 0.8 to 1 c.c., and the third, 1 to 1.5 c.c.

84-85. **Vaccine Therapy of Typhoid.**—Eggerth has given this method of treatment systematically in 48 cases of typhoid, each patient receiving a single intravenous injection of 0.5 or 1 c.c. In 38 cases the effect was surprisingly good; in 8 no reaction was manifest, and 2 patients died. In the group of 38 cases the temperature ran up at once 2 or 3 degrees and kept high for several hours. Then it dropped to normal, as by crisis, often with profuse sweating, and the brain symptoms usually showed improvement. In 34 cases the temperature did not go up again, and some complicating process was evident in the other cases. In the 2 fatal cases death occurred within three hours after the injection, and enough pathologic lesions were found at necropsy to explain the fatality without incriminating the vaccine.

Csernel and Marton report encouraging results from intravenous injection of a non-sensitized polyvalent vaccine made by killing the bacteria by diluting to one-tenth with Hayem's solution. The bacteria are from a twenty-four hour culture of fifteen strains emulsified in saline. The dose of 15,000,000 bacteria is measured with the microscope.

Feistmantel uses a vaccine prepared by the Besredka method which he found effectual when fresh. It does not keep more than two weeks, but when given early in typhoid it reduced the duration of the disease to one and a half or

two weeks in the fifty-two cases in which the adequate dosage was given, namely, 0.5 loop the first day, and doubling, tripling and quadrupling this dose on the second, third and fourth days. One of the fifty-two men died, and complications developed in ten.

88. Superposed Infectious Diseases.—Walko relates that in the contagious disease hospital in his charge at Ujvidek, during a recent period of six weeks, in 36 per cent. of all the 212 cholera cases there was superposed dysentery, relapsing fever or typhoid. There was also a dual or triple infection in 11 per cent. of the 436 typhoid cases and in 25 per cent. of the 98 cases of relapsing fever. At Brcko nearby there was dual or triple infection in 13 per cent. of the 300 cases of typhoid. The clinical pictures presented by these superposed syndromes are described in detail. The nursing and medical force seemed peculiarly susceptible to relapsing fever. He thinks it is conveyed by body lice, the scratching of their bites forcing the relapsing fever spirochetes into the broken skin. Lice were found on every one presenting relapsing fever. One physician who had eczema of the hands developed relapsing fever in a very severe form a week after the eczema had appeared. The rigidity of the muscles with relapsing fever was often as severe as with tetanus, and there is intense pain in the muscles, but there are no reflex convulsions and the tendon reflexes are attenuated. The syndrome was mistaken for meningitis in many cases at first. The reliance in treatment is on salvarsan. A single dose of 0.6 gm. neosalvarsan often arrested the disease completely.

The combination of typhoid and dysentery seemed the most serious; the dysentery always took the upper hand and improvement promptly followed antidysentery serum treatment. Kaolin (bolus alba) also exerted a decidedly favorable influence on the disease.

Zentralblatt für Chirurgie, Leipzig

March 6, XLII, No. 10, pp. 145-160

- 89 Remarkable Effects of Wounds of Vessels; Three Cases. (Seltene Gefäßveränderungen nach Schussverletzung.) F. Neugebauer.

Zentralblatt für Gynäkologie, Leipzig

March 6, XXXIX, No. 10, pp. 145-160

- 90 *Practical Experiences with Artificial Fecundation. (Ein Beitrag zu den Versuchen künstlicher Befruchtung beim Menschen.) L. Prochownick.

90. Artificial Fecundation.—Prochownick has had much experience in this line and mentions here twenty-two cases in which he has applied the procedure. The outlook was least favorable when the sterility was the result of old inflammatory processes, especially when the infection dated from soon after marriage. The simplest technic and rapid action are indispensable for artificial fertilization, and he never undertakes it unless three trials are to be allowed him.

Gazzetta degli Ospedali e delle Cliniche, Milan

February 28, XXXVI, No. 17, pp. 257-272

- 91 Derivation of White from Red Corpuscles in the Blood in Frog's Mesentery. (Derivazione dei corpuscoli bianchi dai globuli rossi del sangue, nel mesenterio della rana.) G. Bassi.

March 4, No. 18, pp. 273-288

- 92 Efficacy of Epinephrin in Treatment of Osteomalacia. (Puo ancora essere indicata la castrazione quale cura dell'osteomalacia?) L. M. Bossi.

March 7, No. 19, pp. 289-304

- 93 *Cocain Addiction. (La cocainomania.) B. Vasoin.
94 Experimental Gastric Ulcers. E. Greggio.

93. Cocain Addiction.—Vasoin describes the ravages wrought by this "poison for all living tissue but especially for nerve tissue," as he describes it. Experimental research has shown, he continues, that cocain suspends the activity of all living elements with which it is brought in contact. Treatment consists merely in suppression of the drug, and this is easier with cocain than with morphin. Abrupt suppression of the drug does not induce any serious accidents. There is no need to "taper off" unless the patient is much debilitated, or has heart disease or severe kidney disease. The serious symptoms following sudden stoppage of the cocain soon pass away, but there may be serious disturbances in the functioning of the bladder, heart and digestive organs

for a time, and the addict can scarcely ever hope to regain entirely his former physical and mental health. Vasoin cites a case published by Marfan in which two of the four children in the family had been born after the father had become addicted to cocain, and both these children were idiots. The oldest child was bright and healthy; the second child was conceived when the addiction had first commenced, and this child was mentally sound but of feeble constitution. Then came the two idiots, the last one with hydrocephalus.

Pediatria, Naples

March, XXIII, No. 3, pp. 161-240

- 95 Cholesterin Content of Blood Serum with Inherited Syphilis. S. Cannata.
96 Areas of Dulness in Children's Chests. (Significato di alcune ipofonesi toraciche nei bambini della seconda e terza infanzia.) S. Maggiore.
97 The Free Hydrochloric Acid in Gastric Content in Infants. (Valore dell'acido cloridrico libero nel contenuto gastrico del lattante.) G. Finizio.
98 Paratyphoid B with Severe Jaundice in Boy of 5. R. Vaglio.
99 Fibromyxosarcoma in the Mesentery of Boy of 2. L. Chiaravalloti.

Policlinico, Rome

February 28, XXII, No. 9, pp. 285-316

- 100 Trauma with Tardy Perforation of the Duodenum. L. Lattes.
March 7, No. 10, pp. 317-348
101 Intramuscular Injection of Insoluble Calcium Salts. (Dell'uso di sali insolubili di calcio per via intramuscolare.) T. Silvestri.
102 Toxic Action from Boric Acid Vaginal and Rectal Injections. L. Verney.

Riforma Medica, Naples

February 27, XXX, No. 9, pp. 225-252

- 103 Intermuscular Fibrolipomas on the Thighs. D. Taddei. Commenced in No. 7.

March 6, No. 10, pp. 253-280

- 104 Rat-Bite Disease. (Le malattie da morso di topo: Sokodu-Rattenbisskrankheit.) A. Perugia and U. Carchidio. Commenced in No. 9.
105 Myeloid Leukemia: Two Cases. G. Rummo.

Brazil-Medico, Rio de Janeiro

February 15, XXIX, No. 7, pp. 49-56

- 106 Importance of Ophthalmology for the Public Health Service. R. Machado.
107 The Surgical Kidney. (Aspecto clinico geral do rim cirurgico.) F. Cathelin.

February 22, No. 8, pp. 57-64

- 108 A Brazilian Physician's Impressions of the War. (Algumas informações medico-cirurgicas da guerra europea.) C. Seidl.

Semana Medica, Buenos Aires

January 7, XXII, No. 1, pp. 1-34. Last indexed July 4, 1914, p. 72.

- 109 Huge Fibromyoma Increasing Rapidly in Size during Gestation. (Fibroma galopante distocico.) A. Chueco.
110 Operative Cure of Perforating Uicer in Stomach or Duodenum; Three Cases. A. Ceballos.
111 Vaccine Prophylaxis and Therapy in Tuberculosis. T. Botto.
January 14, No. 2, pp. 35-68
112 Suppuration in Lateral Sinus Cured by Ligation and Curetting. (Mastoiditis cronica; flebitis supurada del seno lateral; ligadura de la yugular interna; curetaje del seno; exploracion del cerebro; hernia cerebral. Cura.) R. Becco.
113 Larvae that Penetrate Human Skin. (Larvas parasitarias que penetran activamente a través de la piel.) S. E. Parodi.

January 21, No. 3, pp. 69-112

- 114 Vaccine Therapy with Non-Specific Bacteria. (Heterobacterioterapia.) F. Destefano.
115 Technic for Diathermy for the Ear. (Soporte para aplicaciones de diatermia y electricas en el oido.) C. Heuser.
116 Toxic Action of Certain Stains on Certain Protozoa. L. Gugliamelli and J. J. Carbonell.

January 28, No. 4, pp. 113-144

- 117 Medicolegal Testimony in Case of Dementia Praecox. T. Susini and P. B. Aquino.
118 Encysted Protozoa in the Stools. S. E. Parodi.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

March 6, I, No. 10, pp. 717-804

- 119 Thermo-Coagulation Treatment of Bladder Tumors; Six Cases. G. van Houtum.
120 *A Working Hypothesis as to the Origin of Cancer. (Het ontstaan van kanker.) F. A. Sieensma.
121 The Pressure in the Marrow Cavity of the Long Bones in Dogs. (Over den druk in de mergholte van de lange pijpbeenderen van honden.) B. K. Boom.

120. **Working Hypothesis of Origin of Cancer.**—Steensma points to the remarkable diversity of the chronic traumas which have been found a factor in cancer, and then seeks to determine the factor which is common to all the varying forms of chronic injury of the tissues. This one common factor is that the cells directly injured by the trauma die off and others take their places. As the injury from the chronic trauma affects these also in turn, they soon die off too, and others succeed them. Thus generation after generation succeed each other with exceptional rapidity. It is known that when a culture of protozoa, for instance, keeps proliferating by fission there comes a time when the culture either dies out from the long series of fissions or else takes on a new lease of life by reproduction by conjugation. Then the following generation may differ from the preceding ones. He suggests that these biologic facts may apply to cancer. The hastening of the death of the cells by the chronic trauma, the consequent shortening of the intervals between fission, may lead to a stage in which the cells proliferate by conjugation instead of fission, and the succeeding generations may differ from the parents and grow to be malignant. Steensma's arguments make out a good case for this theory, which he offers as a working basis in cancer research.

Hospitalstidende, Copenhagen

March 3, LVIII, No. 9, pp. 201-224

122 *Removal through Petrous Bone of Tumor Involving the Auditory Nerve. (Bidrag til den translabyrintære Fjernelse af Acusticustumores.) E. Schmiegelow. Commenced in No. 8.

123 Agglutination and Deviation of Complement Tests after Vaccination against Typhoid. (Immunitetsreaktion efter profylaktisk Tyfusvaccination.) O. Thomsen.

March 10, No. 10, pp. 225-248

124 *Staining Diphtheria Bacilli for Microscopic Examination. (Om Difteribacilfarvning og direkte mikroskopisk Undersøgelse.) R. Nielsen.

122. **Improved Technic for Access to Cerebellopontile Angle.**—Schmiegelow remarks that the method of access to these tumors which Krause devised has been followed since by most other surgeons, including the six cases reported by Wimmer and summarized in THE JOURNAL, Nov. 14, 1914, p. 1797. He enters from the back, pushing the cerebellum to one side, but the distance from the skin to the seat of the tumor ranges from 6.5 cm. in children to 10 cm. in adults. The manipulation of the cerebellum and medulla is liable to damage them, with possibly arrest of the heart action and respiration interrupting the operation. Notwithstanding these dangers, 8 patients were clinically cured of 42 whose tumor had been correctly diagnosed and removed in this way up to 1910. A later compilation shows that the mortality has been reduced from 81 to 70 per cent. with the Krause technic. In 1911 Quix, an otologist at Utrecht, removed a tumor of this kind through an opening made as if for a radical operation on the ear, and Kümmel about the same time performed a similar operation. Both patients recovered, but Kümmel's has complained since of the facial paralysis left afterward, as the surgeon had deemed it necessary to sacrifice the facialis.

The comparative ease and simplicity and the absence of dangerous complications commend this method of access through the ear region, and Schmiegelow reports its successful application in two cases, described with full details as to the differentiating points and technic. The mastoid portion was opened up and the tympanum; the labyrinth was removed and a large part of the petrous portion of the temporal bone. The dilated internal auditory meatus was thus partly exposed and, after chiseling away the basal convolutions of the cochlea, a glioma the size of a hazelnut became visible and was removed in fragments. The operation lasted an hour and a half. The patient was a woman of 45 with right cochlear and vestibular paralysis, trigeminal disturbances and facial paralysis, and bilateral choked disk. The symptoms had been developing for over a year and, as a result of the operation, almost completely subsided except for the irreparable facial paralysis. The second patient was a man of 37 with severe symptoms indicating a growth in the cere-

bellopontile angle. They resembled in every respect those of the first patient, only being far more pronounced, except that there was no facial paralysis. In both cases there was optic neuritis on both sides, severer on the side of the tumor, and the cornea was less sensitive on this side. The oversight of the location of the tumor was markedly ample in both cases as soon as the middle ear and petrous portion had been removed. The operation although tedious, has none of the special dangers of the Krause technic.

All of the four patients treated by this "translabyrinth" method have recovered. The distance from the surface to the tumor is only half that from the rear, and the operation is extradural throughout until the final attack on the tumor itself. There is much less danger of hemorrhage and collapse than with the other technic. The greatest difficulty encountered is to avoid injury of the facial nerve if this is still normal. It was already irreparably damaged in the first case but, in the other, the efforts made to spare it lengthened the operation by an hour and the facial had to be sacrificed after all, as in Kümmel's case. If the tumor proves too large to remove through the ear region, it can be attacked from the back of the neck also. The translabyrinth method is the only one which permits the removal of a tumor starting in the internal auditory meatus. Two roentgenograms show the findings in the second case before and a week after the operation. The large gap left in the petrous bone is plainly evident. The earlier the diagnosis, of course, the better chance for success. Deafness on one side, headache, dizziness and gradual impairment of vision were the first symptoms in these cases, the latter bringing the patients to the physicians.

124. **Microscopic Examination of Diphtheria Bacilli.**—Nielsen examined under the microscope smears from 215 patients entering the hospital for suspected diphtheria or scarlet fever. Cultures made from the same smears gave positive findings in 165, and, of these, he obtained positive findings in 80 per cent. with his stain-microscopic examination. In all of the 50 negative cases the microscopic and culture methods gave parallel results. The contrast stains applied were a 1:1,000 solution of methyl violet; to 100 c.c. are added 3 c.c. of glacial acetic acid and eventually 2 c.c. of absolute alcohol; Lugol's solution, the ordinary proportions 1:2:300 and a 1:1,000 solution of neutral red. With Esbach's reagent or iodine-potassium solution the whole takes only a few seconds.

Hygiea, Stockholm

LXXVII, No. 4, pp. 161-224

125 System for Examination of the Lungs. (Några huvuddrag av den vanliga lungundersökningen.) C. E. Waller.

Ugeskrift for Læger, Copenhagen

March 4, LXXVII, No. 9, pp. 311-350

126 *Arterial Hypertension. V. Bie.

127 *Incarceration of the Epiglottis. C. Peschardt.

126. **Arterial Hypertension.**—Bie cites various data to show that there seems to be no direct connection between the blood pressure and anatomic conditions in the kidneys, although abnormal conditions in both are almost invariably found parallel. There is much to sustain the assumption that an abnormally high blood pressure is the primary disturbance; arteriosclerosis and vascular kidney affections occur only secondarily. But, he adds, even if hypertension is regarded as a secondary product, we must not assume that it is easily influenced. Slight or moderate hypertension may subside under bed rest and diet, but a high blood pressure, 200 to 250 mm., never goes down permanently to normal; 170 mm. seems to be the extreme limit with which this is possible.

127. **Incarceration of the Epiglottis.**—Peschardt's patient, a woman of 38, had long complained of difficulty in swallowing. Examination revealed enlarged tonsils and that the tip of the epiglottis had become fastened down behind them. He released it, but it speedily became incarcerated again. All disturbance ceased, however, when he burned out part of the tonsils with the actual cautery and cauterized the congested epiglottis.

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STUDIES IN ASEPTIC TECHNIC

WITH A REPORT OF SOME RECENT OBSERVATIONS
AT THE ROOSEVELT HOSPITAL

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NEW YORK

One of the most important duties of an attending surgeon to a hospital is to devise and carry out in his operative work, a system of aseptic technic which will insure the minimum of infection in his operative wounds.

Every infection occurring in a clean wound and every infected wound which is not rendered sterile by the primary operation, when this is possible, results in increased suffering and delay in convalescence to the patient and an increased expenditure of money, time, and effort on the part of the hospital and attending staff.

Take for instance the operation for the removal of a cancerous breast. Although this is often one of the most extensive operations in surgery, the wound should heal firmly in ten days and the patient should leave the hospital in a fortnight. If, however, through any error in technic the wound becomes infected, healing may be delayed for weeks or months, and the return to health and earning capacity of the patient may be indefinitely postponed. Each additional day that such a patient remains in the hospital as a result of infection, and every dollar that the hospital expends for his or her additional care should be recorded as a waste product. Moreover, the prolonged occupancy of a ward bed for such a reason often deprives other needy patients of the possibility of hospital care.

While accidental infections will occasionally occur even in the best regulated institutions, and while it is frequently impossible to render a given septic wound sterile by the most approved and skilful operative treatment, a conscientious surgeon by perfect technic and an ever vigilant watchfulness will reduce these unfortunate accidents to the minimum.

My interest in operative technic with a view to avoiding wound infection, dates back to the year 1895, when I began my first service as attending surgeon at the City Hospital. In a report¹ published the following May, I called attention to the fact that during an active service of six months, 39 per cent. of all clean operative wounds occurring in my service became infected. This report resulted in considerable unfavorable comment from many of my professional colleagues, one even going so far as to state that the

report "never should have been published as it was a disgrace to the profession and would bring it into disrepute." I replied that to my mind the report possessed at least one merit and that was, that it was an absolutely truthful statement of the facts which had occurred during an honest effort to do clean surgery under most unfavorable conditions.

That the conditions were unfavorable was evidenced by the fact that there was not in the hospital during that period a single modern sterilizing autoclave, that the ligature and suture material was prepared in a wholly indifferent and unscientific manner and that neither the operating-room nurse nor any member of the house staff had had any training in modern aseptic methods.

A second report² was published one year later, after the hospital had been provided with two new modern operating-rooms and a complete modern sterilizing apparatus; and after an exhaustive bacteriologic examination of our methods and material had been made by the late Prof. Philip Hanson Hiss of Columbia University. During this year, the report stated, 9 per cent. of our clean wounds had become infected.

During the following year many changes in technic were made to bring about further improvement in our results. These were all described at length in a paper³ read before the Suffolk Medical Society in Boston. In this report the use of dilute solutions of a 40 per cent. solution of formaldehyd for wound disinfection and dressings was advocated, and also the employment of sterile rubber gloves by all participating in the operation. During the period covered by this third report, the percentage of wound infections was reduced to 7.

Two years later a fourth and final report⁴ was made of our studies in technic at this institution. This included a number of other changes in our methods with a careful investigation of several cases in which asepsis was lost as a result of our operative procedures. From a careful analysis of our results we were able to report that during our last year the percentage of infection in clean cases had been reduced to 3.2 per cent., which, at that time, compared favorably with the results in the other New York hospitals where the patients were recruited from those in the more fortunate walks of life, and were not the victims of starvation, alcoholism, and chronic disease which made up such a large percentage of those admitted to the wards of the City Hospital.

2. Brewer, George E.: Operative Surgery at the City Hospital with a Completed Report on the Study of Wound Infection, Med. Rec., New York, March 13, 1897.

3. Brewer, George E.: Med. Rec., New York, March 26, 1898.

4. Brewer, George E.: Studies in Surgical Technic with a Report on Operative Surgery at the City Hospital for 1898 and 1899, Med. News, Sept. 22, 1900.

1. Brewer, George E.: Operative Surgery at the City Hospital with a Preliminary Report on the Study of Wound Infection, New York Med. Jour., May 2, 1896.

During the progress of these studies I visited many of the larger and more important hospitals in this city and also in Boston, Baltimore, and Philadelphia, with a view to ascertaining the methods of hand and skin disinfection, sterilization of instruments, dressings and suture material, in use by the leading surgeons; also the operating-room technic and in general the results obtained. When obtaining permission of the attending surgeon to observe the preparation of the patients, the surgeons, and assistants, and for the making of ward visits when dressings were changed, the question generally was asked, "How much infection do you expect in clean cases?" The answer almost invariably was "practically none." Later conversations with members of the house staff and observations during ward visits led to the belief that while the "practically none" represented the honest opinion of the visiting surgeon, such an opinion was not based on accurate records. Indeed I am thoroughly convinced, that if I had been asked the same question at any time during the past ten years during which no effort was made to keep accurate records of infections occurring in my service, my off-hand estimate of the percentage of infection would fall far below the actual figures. In fact I am strongly of the opinion that the only way to obtain the best technical results is to keep an accurate record of infection in every patient submitted to operation, for it is only by this means that one can be kept aware of his technical transgressions.

It would be quite impossible for the modern student of technic to appreciate the difficulties which were encountered on every side, in the five years of constant effort to improve the technical results in an institution where the conditions were so unfavorable. During this period I was a constant observer and student of the methods being employed in the Syms operating-room by the late Dr. Charles McBurney, who established a standard of surgical technic in the Roosevelt Hospital which was equal if not superior to that of any other American or European clinic. Many of the changes made in our procedures at the City Hospital were the direct result of helpful consultations with Dr. McBurney who was always ready and willing to discuss the various problems presented and to give friendly and sound advice.

I have referred to these experiences in another hospital for the reason that I wish to call attention to the fact that in an institution where the patients as a rule were seriously handicapped by a low vital resistance due to malnutrition, dissipation, and disease, a somewhat exaggerated technic was necessary to obtain results comparable with those in other hospitals. Another important factor was that of air infection. At the City Hospital the air of the operating-rooms was constantly contaminated by floating germs, largely of the pus-producing varieties. This was frequently demonstrated by exposure of gelatin or agar plates in the operating-room during our surgical work. To overcome this source of infection, we found it necessary to cover all instrument trays, wash basins, irrigators, and pitchers with tents or covers of sterile muslin, and to employ irrigation of the wound during our operative procedures. It was only by these methods that our best results were obtained.

When, in 1899, I received an appointment as junior surgeon to the Roosevelt Hospital, I was surprised and gratified to see that many of the unusual technical procedures used in the City Hospital to meet the local

conditions of that institution were unnecessary, and that even better results could be obtained by the somewhat simpler but equally effective technic employed by Dr. McBurney and my new chief, Dr. Robert F. Weir. While this was in part due to more perfect operating-room equipment and to a more thoroughly trained staff of assistants and nurses, the most important factor seemed to be the better physical condition of the patients.

During the first six years of service at the Roosevelt Hospital, while I acted as first assistant to Professor Weir, the number of clean wounds which became infected was exceedingly small, although no exact record was kept.

Shortly after I was appointed senior attending surgeon, a veritable storm of infection occurred, five clean wounds became infected as a result of operations (by both surgical divisions) in a single day, and the patients operated on in the succeeding few days also showed a high percentage of infections. One of these cases proved fatal. Two or three days after this outbreak of infection the hospital pathologist came to the operating-room just as we were about to begin our afternoon work. Cultures were taken from the gloves of all who were to participate in the operation, also from the gowns, caps, towels, sheets, sponges, instruments, ligature and suture material. Of twelve flasks of catgut and silk, eleven showed growth. All the other cultures remained sterile. It was thus clearly demonstrated that this wave of infection was directly due to some grave error in the preparation of our catgut. The person responsible for this was dismissed, the entire stock of contaminated gut was destroyed and the epidemic of infection was at an end.

A year or two later two cases of infection by the *Bacillus aerogenes capsulatus* occurred within a period of two or three days, one on the first and one on the second surgical division. Both cases proved fatal. A thorough investigation of our methods and material was made, including an elaborate series of tests of our steam sterilizers, which were of an old model, and had been in constant use for over fifteen years. While the source of the gas bacillus was never discovered, the investigation demonstrated a definite defect in our autoclaves. These were practically rebuilt and rendered in every way as efficient as any of the most modern design. Repeated bacteriologic tests since that time have demonstrated that our material is not only free from living bacteria, but also spore-free. For this valuable work, and also for many months of patient investigation on the preparation of our catgut, the hospital is indebted to Dr. Karl Connell of the attending surgical staff.

For some years, both before and after this investigation, our results seemed so satisfactory and the accidental infections so far apart that no special inquiry was made to ascertain the exact number or percentage.

During the early part of 1911, however, one or two unexplained infections occurred which led me to inaugurate on the first surgical division, a weekly report of every patient operated on, the condition of the wound area before operation, and the condition whether clean or infected at the first and subsequent dressings. This report was read at a staff conference, held every Friday morning after the ward visit; and any case of unexplained infection was referred to a committee to investigate, and to report at the next conference.

While the earliest reports of our investigations were not kept in permanent form, we have a complete list of these reports since Jan. 1, 1912.

The form in which these weekly reports was read was: First, the name of each patient with the clinical diagnosis; the anesthetic used; the operator; the condition of the wound area, clean, infected, or borderline; the condition of asepsis at the first or subsequent dressings, "maintained" or "lost" in clean cases, "established" or "unestablished" in the infected. At the end of the report a summary was given of which the following is an example.

Total number of operations for the week ending:

July 11, 1912.....	34
Wound area clean.....	16
Wound area infected.....	13
Borderline cases.....	5
Asepsis maintained in.....	16
Asepsis lost in.....	0
Asepsis established (in infected cases)....	4
Asepsis unestablished (in infected cases)..<	9
Deaths during the week.....	1

After the weekly report was read, there also was added a summary of all cases since January 1 or July 1 in a given year, for six months or the period of service of each unit of the house staff. Without going more into detail I will submit the total records for each six months since Jan. 1, 1912, together with a few brief comments which will give a fair idea of the infection occurring in our service for the past two and a half years.

During this period our technic may be summarized as follows:

Whenever possible a tub bath was given to the patient the night before operation, followed by shaving the wound area, and the application of a soap poultice. After from four to eight hours, this was removed, the part scrubbed with soap and hot water for five minutes, and a wet mercuric chlorid dressing applied. On the operating-table this dressing was removed by a sterile assistant, the parts rescrubbed for one minute, doused with ether, alcohol, and a 1:5,000 solution of mercuric chlorid. The wound area was surrounded by sterile towels, and the entire body covered by sterile sheets. Sterile caps, gowns, and gloves were worn by all participating in the operation. The towels around the wound area were changed as often as soiled, and always before the insertion of the cutaneous sutures.

The method of sterilizing our material will not be described, as it did not differ in any material way from that employed in any modern surgical clinic. Suffice it to say that frequent bacteriologic examinations demonstrated that our material was sterile. We did not at that time use the long-sleeved gowns, completely covering our arms, and did not wear face masks in ordinary cases. The reason for the latter omission was, not that we disapproved of the plan, but by a system of hand signals, we were able to avoid talking during most routine operations.

Our technic was changed slightly in two classes of cases, operative treatment of fractures, and open operations on the knee joint. In these cases face masks or helmets were worn, and nothing entered the wound which had been touched even with the gloved hand, all manipulations being carried out by instruments.

It will thus be seen that our technic was by no means an elaborate one, our aim being to keep it as simple as

possible, and to make changes only when we felt that by such changes our results could be improved.

In the following tables we shall give the results of our method in clean cases, in which infection could only be introduced during our operative procedures by some error in technic; also we will state the number of infected cases rendered sterile by our operative treatment.

I regret that we have not accurate records of the results in our borderline cases. While these often were read at our weekly conferences, they do not appear with any regularity in the records which have been preserved. This, while regrettable, does not in any way lessen the value of our report, for infections occurring in this group could never be attributed to technical errors, as the wound was always contaminated at some time during the operation. By borderline cases we refer to those in which an otherwise clean operative wound was at some time in contact with an infected area or material, but in which it was possible generally to avoid gross infection by extra care. In this group we would include such cases as a gastro-enterostomy, an appendectomy in which it was impossible to cauterize the stump before inverting it, and a cholecystostomy with infected bile.

SUMMARY OF RESULTS

Total cases from Jan. 1 to July 1, 1912..	457
Clean	250
Infected	139
Borderline	69
Asepsis maintained in.....	244
Asepsis lost in.....	6
Percentage of infection in clean cases..	2.4

In discussing this report, our entire staff expressed surprise and disappointment. We all had the idea that our infections would not amount to more than 1 per cent. of our clean cases. During the next six months, we adopted the plan of watching each other operate, Dr. Darrach, Dr. Russell and myself each acting as censor at different times, and critically observing every step of the operation. As the result of these observations we found that the suture and reserve instrument tables were too near the operating table and that the towels covering these were not infrequently contaminated by orderlies and unsterile nurses while bringing in the patient, handling hand-lights or the cautery apparatus. While these contaminations were not directly to the instruments or suture material, it was possible indirectly to destroy their sterility by first handling the contaminated towels and later the instruments, sponges, or other material. A number of other possible errors in technic were noted, and after consultation with Dr. Peck we rearranged the tables and fixtures in the operating-room, adopted new stoppers for our ligature flasks and water bottles, had the patient transferred to the operating table, prepared and draped in an adjoining room, and in a number of other ways altered our routine technic. These changes resulted in a decided improvement in our results, as will be seen in the following tabulation:

Total cases from July 1, 1912, to Jan. 1, 1913..	445
Clean	234
Infected	131
Borderline	80
Asepsis maintained in.....	231
Asepsis lost in.....	3
Asepsis established in.....	60
Percentage of infection in clean cases.....	1.2

Total cases from Jan. 1 to July 1, 1913.....	474
Clean	213
Infected	148
Borderline	113
Asepsis maintained in.....	209
Asepsis lost in.....	4
Asepsis established in.....	102
Percentage of infection in clean cases.....	1.8

As the result of a staff conference at this time, we decided to adopt the long-sleeved muslin operating-gown, changed between each operation. While I have always been opposed to this procedure for the reason that accidental contamination on the skin of the bare arm was more easily felt than on even a light muslin covering, I yielded to the wish of the majority of the staff, and the results since that change seem to indicate its merit:

Total cases from July 1, 1913, to Jan. 1, 1914..	439
Clean	243
Infected	125
Borderline	71
Asepsis maintained in.....	239
Asepsis lost in.....	4
Asepsis established in.....	70
Percentage of infection in clean cases.....	1.6

In our investigation of the infections occurring in clean wounds prior to July 1, 1913, no facts were elicited which would enable us to ascribe them to factors other than technical errors occurring during operation. Just what these errors were was not always determined, but there was no evidence to indicate that the infection was due to conditions beyond our control.

In investigating the four infections occurring during the period from July 1 to Jan. 1, 1914, it was found that three of the four cases occurred quite close together and all had been operated on under local anesthesia. Bacteriologic examination proved that the novocain solutions were contaminated, as a result of faulty preparation. During this period the solutions for local infiltration anesthesia were prepared in the drug department of the hospital, and they were delivered to the operating-room nurse ready for use. It will thus be seen that these three infections could not with reason be ascribed to errors in operating-room technic, as none of the staff or operating-room nurses had anything to do with the preparation of the infected solutions.

If therefore we exclude these three infections, the number of infections in clean cases during that particular six months would be reduced to 1, or 0.4 per cent.

Total cases from Jan. 1 to July 1, 1914..	559
Clean	273
Infected	220
Borderline	66
Asepsis maintained in.....	273
Asepsis lost in.....	0
Asepsis established in.....	64

During the last two months of this period the service was in charge of Dr. Charles N. Dowd, who succeeded me as senior surgeon to the first division on May 1, but as the routine technic remained practically unchanged, the entire period of six months is included in this report.

Many years ago I established the custom of giving a prize to the house surgeon on whose service of six months, no clean case became infected. This prize has been won by three men, Dr. John H. Blue, now of

Montgomery, Ala., the late Dr. W. W. Miller of Washington, and Dr. Armitage Whitman of this city, whose service terminated July 1, 1914.

During the progress of these studies in technic after accurate records were kept, we determined to widen the field of our observations somewhat and to include in our weekly reports the record of all catheterizations which occurred on our service. The reason for this will be patent to every hospital attending, for we are all familiar with the increased suffering and prolonged convalescence which so often follows a cystitis resulting from perhaps a single postoperative catheterization. A weekly record therefore was kept of each catheterization occurring on the service, with the name of the house officer or nurse who performed it, together with a report of the urinary analysis both before and after. While this plan was only recently adopted and the number of observations is too small to be of much value and is therefore not included in our lists, it is gratifying to report that in no instance since records have been kept has catheterization resulted in infection.

During a part of the time covered by these observations, a record of all cystoscopies were included in our weekly conferences. These were not introduced into this report for the reason that the records are imperfect during a part of the time, possibly because the results were invariably the same. It is, however, only fair to Dr. Edward F. Kilbane, our cystoscopist, to state that during a period of eight years, he has made over 1,050 cystoscopies in the Syms Operating Building on both private and ward patients, without infection of a sterile urinary tract occurring in a single instance, and without infection being transferred to a sterile ureter or kidney from an infected ureter or bladder.

Although not strictly germane to the subject, it may also be of interest to state that during the fourteen years which have elapsed since my appointment to the attending staff of the Roosevelt Hospital, not a single infection has occurred in a rather large series of arthrotomies of the knee joint, undertaken for the repair of a fractured patella, ruptured quadriceps or its tendon, or for the removal of joint mice, injured or dislocated semilunar cartilages. This statement includes all cases, in both surgical divisions, in which an incision has been made into the sterile knee joint by any member of the staff.

To recapitulate briefly the facts bearing on the main object of this communication, namely, to give the percentage of infections occurring in our clean cases during each of the five periods of six months since Jan. 1, 1912, it will be seen that for the first six months in 1912, the percentage of infection occurring in clean operative wounds was 2.4 per cent., for the second six months 1.2 per cent.; for the first six months of 1913, 1.8 per cent., for the last half of 1913 1.6 per cent., if we include the three cases in which infection occurred as a result of using an unsterile solution of novocain for local anesthesia, for which none of the operating-room staff was in any way responsible, or 0.4 per cent. if these are excluded. For the six months ending July 1, 1914, no infection occurred in the 273 clean cases.

If, as seems fair, we exclude the three cases referred to above, during the year from July 1, 1913, to July 1, 1914, only one infection for which the operating staff could be held responsible occurred in 516 cases, or a little less than 0.2 per cent.

MEDICAL INSTRUCTION IN THE SEVENTEENTH CENTURY*

MORTIMER FRANK, B.S., M.D.

CHICAGO

The dawn of the seventeenth century called into existence a new era in medicine—the reformation of anatomy. Western Europe, emerging from the intellectual darkness of the Middle Ages, awoke to the Renaissance; and medicine, with the other branches of knowledge, was invested with a new significance and a new potentiality. Free thought and free inquiry took the place of blind credulity. Truths that had been monopolized by an exclusive caste for centuries became the common property of all that were able to grasp them. This great humanistic struggle for a new birth of intellectual, esthetic and spiritual aspiration revolutionized every department of science, and nowhere did it work greater changes than in the field of anatomy.

ANATOMY

The anatomy of the schools was still that of Galen, and it remained for Andreas Vesalius to release the subject from the theologic idea of sanctity and to uphold the right of free inquiry into the anatomy of man. Vesalius, the man of genius and courage, dissatisfied with the absurd and visionary notions of the human body as described in the works of his day, cut loose from the doctrines of authority of individuals by interrogating Nature itself. No sooner did he appeal from the decision of Galen than others began to throw off the shackles of tradition and to observe and think for themselves. His master Sylvius, his pupil Columbus, his successor Fallopius, and also Eustachius, although they were in some respects opposed to his teaching, nevertheless widened the path which had been blazed by the great reformer. The publication of his famous work, "*De Humani Corporis Fabrica*" (1543), marked the beginning of a modern anatomy, and laid the foundation for the study of pathologic anatomy and physiology. The most skillful artists of the day—Leonardo da Vinci, Michael Angelo and Johann Stephan von Calcar, a pupil of Hitian, immortalized by his engraving of Vesalius—allied themselves with the anatomists and put their dissections upon paper and plates. Surgery received new methods from Ambroise Paré. Servetus described correctly the pulmonary circulation in a theological work which, with its author, was burned at the stake by John Calvin. About this time Fabricius ab Aquapendente pointed out the valves in the veins, and Andreas Cesalpinus explained more fully the mech-

anism of the lesser circulation. By the labors of all these great apostles the way was paved for the discovery of the true course of the blood by William Harvey, in 1628. All were full of the spirit of modern science, which, after all, was the spirit of the Renaissance; and in them one can find abundant material for the study of the psychology of that most interesting period in the evolution of modern thought.

It was the operation of this humanistic spirit which influenced the great changes that took place in the teaching of anatomy, physiology and medicine in the schools of the seventeenth century.

Anatomy had already attained a place in the curriculum at many of the schools. The universities of Padua, Bologna and Salerno had been famous for its study through the Middle Ages, and during the sixteenth and seventeenth centuries the first two still

enjoyed celebrity in these faculties. In 1626 Caspar Bartholin mentions, besides the cities above, Montpellier, Paris and Leyden, the great centers of medical education in the seventeenth century, as places most frequented and affording the best opportunities for witnessing public dissections. The study of human anatomy owed the active development which it received in Italy during the sixteenth century to the contemporary princes, including the popes, for without their patronage, the human bodies necessary for purposes of dissection would not have been accessible. A beginning in the study of comparative anatomy was likewise made from the necessary comparison of Galenic or animal anatomy with the new human anatomy.

In Italy dissections were held during the cold season, and in Padua all other lectures were suspended during January and February. Many preparations had to be made

and many things provided for. The whole affair was arranged by the students, who likewise chose the teacher. An excellent description of the manner of conducting one of these public anatomies is given by Alexander Benedictus, who was in Padua at the time. He writes:

This kind of dissection of the human body has long been permitted by pontifical decrees; otherwise it would have been looked upon as depraved or profane. The purging of the souls of those who are to be dissected is taken care of by rites, and for the indignity done unto them we make amends with prayers. For this reason many while in prison ask to be given to the physicians rather than to be put to death publicly at the hands of the executioner. This kind of body cannot be acquired without the Pope's consent. Lawfully, for dissecting purposes, there can be demanded lowly people and unknown persons from distant parts so that the neighborhood or relations cannot be offended. Those chosen are the ones who have been suffocated by hanging, and are middle



Fig. 1.—Andreas Vesalius.

* Read before the St. Louis Medical Society, Feb. 27, 1915.

aged, not too thin, and not too fat, and of rather tall stature, so that there will be great mass seen by the spectators. The dissection necessarily must be done in the cold winter, so that the bodies will not putrefy too quickly.

In addition, an amphitheater must be arranged with seats according to rank, as in the Roman arena, and sufficiently large to accommodate the crowd without disturbing the surgeons, who must be skilful and have dissected often. A leader must be chosen, a *praefectus* who is in charge and assigns the seats according to rank. Guards are appointed to keep the mob back. [How necessary this was can be seen from the regulations of the anatomy lectures at Surgeons' Hall in London, as late as 1753: "to fix iron spikes in the theater to prevent the mob from getting over the outer rail."] Two trustworthy treasurers are elected who buy what is needed with the money collected. This includes razors, small knives, hooks, trephines, chisels, mallets and sponges to remove the blood during the dissection. Besides, there must be torches in readiness for the evening. The body is placed in the middle of the amphitheater on a raised table in a spot which is light and convenient for the dissector. The time for returning is announced to the assembly when it disperses, so that the work can be finished connectedly before putrefaction sets in. Invitations are issued to the university and the city officials; and when the dissection begins, an introductory address, sometimes preceded by music, is made by the anatomist concerned. The dissection now continues from day to day until all parts are exposed. When all is done, the corpse is brought to a church, followed by the clergy, the whole university and by all who had attended the anatomy, with lighted candles, and finally interred with great solemnity by a *humanarum litterarum* professor with a long speech.

A striking feature of this account by Benedictus is the solemn ceremony which accompanied the dissection, a ceremony which was, in fact, even more elaborate than his description implies. As the bodies used were those of executed criminals, each cadaver, before being operated on, was "purified," or made reputable, in order that those who came in contact with it might not become disreputable. This "purification" was accomplished by the reading of a suitable decree by the lord of the land or the magistracy. After this, the professor of anatomy, by order of the senate or the medical faculty, stamped the seal of the university on the breast. The body was then carried by volunteers into the anatomic hall, and the cover on which it rested was returned to the executioner. This solemnity soon vanished and gave way to festive performances. Entertainments graced with music were given, and in England a "public anatomy" was always kept as a high festival by the Company of Barber Surgeons and was celebrated by a dinner.

The earlier ceremonial features were naturally abandoned as the opportunities for human dissection became more frequent and public anatomic theaters were established. These theaters were more common in non-German universities, to which the students flocked in great numbers. How rare dissections were

in Germany during the seventeenth century may be learned from the fact that they were given in Frankfurt-on-the-Main only eight times between the years 1615 and 1683. It is no wonder, then, that the University of Leyden, with her special equipment for the study of anatomy, held her supremacy during this period and maintained it down to the end of the eighteenth century. This university was founded by William of Orange, in 1575, as a reward for the heroic defence of the previous year, the tradition being that the citizens were offered the choice between a university and a certain exemption of taxes. The anatomic theater was built in 1610 under the direction of Pieter Pauw, who had been a student in Padua under Fabricius.

John Evelyn, who visited Leyden in 1641, makes the following record in his diary:

I was much pleased with a sight of their Anatomy scholē theater, and repository adjoining, which is well furnish'd with natural curiosities; skeletons from the whale and elephant to the fly and spider, which last is a very delicate piece of art, to see how the bones (if I may so call them) of so tender an insect could be separated from the mucilaginous parts of yt minute animal. Amongst a great variety of other things, I was shew'd the knife newly taken out of a drunken Dutchman's guts by an incision in his side, after it had slipped from his fingers into his stomach. The pictures of the chyrurgeon and his patient, both living, were there.

Gradually with the progress in the teaching of anatomy, institutions for instruction in medicine increased and those which already existed were developed. Amphitheaters for dissections were slowly opened in every city in Europe. In Dresden as early as 1617 there was an *Anatomiechamber*, as the dissecting room was called in Germany at that time and

subsequently. In 1644 Copenhagen built its *domus anatomica*, inaugurated by Simon Paulli and used a few years later by Thomas Bartholin. In Edinburgh an anatomic theater was first erected in "Surgeons' Hall," in 1697.

In spite, however, of the improvement in the conditions of anatomic instruction, the equipment for that study was in many respects limited. For instance, it was considered a special attraction for the university and still more for a professor or physician to possess an entire skeleton. Vienna did not acquire one until 1658 and Strassburg not until 1671. Incidentally, it may be remarked that anatomic plates with movable layers existed as early as this period. The first one, the "Catoption Microcosmicum," cut by Stephan Michaelspacher, was published at Ulm in 1613.

SURGERY, PHYSIOLOGY AND RELATED SCIENCES

There seem to be periods in the progress of every department of science, when instead of making new



Fig. 2.—Title page from Vesalius' second edition, 1555.

improvements, the energies of its cultivators are directed to the perfecting of previous inventions and discoveries. Such seems to have been mainly the case in the surgical history of the seventeenth century. We find no surgeons ranking with Ambroise Paré or Anthony Chaumette, of the sixteenth century, under whose leadership France maintained its supremacy in surgery for nearly two centuries, until the time of John Hunter. Instruction in surgery was well regulated only in France, for it possessed a surgical college and faculty properly regulated by royal warrants. Up to 1635 demonstrations of anatomy and surgery were given in the Jardin Royal at Paris by a physician and not a surgeon, and not until 1671 was it decreed by the king that the lectures should be read by a surgeon. As early as 1673 Pierre Dionis was giving courses in operative surgery on the cadaver, and his treatises on operations and anatomy were standard works for half a century. They were translated into other languages, even into Chinese.

In Italy, the surgeons never occupied a position absolutely separate from medicine and in this century the professorship of surgery in the universities was filled by the most distinguished professors, especially of anatomy. These two branches were everywhere regarded as almost dependent upon each other, even in the succeeding century. In Germany those physicians educated in Italy were the first to devote themselves to surgery, yet the most important German surgeons, *Wundärzte*, came from the barber shops alone and received their instructions from the guildmasters. The strife and jealousy about competency between physicians, surgeons and barbers were very frequent, and continued with unabated fervor during the whole of the seventeenth century. The Company of Barber Surgeons in England was a thorn in the side of the English surgeon until 1745. Surgery was thus debased until the eighteenth century, when special chairs were established at all the large universities.

Practical instruction in obstetrics as a branch distinct from surgery was not yet given to men. The chief cause of this is probably to be found in the fact, that, in earlier times, the practice of the art was generally confined to women. Male practitioners were during this period and for a long time thereafter called to treat parturient women only when the resources of the midwife as well as the energies of the patient were exhausted. In consequence of this a great deal of what was written dealt solely with instrumentation, and the energies and inventions of the male practitioners were directed not so much to the normal process of parturition as to its abnormal conditions. Up to the end of the seventeenth century the leading works on midwifery at the command of the student

were comparatively few, and the majority of them were issued from the French press because it was in that country that clinical facilities for male observation had earliest existed. Perhaps the leading representative during this epoch was François Mauriceau, whose treatise, published in Paris in 1668, became the stimulus for such rivals as Portal and Deventer. Of the earliest works to command attention in England, and to keep a footing for a long time thereafter, indeed well into the eighteenth century, was the translation of Rösslin by Thomas Raynold (or Raynalde), which he entitled "The Byrthe of Mankynde." In a general way practical obstetrics owes its great advancement, which began at this period, directly to the favorite of a king, for after the Duchess de La Vallière, mistress of Louis XIV, had been attended by Julian Clément in 1663, the princesses of the period hastened to be confined by male accoucheurs. The loose morals of the court and in the higher circles of

society had at least the good effect of permitting men to act as obstetricians. This practice was rapidly diffused from France into other lands and with the invention of the obstetric forceps and the general acceptance of version, obstetrics experienced an advancement similar to surgery from which it now began to emancipate itself.

During this century the study of physiology also made great progress. With the increasing interest in the functions of the living organs, many physiologic vivisectional experiments were made which necessitated new technical methods. Injections in themselves were nothing new; but they were now employed on a larger scale, and their technic was considerably developed by Ruysch, de Graaf and Swammerdam. Berengarius had already forced water into blood vessels, and much later

Jacobus Sylvius mentions injections of a liquid colored with saffron or wine, which he regards as inferior to inflation with air, as the liquid runs out and colors everything. Neither of these two mention what instrument was used. In 1668, Reinhart de Graaf ("De Usu Siphonis in Anatomia") introduced an improved syringe and gave injection a lasting place in anatomic technic. Jan Swammerdam aimed to get a preparation which could be injected warm and solidify afterward. He has the credit of having introduced wax, although he first tried suet.

Preservative treatment of cadavers for transportation, interment, and the like, was well known. Ambroise Paré relates that for his own use he preserved a body and removed nearly all the muscles on the right side, so that one could see the heart, lungs and diaphragm. He had it for twenty-seven years and used it to refresh his memory when about to operate. Both dried and wet specimens were exhibited in the museums. Permanent preparations of ves-

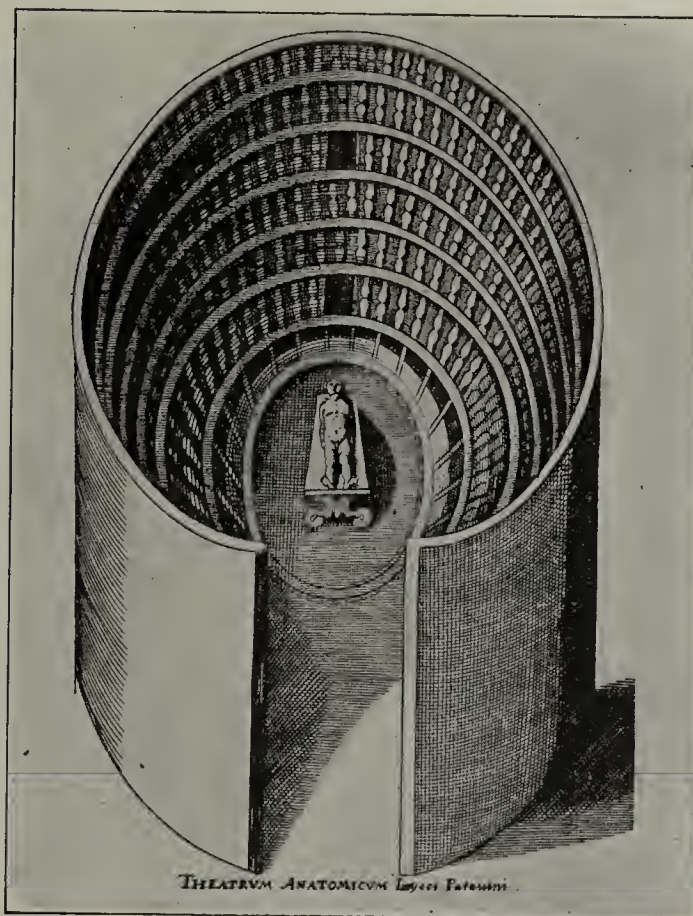


Fig. 3.—Anatomic theater, Padua, 1654.

sels and nerves were in the beginning exhibited by dissecting them entirely out and mounting the whole ramification flatly on a plate. Specimens of this kind are said to have been made in Padua in the time of Vesling, by J. A. Leonaenas. They were later presented to the Royal Society of London by John Evelyn, who records in his diary for the year 1646:

Three days after this I tooke my leave of Venice, and went to Padoa, to be present at the famous Anatomic Lecture, which is here celebrated with extraordinary apparatus, lasting almost a whole month. During this time I saw a woman, a child and a man dissected with all the manual operations of the chirurgion on the humane body. The one was performed by Cavalier Vestlingius and Dr. Jo. Athelsteinus Leonaenas of whom I purchased those rare tables of Veines and Nerves, and caus'd him to prepare a third of the Lungs, Liver and Nervi sexti par, with the Gastric Veines, which I sent into England, and afterwards presented to the Royall Society, being the first of that kind that had been seen there, and for aught I know in the world, tho' afterwards there were others.

Some very old anatomic preparations are still to be found. In the Musée Orfila, in Paris, there is a muscle phantom of wood by Albinus with all the muscles loose; and in the Victoria and Albert Museum, in London, are several small wax models of muscles by Michael Angelo.

While anatomy and physiology made a philosophical progress, the advance of practical medicine was retarded by the false doctrines of the day. The two principal schools, the iatrochemical and iatromathematical, followed different paths. The former, whose theory had descended from Paracelsus through Van Helmont and was propagated chiefly by Sylvius in Holland and Willis in England, regarded all vital forces as chemical in nature. It had a great influence in Germany, though in France the Hippocratic and Galenic methods prevailed. Sylvius' leading principle was that a perpetual fermentation goes on in the body, from the deranged action of which diseases start.

The second school of medicine, which superseded, sought to explain all physiologic phenomena by static and hydraulic laws. This seems to have arisen in Italy, and was represented by Borelli, who applied mathematical principles to muscular movements, by Sanctorius and by Descartes. This school had the same leading defect as the chemiatic: it forgot the peculiarity of the laws of organization and life which often render those of inert matter inapplicable.

Not until the latter half of the seventeenth century did internal medicine get its proper start when Sydenham, sometimes called the English Hippocrates,

applied the methods of observation and experience and did not adhere blindly to any one theory. The discovery of several medicines, especially Peruvian bark, and its use in England in 1654, contributed to the success of the "empirical" physicians, as Sydenham and his followers were called, since the efficacy of some of their remedies could not be explained on the hypotheses hitherto prevalent. Sydenham's "Dissertatio Epistolaris" appeared in 1682 and contains his classic description of hysteria, which he recognized as a special form of disease. In 1686 he brought out his "Schedula Monitoria," the last medical work which he published during his lifetime. The most notable passage in the book is his differentiation of chorea minor from the rare epidemic hysterical disorder formerly called St. Vitus' dance, or the "dancing mania" of the Middle Ages. His posthumous "Processus Integri" (1692) was the therapeutic guide of the English physician for more than a century. Such were the opinions which prevailed in the schools of medicine of the

seventeenth century and consequently among physicians.

Until nearly the end of the seventeenth century, the diagnosis of disease from the urine had always been based on its appearance alone, and not until 1655 was the first inquiry made into its composition. For centuries urine examination had made little or no progress, and its use in diagnosis had drifted largely into the hands of quack doctors and charlatans. Van Helmont introduced the gravimetric idea in

the analysis of urine, and in 1674 Thomas Willis observed that urine in diabetes possesses a sweet taste although the cause of the sweetness was not determined until a century later. With the researches of Bellini and later of Boerhaave, the close of the seventeenth century saw the advent of the scientific examination of urine. The fact that uroscopy was so common a feature in everyday life is doubtless the reason for its being a favorite subject with many of the famous artists of the Dutch, Flemish and German schools of this century.

Though some permanent enrichment was made in the materia medica of the period, yet the medical student was taught to use many of the old-time remedies. Hence a number of the most absurd and polypharmaceutical compounds were retained in the pharmacopeia. The medical compounds formerly employed were chiefly empirical nostrums, or heterogeneous mixtures of substances, some of which neutralized others, and were selected without any reference to scientific principles. One of the most striking instances

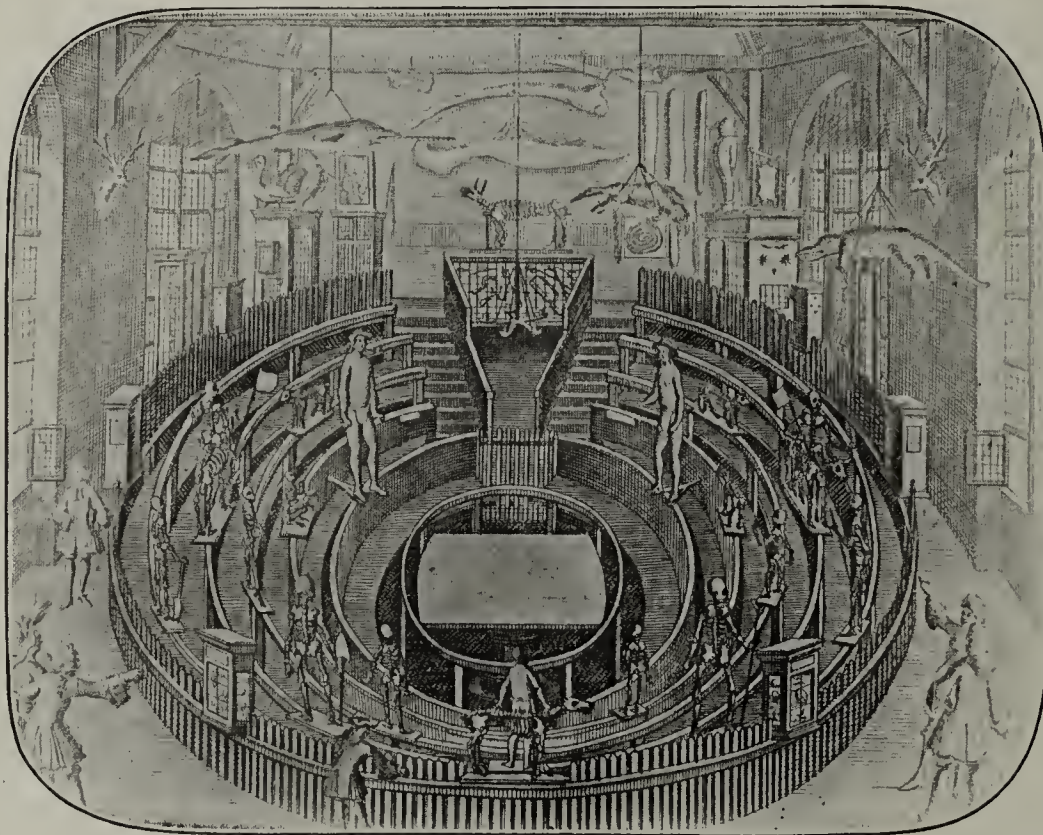


Fig. 4.—Anatomic theater, Leyden.

of this practice is to be found in the Mithridate, which has a compound of seventy-two ingredients. Chemistry was so little advanced, that the real composition of ordinary remedies was seldom understood. Snails, vipers, the urine of men and animals, calculous concretions, various portions of criminals, as the thigh bone of a hanged man, and many other equally absurd remedies were extolled as specifics for a variety of disorders. The materia medica was divided into two classes, chymicals and Galenicals. The "chymical medicins" were of mineral origin, and prepared by fire: the Galenicals comprised the herbs, roots, and other vegetable or animal substances. As the newer chemical remedies were antigalenical, the faculty almost everywhere opposed them and demanded their abjuration in the doctor's oath. Gradually, however, as the years went by and as the science of chemistry unlocked the marvelous resources and products of nature, most of these old relics of the days of superstition and witchcraft were left behind and forgotten.

It was in this century that more and more attention was paid to instruction in the sciences allied to medicine. Botanical gardens became a part of the university equipment and were laid out and generally directed by the professor of anatomy, who also lectured on botany. John Vesling, the eminent anatomist at Padua in 1632, taught botany as well, and died in the orient while on a botanical excursion. In Leyden, Pieter Pauw, and in Copenhagen, Simon Paulli gave instruction in this branch. To the student of medicine of today it appears odd that a professor of anatomy should likewise hold the chair in botany, but we must keep in mind that a large proportion of the physicians of the seventeenth century, in their general zeal for science, had an intimate knowledge of botany, chemistry, mathematics and natural philosophy. Meibomius, for instance, was equally versatile in medicine, history, and poetry; one of the Bartholins in philosophy, philology, archeology, geometry and medicine. A permanent influence on medicine was secured during this period by chemistry, which developed from its origin in alchemy into an independent science. But chemical laboratories were mostly the private property of the individual teachers, as the *collegium chymicum* of Johann Kunkel of Wittenberg. Even at this time Kunkel estimated the value of chemistry to the physician:

Medicine enjoys no slight benefit from this art. A physician cannot possibly recognize diseases and their origin by means of anatomy if he is not experienced in chemistry. Still less can he know the peculiarities and effects of medicines or recognize the functions of the body.

MUSEUMS

The development of the anatomic museum was an important feature of this period. The collections at

first consisted of only a few skeletons placed in the ampitheater, but by additions of anatomic preparations and specimens of birds, animals and fishes, the museum assumed a mixed character. In the catalog of the Leyden museum one finds: an Indian hog, a mandrake root, narwhal's teeth, a human skeleton, dried muscles, etc., besides the rare animals which were brought home from the colonies. Not infrequently private individuals established museums which were at the student's disposal. One of the most famous belonged to Frederick Ruysch, professor of anatomy and botany in Amsterdam. His collection contained, besides zoological objects, a great many anatomic preparations, both normal and pathologic, which he described and pictured in his "Thesaurus Anatomicus." He was especially well versed in the art of anatomic injections, and his specimens were made and arranged with the help of his daughter Rachel. For originality and delicacy of detail

Ruysch deserves special mention. Great stress was laid on graceful arrangement: one could view a rock picture, for example, made of bladder, kidney and gallstones, upon which were placed embryonic skeletons posed in quaintest attitudes, one wiping its eyes with a piece of injected omentum, another pointing with a pathologic object to a malformation of its head; the whole disposed in a rich vegetation of injected and corroded ramification of blood vessels, and supplied with appropriate mottoes wherever it was possible to apply them. The museum occupied five large rooms and was open to medical students and the public alike. Ruysch himself showed the student or visitor about and was paid for his services just as if it were a consultation. In 1717 he sold his large collection of anatomic preparations to Peter the Great for 30,000 gulden, but

only a part, it is said, reached Petrograd, as the sailors drank the spirits. Ten years later another collection was disposed of for a like sum to John Sobieski, king of Poland, who presented it to the University of Wittenberg, so famous in the story of Luther and the Reformation. In Copenhagen, in 1659, a museum was started above the *domus anatomica*, and took over the large and valuable collection of Henrik Fuiren.

UNIVERSITIES AND MEDICAL SCHOOLS

The constitutions of the universities from the outset were democratic, in that the students formed the controlling body of the community and made the professors dependent on them—a strong contrast to the conditions in the institutions of our own day. The rector, the officers of the university, and even the teachers were chosen by the student body. Each department, as for instance, philosophy, medicine and



Fig. 5.—Amphytheater at Leyden, built in 1610 under the direction of Pieter Pauw.

theology, had its own laws, and each group was divided into "nations" after their nationalities. Some of these "nations" possessed their own means and property and had special seals, not unlike the modern "corps" and Greek letter fraternity. The largest and most powerful of these "nations," especially at Padua, was that of the Germans, who among special privileges, had the right to carry a sword. Luther wore a sword, and on one occasion, when he suffered a bad fall, wounded himself severely with it in the thigh. The students often wandered from one university to another, just as they do today, and even the professors roamed about. Thus Vesalius taught in Padua, Pisa, Bologna, Louvain and in Basle, although the only means of travel were on foot or horseback.

Lectures began early in the morning and the medical students, as well as the surgeons, had the opportunity of being present at the hospital at stated times, "*si quid rari occurrit*." Occasionally the students made sick calls in the city with an instructor. Full instruction was given in the theory and practice of medicine during the school year by means of lectures and demonstrations under the guidance of special teachers. Each day's teaching was divided among various professors. One explained the medicine of Avicenna, another the theory of medicine in Galen and Hippocrates, while a third gave a course in the practice of medicine according to the writings of Rhazes. One of the foregoing lectured also on the pulse, urine, bleeding and purgation. As already stated, the anatomic demonstrations were given in winter, and during the warmer months the same professor taught surgery.

The first attempt at real clinical teaching was at Padua, in the hospital of St. Francis, by Odoni and

Bottoni, in 1558. About the middle of the seventeenth century (1636) bedside instruction was given by Otto Van Heurne at the University of Leyden, "*Collegium publicum, in qua ad morbos cante curandos studiosi in nosocomio instruuntur*," and by Ewald Schrevelius. This was continued from 1658 to 1672 by Sylvius, who introduced the complete clinical method, thus acquiring historical importance to himself and

erecting a monument to his nation. His reputation as a teacher became so widespread that students flocked to him in great number from all parts of Europe, even Italy. The practice was neglected by his successors until Boerhaave occupied the chair of medicine.

The public act of graduation of a medical student was generally celebrated with much ceremony, and for several days there were music and feasts. The great expenditures required to obtain the doctorate often dismayed many aspirants. Hence at various places the students petitioned the chief executives to reduce the expense occasioned by the dinners and other ceremonies. The result was that new statutes were passed and this burden practically eliminated. The historic features of the routine medical examination and graduation of this period have been immortalized by Molière in "*Le malade imaginaire*." This charming and instructive comedy was produced in 1665, for the special enjoyment of the king and court. From the raising of the curtain till it falls the piece is the most scathing satire on medical art and science. No detail concerning the professors, practice, teachings and instructions is omitted that could supply a point for raillery and ridicule.

Incredible as it may appear, the majority of students attained the degree of bachelor, and conversed learnedly of the nature and cure of disease before having seen a case. This great object was to know and discourse on all that the ancients had said about health and disease. After two years of devotion to this course of study the student was eligible for the *Baccalauréat*, which was followed at intervals with further tests, and then came the examination for "*licence*," admission to the

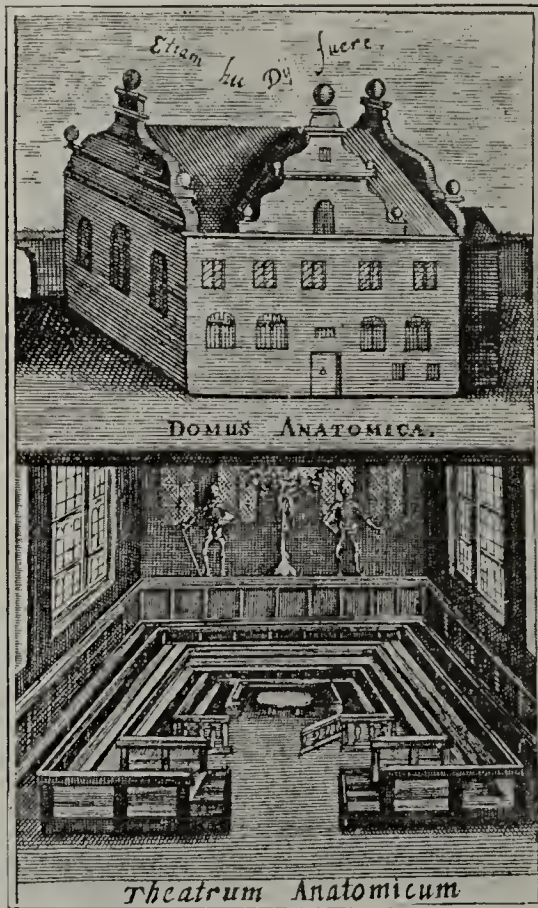


Fig. 6.—Anatomic theater at Copenhagen, used in 1662 by Bartholin.



Fig. 7.—Anatomiekammer.

"*vespérie*," followed with "*capping*."

The scene takes place in the amphitheater of the old medical school of Paris or Montpellier. We see a crowd of old French medical celebrities of the seventeenth century including doctors, surgeons and apothecaries in full professional glory with their four-cornered caps, and red robes trimmed with ermine. Beneath them sit a number of students, wearing the

black robe of a bachelor. The dean presides and opens the ceremonies with a long discourse on the glories of the institution. The object of the assembly is then disclosed, this being the examination of a candidate, to determine if he can give sufficient proof of the necessary qualifications for becoming a licentiate for graduation. The candidate having furnished brilliant proof of his capacity, falls on his knee and receives the apostolic benediction. After an interval of six weeks or more the candidate is admitted to the "vespérie," which consisted of a pompous eulogy on the dignity and importance of the medical profession. On the final day he proceeds to take the oath, swearing faithfully to observe the statutes, to reverence the opinions of his seniors and never to make use of remedies except those sanctioned by them. The candidate solemnly repeats the immortal single word "juro"; the dean then thrusts the square bonnet on his head, accompanying the act with a slight tap; and the worthy licentiate is henceforth privileged to practice. The bachelor, having undergone the learned

ordeal with success, delivers a flowery address and thanks his masters for the honor conferred. This lengthy ceremony with its innumerable dinners and banquets of old-time dimensions, which forms the substance of Molière's sparkling satire, gives a true picture of the seventeenth century graduation ceremonies. Locke, in an account of a ceremony of conferring a degree which he witnessed while on a visit to France, describes

the same sort of formality as that satirized by Molière.

Most of the universities had libraries, but the books were all chained to desks just as they may still be seen in the Laurentian library in Florence. The chains were formed of rod-iron bent into a figure-of-eight, with one end twisted around the middle for strength. Each chain was about three feet long and had at one end a ring, like a curtain ring, which, running along an iron rod, allowed considerable play. Thus one could take any book from its place to a desk at a little distance and there consult it, but could not take it away. There must have been some advantage in this plan or it would not have been generally adopted. Later the books were placed on shelves as they are today.

Athletics were also encouraged, and at Leyden there was a complete gymnasium for the students.

In earlier times the practice of the teachers had been to dictate to their students; now, however, in order to save themselves the trouble of dictating and the students the trouble of writing, which was a very laborious matter in those days, it became customary

for the lecturer to publish a book. Lectures and examinations were always held in Latin, and nearly all books written by physicians were in the same language, which continued to be the current tongue of scholars and student bodies everywhere for another half century.

When French was more cultivated and had a criticism of its own, this became the natural instrument of polite writers in France, and Latin fell to the merely learned, who neglected its beauty. In England it was customary to employ the native language for surgical works and the popular treatises on health.

THE MICROSCOPE

No history of medicine during this period would be complete without an account of the invention of the microscope. The latter was to medicine what the telescope was to astronomy. Compound microscopes constructed at this time were large and unwieldy and were invented by Hans and Zacharius Jansen, in 1620, and perfected later with better objectives by Robert

Hooke. The instrument he used was about three inches in diameter, seven long and provided with four draw tubes. It had three glasses: an object glass, a middle glass, and a deep eye piece. The first simple microscopes had the lens and the objective united closely together in an inch long cylindrical tube allowing of no adjustment. The magnification was slight (10:1), and the instruments were mostly used as curiosities for look-

ing at the wings of flies, fleas and the like. For higher magnifying powers, small lenses with short focal lengths were made.

These lenses were manufactured from glass, occasionally of rock crystal, by grinding or, to escape grinding, were formed by fusion. It was with such simple lenses that the first microscopic researches of scientific value were undertaken. Experimental physiology was now studied at all the universities, and by such early pioneers in the use of the microscope as Leeuwenhoek and Malpighi, Harvey's discovery of the circulation of the blood was completed. It was reserved for Malpighi in 1664, seven years after Harvey's death, to demonstrate on the lungs of a frog, by the aid of this instrument, the capillary anastomosis between the arteries and veins, the only missing point in Harvey's discovery. In connection with the early investigators of the microscope stand the numerous physiologic discoveries by Wharton, Glisson, Nuck, Bartholin and many others. Indeed, the seventeenth century is the era of the foundation of modern physiology.

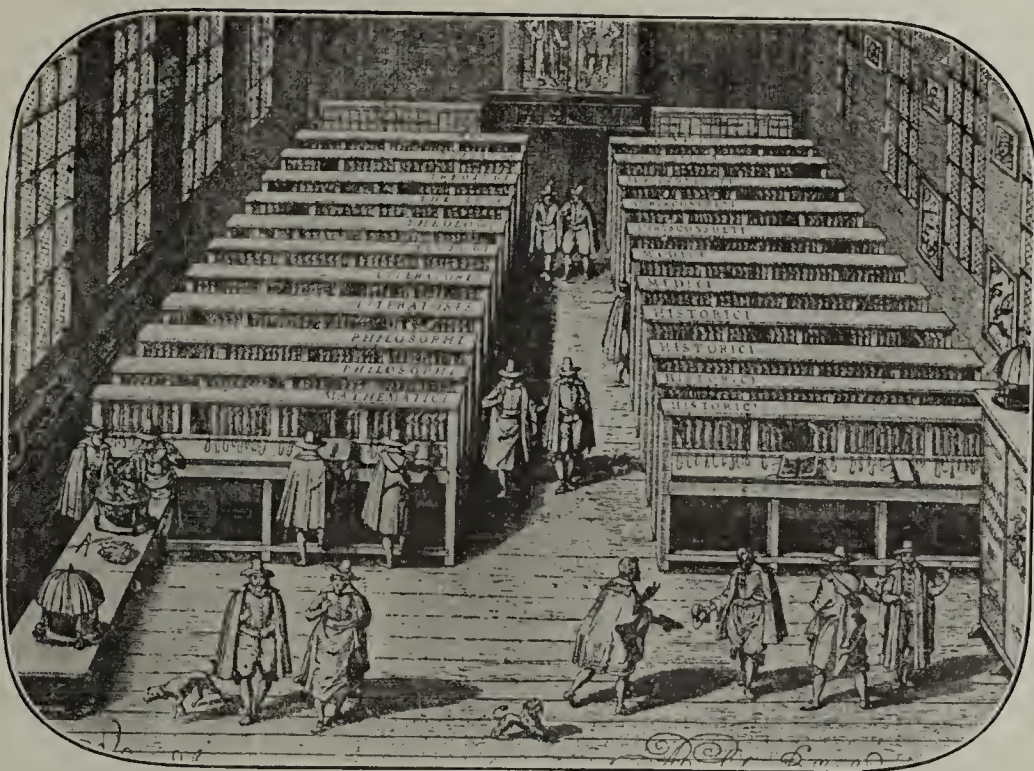


Fig. 8.—Chained library at Leyden.

ACHIEVEMENTS IN THE SEVENTEENTH CENTURY

The importance of the results of this century is, on the whole, incalculable. The great physiologic discovery of the circulation of the blood, the proof of the development of the higher animals from the egg, the reformation of the theories of vision, respiration and digestion, the numerous anatomic discoveries resulting from the closer union of anatomy and physiology, called into existence a new medicine. These are but a few of the innumerable glories of the profession of medicine in this century. The early teachers were laboring for the same objective that the modern scientific investigator is seeking today—the eradication of disease. Though we have advanced far beyond them in experience and knowledge, and successfully treat many diseases which they could not hope to do, for the science of medicine is an ever shifting and advancing one, yet their triumphs are well worthy of commemoration. When we contemplate the heritage which has descended to us, who would not be proud to be associated with the teachers of the seventeenth century, to be a colleague of Harvey and Sydenham and Leeuwenhoek and Malpighi and de Graaf? Of the old-time makers of medicine, it must not be forgotten that by them was laid the firm foundations of our medical science of the present day.

30 North Michigan Avenue.

THE CONTOUR OF THE NORMAL
ARTERIAL PULSE

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THE DETAILS OF THE PRESSURE CURVE IN THE
LARGE ARTERIES

When the pressure within the large central arteries is recorded by mirror manometers capable of following exactly the detailed changes of pressure, the tracings (Fig. 1 *A*) manifest the following variations:

A wave, *a-b*, associated with auricular systole and due either to a direct impact or pull of the auricle on the aorta or to a presystolic rise of tension in the ventricle.

A preliminary oscillation, *b-c*, synchronous with the rise of intraventricular tension in early systole and probably due either to a bulging of the semilunar valves into the aorta or to a traction of the contracting ventricle on the aorta.

The primary oscillation, *c-d*, synchronous with the first ejection of blood and due to the oscillation of the arterial blood column.

The true systolic rise and summit, *d-e*, corresponding to the maximal pressure in the ventricle.

The systolic decline of pressure, *e-f*, due to the fact that the amount of blood flowing from the arteries into the capillaries per unit time is less than that ejected in the same unit of time from the heart.

The incisura, *f-g*, or sharp fall of pressure occurring at the very onset of diastole and due to the sharp fall of pressure in the relaxing ventricle.

The vibrations of the blood column, *g-h*, due to valve closure and responsible for the heart sounds.

The gradual fall of pressure in diastole, *h-i*.

INFLUENCES AFFECTING
THE PRESSURE CURVE
IN THE CENTRAL
ARTERIES

Although the details of the pressure curve are retained under widely varying conditions of the circulation, the contour of the curve is determined by the systolic discharge and the peripheral resistance. A change in

the peripheral resistance changes chiefly the systolic portion of the pressure curve, as shown by comparing *B* and *C* of Figure 1. The rate of the systolic fall, *e* to *f*, is determined by the balance between the volume ejected and the peripheral flow in the same unit of time. Thus, if the resistance is high and the outflow small as compared to the cardiac output, the pressure remains elevated and forms a plateau, as in *C*. On the contrary, if the peripheral vessels are dilated, as in Figure 1, *B*, the fall of pressure begins soon after the summit is reached and proceeds by a steeper decline to a lower level at the end of systole. When the output of the heart is diminished, the curve loses many of its characteristic features, as shown in Figure 1, *D*. The pressure slowly rises and there is no primary oscillation (*c-d*) probably because the ejection occurs with so little force that the blood column is not thrown into oscillation. The incisura is also less sharp but the amplitude of valve vibration increases (*g-h*).

RELATION OF THE CENTRAL PULSE TO INTRA-
ARTERIAL PRESSURE

When blood is suddenly ejected during systole, it is largely accommodated by distending the aorta, which places the blood under pressure. As this increase of pressure is transmitted to the periphery, the arterial distention is also communicated from one segment of the vessel to the next. Hence the general teaching, that the pulse is a wave of pressure sweeping over



Fig. 9.—Hooke's compound microscope.

the arterial system at a velocity which is as independent of the velocity of flow as the waves in the river are unrelated to the current. It should be borne in mind, however, that when the pulse in any artery is felt we are not directly concerned with the pulse wave. *The pulse, as studied in any part of the arterial system, may be regarded as the expansion and relaxation of the arterial wall, produced by the intra-arterial pressure changes at that point.* If, therefore, a receiving tambour, such as is used in all polygraph work, be placed firmly over a large artery, such as the subclavian or lower carotid artery, and through it the variations in volume are transmitted to a segment capsule, we should expect to find all the details of the

it requires an apparatus with an inherent frequency of about 48 per second to record the details of the human carotid pulse. If it is desired that the different oscillations shall be reproduced in their correct amplitude as well, it is necessary to have an apparatus with a frequency far above this figure in order to avoid resonance effects. In pathologic pulses in which murmur vibrations are present the requirements are even greater.

By actual test, the following vibration frequencies were obtained from a few forms of polygraphs in common use: Mackenzie polygraph tambour, 4.5 per second; Zimmermann polygraph tambour, 5.8 per second; Jacquet polygraph tambour, 6.5 per second.

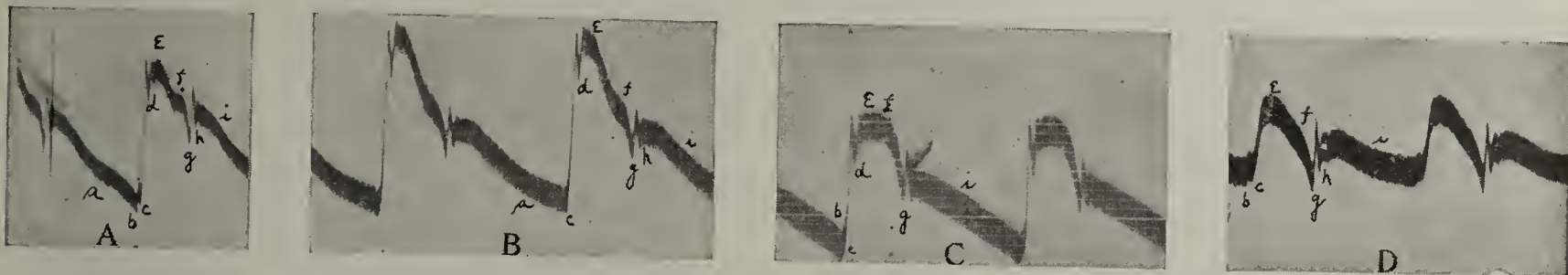


Fig. 1.—Details of the pressure curve in the central arteries under different conditions. Description in text.

intra-arterial pressure curve in the record. This is precisely the case. In tracings taken from seventy-eight medical students during the last three years, I have never failed to discern the same details found in the pressure curve. This is illustrated in a few specimen records shown in Figure 2, in which the details are lettered as in Figure 1.

The average curve obtained in this series of experiments rises to a peak in the systolic portion and then rapidly falls during the latter part of systole, indicating that the peripheral flow is normally large as compared with the ejection. The end of systole is always sharply indicated by the incisura and a series of valve vibrations. A computation of the period of rising tension (*b-c*) was possible in fifty-eight records, in which it was found to vary from 0.058 to 0.085 seconds. The entire period of systole (*b-f*) was estimated in sixty-three cases in which the heart rate ranged from 68 to 80 per minute and was found to vary from 0.26 to 0.33 seconds.

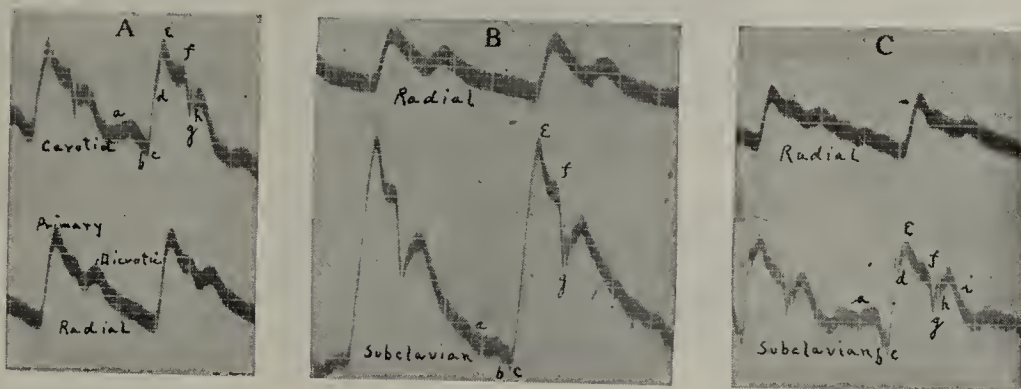


Fig. 2.—Three segments showing details of the central pulse in man and their transformation or obliteration when propagated to the radial artery. Description in text.

THE REQUIREMENTS OF APPARATUS TO RECORD THE CENTRAL PULSE FROM THE SUBCLAVIAN OR COMMON CAROTID ARTERY

The details of the central pulse recorded by Frank's segment capsules are not obtained when the tambour systems of polygraphs are used. This is due to the fact that their vibration frequency is too low. It is a simple fact in physics that an apparatus cannot vibrate at a greater frequency than its own inherent rate. A seconds pendulum cannot make four strokes per second. A tuning fork with a period of 100 per second cannot respond to 1,000 vibrations per second. Since the valve vibrations which are the shortest oscillations recorded have a period of from 0.02 to 0.023 second,

It is clear that the details of the central pulse cannot be recorded by transmission systems of this character. The time relation and relative heights of the separate waves recorded are also not correctly reproduced. This is illustrated by the record of Figure 4 A, which was taken with the Zimmermann polygraph from the same subject as the record of Figure 2 B.

THE CONVERSION OF THE CENTRAL TO THE PERIPHERAL PULSE

A record taken by a transmission sphygmograph and a segment capsule from a peripheral artery such as the radial does not show all the details of the central pulse. The curves consist essentially of two slow waves, the primary and the dicrotic. All evidence of the preliminary oscillations has disappeared; the rise of the primary wave is much more gradual; the top, evenly rounded. Time measurements indicate that the upstroke of the radial is delayed owing to the time taken for transmission. The period between the rise of the primary wave and the rise of the dicrotic does not correspond to the period of systole estimated from the central pulse (Fig. 2).

These changes occur as a result of friction and interference with reflected waves from the periphery. Friction tends to smooth out all the finer oscillations, and converts the incisura and after-vibrations into a slow wave recognized as the dicrotic. The dicrotic wave, however, contrary to other oscillations spreading to the periphery, does not become smaller but increases in amplitude. This fact has led Frank to the inference that the dicrotic variation initiated by the incisura and valve vibrations in the aorta is augmented and modified by waves reflected from the periphery.

THE REQUIREMENTS OF SPHYGMOGRAPHS TO RECORD ACCURATELY THE PERIPHERAL PULSE

As a result of theoretical and experimental investigations, Frank and Petter found that a sphygmograph must have an inherent frequency of 32 per second in order to record the peripheral pulse correctly. Their study furthermore revealed the interesting and unsuspected fact that every sphygmograph that has been introduced since Marey's original model has become less accurate than its predecessor. Convenience has been acquired at the expense of accuracy. This is evident from a comparison of the following vibration frequencies established by Petter:

Marey sphygmograph.....	13	per second
Von Frey sphygmograph.....	11	per second
Dudgeon sphygmograph.....	9.2	per second
Jacquet sphygmograph (old model).....	7	per second
Frank-Petter sphygmograph.....	32	per second

The vibration frequency of the entire apparatus used in taking the optical tracings from the radial was 48 per second. There is another method of testing the efficiency of a radial sphygomograph which is more applicable to the clinic. It consists in recording the pulse tracings with varying pressure of the sphygmograph button. If the apparatus is reliable, the amplitude but not the contour changes. If it is inadequate, both contour and amplitude will change. The latter is the case of the new pattern of Jacquet, as shown in the curves of Figure 4 B, C, D.

THE INFLUENCE OF LOW RESISTANCE ON THE ARTERIAL PULSE

A low peripheral resistance is probably an accompaniment of many clinical conditions. The changes it produces in the contours of the central and peripheral pulses in man can be studied by inhaling the vasodilating drug, amyl nitrite. The normal radial and carotid curves are shown in Figure 3 A. The tracings at the height of a reaction are shown in Figure 3 B. These curves show, in addition to the increase in rate and the consequent shortening of diastole, other striking points of difference. The primary oscillation, which under normal conditions is not present in the upper carotid region, reappears distinctly at this distance under amyl nitrite (d). In the central pulse both the rate of decline in systole (e-f) and in diastole (h-i) is increased. In the peripheral pulse the decline during systole is also

present, but during diastole is not recognizable. This is entirely due to the fact that the shortened diastole is filled by the dicrotic wave. Superdicrotism, such as occurs in the radial owing to the fact that the dicrotic wave is not completed before the next primary wave begins, is never present in the central pulse.

SUMMARY

The pulse, as palpated or recorded from any artery, is the variation in the arterial volume produced by the intra-arterial pressure changes at that point. The details of the arterial pulse correspond exactly to the details of the pressure curve. To record these varia-

tions requires an apparatus of higher efficiency than is supplied by any form of apparatus in current clinical use; hence, the details of these changes were not recognized until the introduction of the segment capsule of Frank.

The contour of the central pulse differs materially from that of the peripheral pulse. The former allows an exact study of the pressure changes in the large central arteries; the latter records these changes as modified by friction and waves reflected from the periphery. The central pulse offers exceptional opportunities for studying the condition of the circulation. A study of its contour during systole permits conclusions as to the relations between cardiac output and peripheral flow offered by no other method. The precise onset of systole and diastole can be accurately determined.

Statistics Concerning Negroes in the United States.—The U. S. Census Bureau will issue about March 20 a bulletin which will be the first to cover the mortality of negroes in the United States. Heretofore the negroes have been included with the Indians and other colored races. The data covers the registration area and fifty-seven selected registration cities having in 1910 a colored population of 2,500 or more. The negro population of the area was 19.7 per cent. of the total number of negroes in the United States in 1910, and the deaths numbered 49,499, a death rate of 25.5 per 1,000. The rate in 1900 was 29.4. In the fifty-seven cities the death rate among negroes in 1910 was 27.8 as against 15.9 per 1,000 among the whites. In the thirty-three northern cities the death rate was 25.1 and among whites 15.7. In twenty-seven southern cities the rate for negroes was 29.6 and that for whites 16.9. The tendency is for the death rate among negroes in the registration cities to decrease at a more rapid rate than that of the whites.

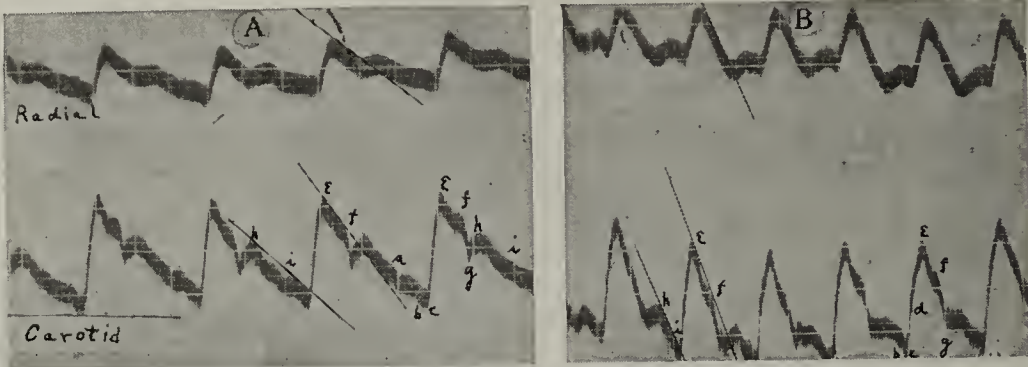


Fig. 3.—Two segments of radial and carotid pulse: A, under normal conditions, and B, after inhalation of amyl nitrite (low peripheral resistance).

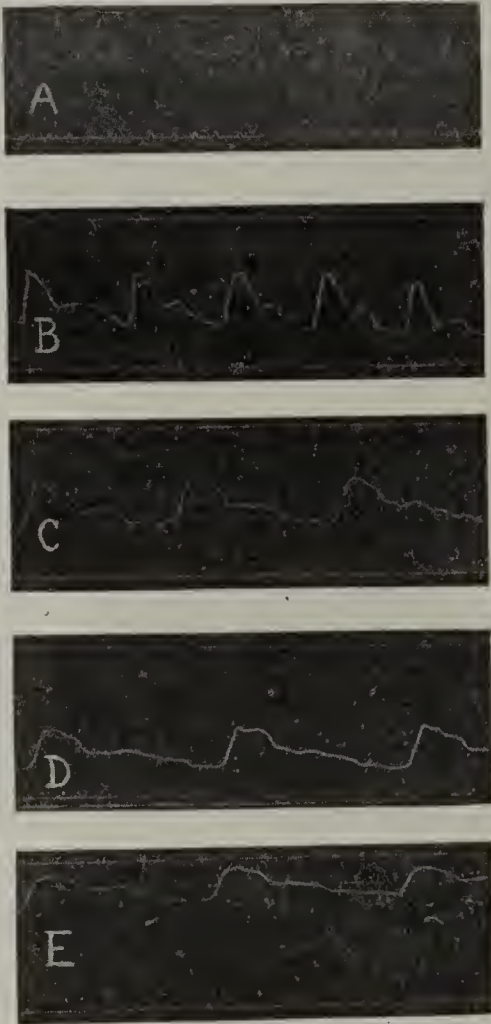


Fig. 4.—A, record of subclavian pulse by Zimmermann polygraph from same subject that tracing of Figure 2 B was obtained from. B, C, D, E, segments of records taken from radial artery of same subject with new form of Jacquet sphygmograph at different pressures of button. Movement of paper was not constant; heart rate was unaltered.

SYPHILIS IN CHINA

REPORT OF SOME UNUSUAL SYPHILITIC LESIONS

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Next to tuberculosis, syphilis is perhaps the most prevalent disease in China. Yet while the primary and secondary stages are frequently seen, tertiary lesions are less common, and so-called parasyphilitic affections are excessively rare. Syphilitic myelitis and endarteritis are fairly common, but in the medical service of the Yale Hospital there has been



Fig. 1.—Syphilitic onychia (Case 1).

but one case of tabes dorsalis and none of general paralysis in the past year. This distribution does not hold in the large coast ports where there is a large Chinese population which has traveled outside of China and returned with a foreign luetic infection. In this class, the incidence of parasyphilitic conditions is similar to that in the west. No satisfactory explanation has been found for this state of affairs. It has been suggested that the *Treponema pallidum* of China is of a different strain from the occidental treponeme, and that it is not so prone to produce parasyphilitic lesions.

As is to be expected, the average Chinese patient will not ordinarily continue treatment after the symptoms of syphilis have disappeared. Consequently a complete cure is difficult to obtain, and the infrequency of late luetic lesions is the harder to explain. The cases reported here are presented with the object only of recording certain interesting features. Complete reports are therefore not included.

CASE 1.—The patient, a Chinese man aged 46, was admitted to the medical service of the Yale Hospital complaining of severe pain in the knees and wrists of five months' duration. He gave a doubtful venereal history. Physical examination showed a general glandular enlargement including both epitrochlears and postcervical glands. There was a scar of a comparatively recent lesion on the penis. The significant lesions were on the shins, palms, soles and the fingers and toes. On the shins were typical rupial syphilids with a few periosteal nodules. On both palms and soles were typical papulopustular lesions with considerable overlying keratosis. This was particularly marked on the soles. The nails of both fingers and toes were the seat of an advanced onychia with a varying destruction of the nail and matrix. This was much more pronounced on the fingers than on the toes. No fungus was found on repeated examinations. There were scars and disappearing papulopustular lesions on all four extremities. At no point were the skin lesions itching or painful.

Treatment consisted of a mercury and iodid mixture internally, with an iodid dose amounting to 1 gm. three times a day. The patient had refused salvarsan. On the palms and soles a salicylic ointment with iodine was used until a clean new skin appeared. The diseased nails were painted daily with a 20 per cent. tincture of iodine until marked improvement and some soreness were obtained. The patient was discharged with a symptomatic cure. The nail-beds were clean and healthy, and new nails were starting on some of the fingers where the matrix was not completely destroyed. Advice was given as to continued treatment, but a symptomatic cure



Fig. 2.—Syphilitic lesions on soles (Case 1).

answers all the requirements of the average Chinese, and this patient will probably present interesting recurrences in the future.

CASE 2.—A Chinese man, aged 40, was seen in the medical outclinic of the Yale Hospital. He gave a definite history of luetic infection and secondaries. The interesting lesion consisted of a tubercular eruption on the face, the papules varying in size from a pinhead to a half inch in diameter. The case could not be followed.

CASE 3.—This patient was admitted twice at an interval of two years for a complete destruction of the nose due to syphilis. After a long course of treatment, the first time a plastic operation was done, but the graft could not obtain sufficient blood-supply and was not successful. A second operation was not undertaken, as a successful result could not be guaranteed. Complete loss of the nose is not uncommon from syphilis in China, but oftener there is seen a gross scarring of the face with complete destruction of the features and eyes, and only a small hole penetrating to the nostrils or the mouth. A somewhat similar condition is seen as a result of inoculation of small-pox in the nose.

Yale Hospital.

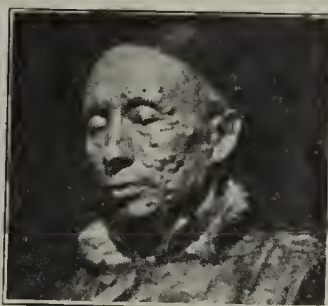


Fig. 3.—Tubercular syphilid of face (Case 2).

The Consumptive and the Quack.—The consumptive is the ideal victim of the quack, charlatan, and vendor of patent medicines, and this is particularly true of the consumptive who lives in rural communities, where often the local papers derive their greatest income from advertising nostrums and sure cures for consumption and other diseases. There should be a health publicity column in the local paper to enlighten the public. If necessary, the provincial or local department of health should pay for this, to compensate the poor editor for his loss of quack advertisements. The laity should be told that there is no sure cure for consumption; that good air, rest and good food under careful medical supervision, and the scientific administration of medicine to relieve distressing symptoms are, up to this date, our only means of curing tuberculosis, and that every advertisement of a sure consumption cure cloaks a swindle.—S. Adolphus Knopf, *Public Health Reports*, Dec. 18, 1914.

THE PRESENCE OF ARSENIC IN THE SPINAL FLUID*

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Engman, Buhman, Gorham and Davis¹ state that in four cases of general paresis, the administration of large doses of neosalvarsan (0.9 gm.) intravenously, showed negative results as to the presence of arsenic in the spinal fluid in all four cases.

Citron states that salvarsan does not reach the spinal fluid by either the blood or lymph streams and cannot be demonstrated in the spinal fluid after subcutaneous or intravenous injection.

Wechselmann² doubts these results as to the presence of arsenic in the spinal fluid following such injections, as he has not been able personally to verify them.

Sicard and Bloch³ administered salvarsan in 0.4 gm. doses to seven patients either subcutaneously or intramuscularly and no arsenic was found in the spinal fluid. They noted traces of arsenic in the spinal fluid, however, in one case two hours after an intravenous injection of 0.4 gm. of salvarsan.

Lorenz⁴ gave sodium cacodylate intravenously in small doses and noted negative results as to the presence of arsenic in the spinal fluid. When the cacodylate was given large doses up to 1 gm. intravenously, small traces of arsenic were found in the spinal fluid one hour after the intravenous injection. However, on giving the cacodylate in 0.8 gm. doses and withdrawing the spinal fluid within a period of from six to twelve hours, negative results were obtained. This shows the impracticability of administering the cacodylate because of the size of the dose necessary to show a reaction of arsenic in the spinal fluid.

Camp,⁵ in reporting a summary of seventeen cases in which 0.6 gm. doses of salvarsan were administered intravenously and the fluid withdrawn within a period of from fifteen minutes to forty hours after the injection, found arsenic in only one instance, namely, in a case of secondary syphilis fifteen hours after the injection. His conclusions are that salvarsan given in doses up to 0.6 gm. does not ordinarily result in the presence of arsenic in the spinal fluid.

Ravaut⁶ believes that the condition of the meninges when the injection is made has something to do with the secretion of arsenic in the spinal fluid. He found traces of arsenic in six cases out of thirty-three observations; in one case eleven months, and in another three months after the injection.

Benedict⁷ examined four specimens of spinal fluid withdrawn twenty-four hours after an intravenous injection of 0.4 gm. of salvarsan and in all four cases he found free arsenic in about one-sixth to one-tenth concentration in the whole blood. He concludes that in such instances the spinal fluid contains as much free arsenic as does the dose of salvarsanized serum.

The foregoing observations include about all of the literature which bears on this subject. In my personal experiments I have used sodium cacodylate, sodium arsenate, neosalvarsan and salvarsan, with the following conclusions:

SODIUM CACODYLATE

I administered sodium cacodylate intramuscularly in two cases, giving 3 grains in each case and examining the spinal fluid twenty-four hours later, with negative results. In two cases the cacodylate was given intramuscularly in 3-grain doses three times a day for three days, at the end of which time the spinal fluid showed no free arsenic. In two cases the cacodylate was given in 2-grain doses twice a day for three days and was increased to 3 grains twice a day for three days, with negative results. In the same cases the treatment was still further continued in 2-grain doses twice a day for six days without showing free arsenic in the spinal fluid. These cases included both tabes and cerebrospinal lues.

SODIUM ARSENATE

Sodium arsenate was administered in doses of 7 minims each of a 5 per cent. solution given intramuscularly, and the spinal fluid was examined in twelve hours, with negative results. In a case of tabes the same solution was administered in 5-minim doses subcutaneously twice a day for three days, then in 4-minim doses twice a day for four days longer, when the spinal fluid showed negative results for free arsenic. In a case of cerebrospinal lues a similar solution of sodium arsenate was administered hypodermically twice a day for seven days, when an examination of the spinal fluid showed the absence of arsenic.

NEOSALVARSAN

I administered neosalvarsan intravenously in 0.6 gm. doses to three patients with tabes and two with lues; the spinal fluid was withdrawn in one case in one and a half hours after the intravenous injection; in a second case six hours after the injection, and in three cases twenty-four hours after the injection, and no free arsenic was found in the spinal fluid in any instance. In seven cases neosalvarsan was administered intraspinally in approximate doses of 3 mg. each, according to the method of Ravaut, and the fluid was withdrawn ten hours after such injection; in four of these cases arsenic was present in the spinal fluid, while in three cases it was absent. In ten cases after the administration of neosalvarsan in like manner, the fluid was withdrawn within twenty-four hours after the injection and arsenic was present in one case and absent in nine cases. I have given neosalvarsan intraspinally in 125 cases and in only one instance, in a tabetic who was pronounced alcoholic, has there been any untoward effect.

SALVARSAN

I administered salvarsan intravenously in 0.4 gm. doses in three cases of tabes and three cases of cerebrospinal syphilis, withdrew the fluid in twenty-four hours after the injection, and the spinal fluid showed the presence of arsenic in two of the cases, namely, in one of tabes and in one of cerebrospinal lues.

In submitting these reports I have not recorded twenty-three cases carried out in a similar manner on a previous occasion, as I discovered that my technic was not properly perfected. I mention this fact because it demonstrates the great care necessary to avoid contamination from other sources. I have found

* Read before the Chicago Neurological Society, March 18, 1915.

1. Engman, M. T.; Buhman, Rudolph; Gorham, F. D., and Davis, R. H.: A Study of the Spinal Fluid in One Hundred Cases of Syphilis, *THE JOURNAL A. M. A.*, Sept. 6, 1913, p. 735.

2. Wechselmann: *Berl. klin. Wchnschr.*, 1912, xlix, 688.

3. Sicard and Bloch: *Bull. Soc. d. hôp. d. Paris*, Series 3, p. 894.

4. Lorenz: *Med. Rec.*, Aug. 3, 1912, p. 185.

5. Camp: *Jour. Nerv. and Ment. Dis.*, 1912, xxxix, 809.

6. Ravaut: *Presse Méd.*, March, 1912, p. 182.

7. Benedict: *Am. Jour. Med. Sc.*, November, 1914, p. 699.

that by simply using the ordinary precautions of sterilizing the needle by boiling, arsenic may be retained in the needle in sufficient quantity to give a positive reaction. Later, I observed greater care in washing the needle out with ether followed by sterile water and then boiling the needle, and my results as to the presence of arsenic immediately changed. I have also excluded in my reports specimens of spinal fluid which contained blood in those cases in which I had previously administered the different preparations intravenously or hypodermically.

I am submitting these preliminary reports and trust the future may reveal something in the way of importance along these lines. There should be some way of testing the relative toxicity of the spinal fluid on the spirochetes after the injections of these different preparations of arsenic. I would suggest also that by either increasing or decreasing the blood pressure or decreasing the pressure of the spinal fluid, arsenic may possibly be more readily eliminated into the spinal canal.

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AN EXAMPLE OF COOPERATION WITH THE CHINESE IN MEDICAL EDUCATION *

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The leaders in medical science in China to-day are agreed that in medical education lies the strategic basis for future development. In order to accomplish the most for China and to confer a permanent blessing on her people, they realize the necessity of conserving the comparatively insufficient resources of men and money, and of utilizing to the best advantage all available energy and effort in the training of Chinese doctors. With the limited supply of men and money from foreign sources, it is suicidal to spread out over the whole field waiting to be occupied. As Dr. Gillison said, "Plant all the hospitals and all the doctors in civil and military practice in Great Britain and Ireland in the one province of Szechuen, and provide for the rest of China in the same proportion, and you have some idea of the goal to be reached." And this leaves out of account the entire field of medical education, which is to supply the doctors needed.

The present opportunity is superb for medical men to do educational work, and thereby shape the medical situation for China. Delay now means permanent loss, for when China has organized her own medical institutions, the opportunity will be forever gone. The need of uniting all available forces in establishing union medical schools in strategic centers, in order that the limited foreign funds and men may be fully conserved, has already been sufficiently urged, and several such schools are now in operation. The purpose of this paper is to invite serious attention to a working example of cooperation with the Chinese in medical education on a new basis.

The advantages of such cooperation are:

1. The good will of the Chinese is enlisted. When they are made partners, opposing forces are changed into promoting ones.

2. Suspicion is removed. Cooperation brings closer touch with the Chinese and a truer understanding of the real purpose of missionaries in China, thus averting the besetting dread of the Chinese of foreign aggression in educational work. The result is increased confidence in foreigners and their activities and motives.

3. The advice and practical aid of the Chinese workers is indispensable in adapting such institutions to Chinese requirements. Only a Chinese can fully understand the Chinese point of view.

4. Cooperation with the Chinese gives the work more permanency. In medical as in other lines, foreigners are merely laying foundations on which the Chinese themselves must build. By cooperation alone is the work made continuous and lasting.

5. Through cooperation the Chinese learn the best methods of conducting schools, and foreign educators are enabled to direct the proper expenditure of funds.

6. With government recognition, the work is viewed with favor by the Chinese.

There are, to be sure, certain disadvantages, but the merits of cooperation vastly overbalance these, and in most cases the difficulties are easily overcome. Having enumerated the advantages of cooperation with the Chinese, let me describe to you a cooperative agreement at Changsha between the Chinese and Yale which is now in full operation. Those who are seeking examples of such cooperation may, perhaps, profit from the recital of an actual experience.

This movement took a practical form in the summer of 1913, but Yale had been patiently and carefully paving the way since 1906. During these years the one aim was to cultivate friendship and good will with the Chinese, and to win Chinese interest and confidence in the Yale work. To this end, every effort was made to give practical assistance to the Chinese in such affairs as Red Cross work, combating epidemics, and in making effective sanitary reforms. So in 1913, when a large gift was secured in America for the erection of a new Yale hospital, the Chinese were at once interested, and appreciated the opportunity. On their own initiative, over eighty of the prominent gentry of Hunan, led by provincial officials, sent a joint petition to the governor, requesting him, in the name of the Hunan government, to enter into a working agreement with Yale for the immediate establishment of a medical school. This request was granted, and the agreement was signed in July, 1913, between Yale on the one side and the governor, representing the Hunan government, on the other. Thus was born the Hunan Yale Medical School.

I wish again to emphasize the fact that the cooperative agreement was developed at the initiative of the Chinese, but that the way was paved by a steadfast and definite policy on the part of Yale extending over seven years. In addition to opening a new medical school, with standards similar to those in the West, the cooperation also undertook to maintain two nursing schools for men and women, respectively, a hospital and a research department for the investigation of public health problems and diseases peculiar to China. By the agreement, the Hunan government is to provide the necessary school buildings, costing \$156,000 (Mexican), nine acres of land, amounting to \$50,000, and an annual sum of \$50,000 (Mexican) for the maintenance of the school and hospital. Yale undertook to furnish a hospital costing \$150,000 gold, and the salaries of fifteen doctors.

* Read before biennial convention of China Medical Association, Shanghai, Feb. 1-5, 1915.

Control is vested in a board of managers of twenty members, ten Chinese and ten from Yale. The board, when formed, is self-perpetuating, but undesirable members may be removed by a three-fourths vote of the board. In case of vacancy, the board has the right to elect new members, but such elections require a three-fourths vote of the members to become valid. Current business is in the hands of an executive committee, elected by and from the managers. The agreement provides for a probationary period of ten years, and is subject to indefinite continuation, if proved successful. Land costing 80,000 taels has been purchased adjoining the Yale campus. Of this sum Yale gave 20,000 taels, the Hunan government 50,000 taels, and the land owners 10,000 taels. A medical preparatory department and two nurses' training schools were opened in the fall of 1913.

Before the agreement was put to a practical test, it was feared by Yale that certain delicate matters would present practical difficulties. One of these problems was in connection with religious instruction, but the difficulty was easily met by a clause insisting on the importance to the society that physicians should be men of moral character, and providing that, while students were to have entire religious freedom, teachers were also to be free to give religious instruction. With a board whose Chinese representatives were chiefly non-medical men, it was feared that unreasonable interference on technical matters might impair the efficiency of the school; but it was soon found to be quite otherwise. The Chinese members voluntarily placed the entire responsibility in all technical matters in the hands of the Yale medical staff. Besides, the rules of the Hunan Yale Medical Association provide that professional management of the hospital and school shall be left with the two medical members on the committee.

The appointment and dismissal of teachers, it was feared, might become another serious difficulty. The Chinese might introduce their own friends, regardless of qualifications. But this fear was removed by leaving nomination for appointments entirely in the hands of the two medical members of the executive committee, and making dismissal of teachers require a three-fourths vote of the board of managers, on the recommendation of the medical faculty.

The difficulty of the language to be used as a teaching medium was also readily solved. The opinion of the Chinese managers was asked, and their decision was unanimous that English should be employed. It seemed evident to them that the difficulties in giving adequate medical instruction in Chinese, and the ideal of making this a first-class medical school, alike made the use of English imperative. Of course the pre-medical course, and perhaps part of the lower years of the medical course, would require more or less explanatory instruction in Chinese; but the opinion was unanimous and enthusiastic on the part of the Chinese that graduates should have a good working knowledge of English and that the more technical instruction should be in English.

In the midst of progress there came a serious setback. A small group of Chinese, claiming to represent the western medical profession of the province, from motives of jealousy and self-interest, attempted to wreck the Hunan-Yale scheme. At a time when Hunan was suffering from the effects of her declaration of independence from the central government (August, 1913), it seemed easy to ruin the scheme.

The governor who had put the agreement through lost favor at Peking and was removed. This gave the opposition its opportunity at Peking, and a decision of the cabinet ordered the Hunan-Yale agreement to be canceled. For a time difficult problems confronted Yale. Analysis of the situation resolved it into two propositions:

1. Was it worth while to revive the cooperation, if an agreement officially made with the Hunan government could be so easily canceled at Peking?

2. If worth reviving, should Yale bring diplomatic pressure to bear at Peking, or should the Chinese use their persuasive influence on their own cabinet?

Yale unanimously decided to adopt the latter policy in the belief that if the movement could not be revived by reasonable explanation, no real cooperation could take place.

After securing the approval of the new governor, who quickly became a warm friend of the movement, representatives were sent to Peking to ascertain the nature of the opposition. They found that the objections, which were largely misrepresentations by the opposing party, were easily explained. Only one real issue was raised by the Peking government. Since the movement was the first of its kind, representing the cooperation of a private foreign body with a provincial government, Peking feared that it might later be used as a precedent by other foreign organizations whose motives might not be so sincere as those of Yale. Consequently, the services of thirty leading Hunan officials resident in Peking were secured to organize an association known as the Hunan-Ru'-chuen Educational Association, and an agreement similar to the original one was signed between it and Yale. The agreement met the formal approval and sanction of the cabinet, as well as of the Boards of Education, Finance, the Interior, and Foreign Affairs. The Ru'-chuen Association thus acts as a technical intermediary between the government and Yale. All the financial undertakings called for in the agreement are, in reality, carried by the government.

Thus the Hunan-Yale Medical School was revived. This time it has been placed on a still firmer basis because it has been registered with the central government as well as with the governor of the province. The cooperation is made stronger and more real because no foreign pressure was used in its revival. The movement has stood a severe testing. It was subjected to the scrutiny of the cabinet twice, was approved by three governors, and supported by two parties of opposite political views. The fact is significant that though at present the provincial treasury is depleted, and though the authorities are trying in every way to reduce expenses, educational and of other sorts, yet they are sincere in their desire to discharge their obligation to the Hunan-Yale Medical School. Two payments totaling \$20,000 have been made, and a large building worth \$50,000 has been reserved for the use of the school and hospital, pending the erection of permanent buildings.

The medical preparatory school with nineteen students, and the two nursing schools with thirty-five students, are now in full operation, and the Yale hospital is under the direction of the joint board. This represents the Hunan-Yale cooperation in medical education. It is taking place in Hunan, a province in which provincialism and local pride, to say nothing of nationalism, run high. If it is possible in Hunan, it must be possible in many other places in China. The time has

come when the Chinese look on cooperation with favor. Where it is sought it will be found; but progress must be patient and slow, if lasting results are to be obtained. The first essential is to remove all opposition, and to secure the friendship, good will and sympathy of the Chinese. To overcome opposition, the resources of Chinese friends must be sought. One man who has made friends out of opponents for the work in Changsha is an elderly Chinese doctor who has made both fame and fortune in the practice of Chinese medicine. When he was won over he gave up his lucrative practice and resigned the presidency of a Chinese medical school. Not only does he lend financial and moral aid to the Hunan-Yale school, but he sends many rich and influential patients to the hospital and on every occasion testifies to his conviction that Western medicine is better than Chinese.

When opposition is removed, indifference and apathy must be transformed into keen and proprietary interest. Indifferent cooperation is not productive of effective results. Unless the Chinese have an intense and vital interest aroused, cooperation is in name only. Here are needed those Chinese who command esteem and respect among their countrymen. Revival of the Hunan-Yale movement would have been difficult without such Chinese as General L. Chang, who from long contact with foreign institutions knew exactly what they stood for, and from his important official position as military adviser to the president, commanded the confidence of the people. Because of this, he was able to convert the previously uninterested officials in Peking into actual promoters of the movement. At Changsha Yale is fortunate in having another friend, the son of a governor, whose close connection with the gentry gives him great influence with his fellow provincials. Three principals of the three most important middle schools, as well as the commissioners of education and police, are among the members of the board of managers. Indeed, the strongest asset of the Hunan-Yale Medical School is the great and practical interest taken in its work by the Chinese members of the board. This interest has been worked up by this one man.

Hunan-Yale represents a thorough and wholesale cooperation in medical education with the Chinese. It is a brave attempt in that its success is yet to be proved. It is a risky enterprise in that the coalition has yet unforeseen difficulties to face. It means self-denial and sacrifice on the part of the foreigners concerned, but it is worthy of the most serious consideration. The time has come when cooperation with the Chinese is no longer an ideal dream but may be materialized in fact. The Chinese are getting to know the foreigners better, and to understand their real motives, and are prepared to unite with them in such movements as this. But the initiative must come from foreigners. Where cooperation is sought, it is given, but the degree of success must necessarily depend on the spirit in which it is entered. In proportion to the fairness, loyalty and enthusiasm of the foreign party will be the cordiality, interest and support of the Chinese.

Amount of Breast Milk at a Feeding.—The quantity of breast milk received by the baby at a single meal varies within wide limits. The largest quantity ingested at one meal may be two or three times as great as the smallest quantity taken at one feeding on the same day.—Isaac Abt, *Detroit Med. Jour.*, February, 1915.

THE PROGNOSIS AND TREATMENT OF TUBERCULOSIS OF THE KNEE IN CHILDHOOD *

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Methods of treatment and concern for the future are always subjects of interest and importance in the consideration of tuberculosis of the joints in children. The relation of treatment to prognosis in these cases is definite and close, yet the eager questions of the parents with regard to the future usefulness and appearance of the part are often extremely difficult to answer. In no joint is this condition of affairs more apt to arise than in the knee. Deformity, limitation of motion, shortening, and impaired function are such common end-results of tuberculous infection of this joint, that it is frequently advisable to establish with the parent an early understanding of these possibilities as well as the certain expectation of a long and tedious convalescence. Indeed, after the many months or even years of treatment, during which the child must continue an invalid, must be constantly attended and nursed, must have, as in many cases, frequent dressing of discharging sinuses and must be carefully watched for exacerbations and untoward symptoms, a termination of the acute process, even though attended by malformation or partial disuse, is gladly welcomed.

COMPLICATIONS OF TREATMENT

This rather pessimistic outlook, or at least, this uncertainty of prognosis, is due to many factors. Tuberculosis, in all its manifestations an insidious enemy, a slow-working yet a mighty destroyer, a smoldering fire with constant menace of terrible conflagration, makes no exception of the child's knee. Almost invariably there is a long history of partial disablement, pain, limp, and impaired general condition, before the child is brought to the doctor, and yet when seen, these same joints are quite as invariably hot, swollen, tender, held by spasm and otherwise markedly acute. In other words, the condition long standing has suddenly flared up and the parents have come to the realization that the child's "run down" condition will not "pass off" as they had hoped. Again, in the course of treatment, sufficient quiescence of the joint having been obtained in combination with increased general resistance, fixation is suspended and function resumed too quickly through the ignorance of an overindulgent parent or the hastiness or overconfidence of the physician. The result, recurrence of acute symptoms due to the stirring-up of the untreated focus, produces further damage to the joint, prolongation of treatment and prejudicial after-result. Improper fixation, the wetting or breaking of casts, neglect in carrying out the measures prescribed, inattention or inability to provide proper food, fresh air, rest, etc., all have their marked effect on the course and result of the disease.

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DISADVANTAGEOUS PATHOLOGIC CONDITIONS

Moreover, an examination of the pathologic changes involved in the process, clearly demonstrates the difficulties of treatment and of cure without deformity. Poor general condition is always present, as tuberculosis of the bones and joints is usually secondary to infection elsewhere, bacteria and toxins being carried by the blood stream to the part. In children, the favorite site of the initial involvement in the knee is usually near the epiphyseal line of the femur or tibia at the edge of the reflection of the synovial membrane. Whether the latter is involved before the bone, is not usually demonstrable, but it suffices to state that in this well-established case of tuberculous knee, in children at least, an osteal involvement shown early as an epiphysitis and later by a distinct bone focus and bone destruction, is present. This destruction of bone, usually accompanied by a roughening and destruction of the joint surfaces with either primary or secondary synovial disease, often becomes progressive and with the tissue detritus and pus which are the usual concomitants of tuberculous osteal disease, forms the typical picture of a partially and sometimes wholly disintegrated joint—clearly a difficult and stubborn condition with which to contend. It would seem, in the light of our present knowledge of the essentially imperfect, if not generally poor results obtained by our usual treatment of this condition, that the quickest, safest, and indeed, most successful method of treatment would be excision of the entire joint, doing away at once with the dangerous and deleterious process. This, without question, is the treatment *par excellence* in adults, in whom speedy return to function is the chief consideration. But in children, unfortunately, this method cannot be employed except as a last resort, for here we are confronted by the problem of growth. Any destruction or interference with even a small part of either epiphyseal line will produce shortening of the leg, often so great that it offers an end-result worse than that for which it is substituted. The treatment of this condition in children must, then, be conservation—and all our treatment, both general in an attempt to raise bodily resistance, and local by absolute quiescence to nullify all possibilities of strain or trauma to the affected part, must be directed to this end. That we are, however, asking nature considerably to extend herself in restoring form and function to a partially destroyed joint, is apparent.

SELECTION OF TREATMENT

Of equal importance with the foregoing in the determination of result, is the form of treatment employed. Before treatment can be instituted, however, a correct diagnosis must be made. There are certain positive facts which, taken in combination, point definitely to tuberculosis of the knee. These are, briefly, a history of long duration of limp and pain; trauma (in about a third of the cases); family predisposition or exposure to tuberculosis; exacerbations; loss of appetite, sleep, and weight; night cries; slight, but not marked, fever; a knee which is hot, swollen, tender, and held in flexion with spasm, boggy, rather than filled with frank fluid, with a synovial and often a bony thickening apparent; atrophy of calf and thigh; a positive tuberculin (von Pirquet) reaction with a relatively low leukocytosis; and an appearance by Roentgen ray which early shows in addition to fluid in the joint, a rarefaction and enlargement of

the epiphyses of both bones with a squaring of their corners (as seen anteroposteriorly) and a deepening and squaring of the intercondylar notch, with later a focus of bone destruction becoming apparent. The early diagnosis of tuberculous knee is often very difficult. Only fragments of the complete picture may be obtained, the local conditions may be obscure or confusing, and the roentgenogram is frequently negative. For this reason much valuable time may be lost before the true character of the disease is manifest, time during which the destructive process is rapidly progressing. It is also evident that the result of incorrect diagnosis may greatly influence prognosis, even though it be quickly revoked. Syphilis, scurvy, hemophilia, acute synovitis, osteomyelitis, toxic or infectious arthritis may all receive their appropriate treatment, none of which is beneficial, and many of which are distinctly prejudicial to the real condition. The mere neglect of the immediate inception of immobilization of the knee is deleterious, but the institution of treatment for, say, an acute pyogenic infection, that is, prompt incision and drainage, is distinctly contraindicated in an early tuberculosis. Indeed, the number and variety of operations to be attempted on a tuberculous knee in a child are distinctly limited. Secondary infections of long-draining sinuses or unhealed incisions may be expected with the possibility of a severe general, or occasionally fatal, infection following. Attempts at the eradication of the focus unless it is very definitely localized, or of diseased tissue, very rarely favor the course of the disease. Absolute rest and non-interference are our best weapons for combating the local condition.

GENERAL TREATMENT

That the non-operative treatment is the method of choice, to be employed so far as possible throughout the course of the disease, the results of the following cases treated at the Children's Hospital amply attest. These comprise all cases of tuberculous knees admitted to the clinic during a period of thirty years, from 1880 to 1910, inclusive, on which a satisfactory diagnosis and record have been obtained, and the end result of the treatment known. No case treated in the last three years has been reported, in order that a fair length of time might have elapsed before results were noted. The original number of cases has therefore been reduced from about seven hundred to two hundred and fifty-one, which latter number furnishes the data for the following study of end-result in relation to treatment in this affection.

The general treatment of these cases has varied but little during the time covered by the series, and as a rule was as conservative as conditions would permit. In brief, the usual treatment consisted of protection from motion and weight-bearing by fixation in a plaster cast in combination with a Thomas knee-splint, with or without traction, a high sole on the unaffected leg and crutches being supplied. The cast and splint were kept on and the child allowed to go about with crutches until marked improvement was shown, as evinced by lack of local heat and spasm. The cast was then gradually omitted and the splint altered to a convalescent form and later omitted altogether. In the acute cases in which there was much muscular spasm, pain and flexion deformity, rest in bed with traction to counteract the spasm and reduce the deformity was considered essential until the most acute symptoms subsided. Whenever possible,

deformities such as flexion or subluxation were corrected as well as possible, each time the plaster was changed. If correction of the deformity was not possible in this manner, it was performed under ether, manually or with the genuclast.

Operations were performed in 35 per cent. of the total number treated and in almost 50 per cent. of the cases reported. Of these by far the greater number were for forcible correction of deformity, this being done in almost half of the operations. Other operations for straightening in the more obstinate cases were tenotomy of the hamstrings, and osteotomy of the femur. In cases in which abscesses were found which did not rupture spontaneously, incision and drainage were usually performed, unless it was felt that rest and fixation would prevent rupture and promote absorption. Thirty per cent. of the cases presented abscesses at some time in their course, about three-quarters of which were incised, the operation being repeated in some cases and a few abscesses being aspirated. When discharge from sinuses or other acute symptoms persisted, arthrectomy or erosion was performed. This consisted of a cleaning out of the joint cavity, removal of diseased synovia, curettage of diseased cartilage and removal of bone foci and detritus. A straight leg with a stiff joint was the object of this operation, but when these conditions were not obtained and the discharge continued, excision or resection of the joint was resorted to.

RESULTS OF TREATMENT

In order to have some definite criteria on which to base the results of treatment, four arbitrary divisions of good, fair, poor and bad results were made as follows: *Good* represents full motion, or flexion to about 90 degrees with full extension, perfect function without subjective symptoms, and with a shortening of less than an inch. *Fair* represents a straight leg with ankylosis without pain or much shortening, or cases with slight motion provided the knee can be extended fully without pain. *Poor* represents cases showing any degree of flexion deformity with or without symptoms and with or without ankylosis. Those cases showing considerable shortening, without other symptoms, and all other cases which may be acute or in which apparatus is worn, are also grouped here. *Bad* represents cases showing improper function, pain and impairment of gait, whether from deformity, shortening, flail joint or any other secondary cause.

In noting the general results in all cases regardless of treatment or duration, it was seen that the good and fair results or satisfactory cases, were about twice the number of the poor and bad results. The oldest cases, that is, those in which a duration of treatment exceeded ten years, showed the best results, as might be expected. About one-third of the knees were ankylosed, which condition increased with the duration of the disease, while the number not healed and wearing apparatus was markedly decreased, in direct proportion to the duration.

RESULTS IN CASES WITH OPERATION

By comparison, however, of the cases in which operation was performed, of which there were one hundred and twenty, with one hundred thirty-one cases in which there was no operation, it was found that in 50 per cent. of the operations there were unsatisfactory results, while only 25 per cent. of the

non-operated group were unsatisfactory. Likewise, in the latter group only one-quarter had flexion deformity, less than one-half those in the operated group, far less had limitation of motion, and less than half as many had ankylosis. On the other hand, almost as many were still acute or apparatus was still worn when the result was recorded. Without doubt in most of the cases with operation the course was more severe than in those with no operation, but the difference in the figures is nevertheless significant of the results which may be obtained by absolute rest and non-interference.

As to the results from the different operations, it is hard to tell accurately, as most cases had other treatment which probably had direct bearing on the result: Of the cases in which only one operation, or operations of a similar character were performed on one patient, the results showed that, with the exception of forcible correction of deformity which has a small balance in favor of a satisfactory result, and excision of the joint, as many patients failed to be improved as were benefited by operation.

RESULTS IN CASES WITHOUT OPERATION

In regard to non-operative treatment, as has been previously stated, about the same methods were used in all, the plaster and splint both being used in most cases. A differentiation of the results based on the patients wearing plaster only, those wearing splints only, and those wearing both, is of questionable value in consideration of the many factors entering into the results, especially acuteness and severity in the individual case, and the operative interference. Grouped so far as possible by distinctive treatment, however, the cases in which there were no operations appear to indicate that the best results were with splints only, although there is little significant difference between the various methods. This result with splints only may be very largely due to the fact that the few cases, twelve, receiving this treatment, were the most favorable for any form of treatment, but as it is also certain that the worst cases were treated by splint plus plaster, and that this result was better than the general average, the benefits of the withdrawal of weight-bearing with fixation are apparent.

RESULTS IN SEVERE CASES

Very little classification of results can be made on the basis of condition when first seen, as most cases presented the same general symptoms. Practically all were acute and showed some flexion deformity. The only practical differentiation which can be made in these cases (outside of those already made) is between those patients who received treatment in recumbency with traction, and those who did not, as in the most severe cases this treatment was almost universally given before the knees were put into plaster and splints. In studying this group, it was found that the results in the cases in which traction was used were much worse than the general average, and presented a very large percentage of non-healing. Moreover, in twenty-nine, or 70 per cent. of these cases, operation was performed later, as compared with 35 per cent. of all cases in which there was operation. This is another indication of their severity, and should not be taken as an index of the value of the traction treatment, for there is little doubt that the results would have been even worse without traction.

The only other differentiation of cases at admission which can be made is of those in which there was abscess. The results in these cases were shown to be much poorer than the general average, there being a marked predominance of the poor and bad results over good and fair, with a high percentage of cases in which there was deformity, cases of non-healing, and patients still wearing apparatus. It was, however, evident that the patients with abscess who were not operated on had far better ultimate results than those who were operated on, two-thirds of the former, and only one-third of the latter, having satisfactory results.

DURATION OF TREATMENT

The only estimate as to the length of treatment which can be given is by getting the average time from the first hospital visit to the last, limiting these data to those cases which were not acute, or presented no conditions requiring further hospital treatment, at the patients' last hospital visit. Of these, there were two hundred and twenty, one hundred and twenty-five not having been operated on. The average duration in the cases with operation was five and eight-tenths years, in those without operation four and two-tenths years. The former averaged, therefore, a year and a half longer treatment than those with no operation, which bears out in general all previously reported cases. The average duration in all two hundred and twenty cases was four and nine-tenths or practically five years.

PROGNOSIS

No definite answer may be given in any individual case as to the time required for a cure. Individual differences are very marked, and the length of treatment may be greatly influenced by general conditions, acuteness at onset, complications such as abscesses, operations, precision in carrying out treatment, etc. It is also difficult to say just when a tuberculous joint is cured, for some become acute after long periods of quiescence. In general, from the foregoing results, we may believe that with present-day conservative treatment, a satisfactory prognosis may be made in at least two-thirds of the cases of tuberculous knees in children, those patients presenting the most acute joints or with abscess on admission having the poorest prognosis. Operative procedures should be avoided so far as possible, most arthrotomies not only being unsuccessful, but also interfering with a favorable result and prolonging the duration of active disease.

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Securing Milk Under Difficulties.—The difficulties of securing milk for sick infants in the hospitals of the missions in China are great. The native cow is mostly a beast of burden and her milk is not abundant, and the difficulty of securing foreign cows with better productive capacity leads sometimes to such strenuous efforts as that related in regard to Dr. E. L. Bliss, of the American Missionary Board Hospital at Shaowu, Fukien Province. In order to secure a supply of milk for the hospital and to improve, incidentally, the quality of the cattle in the province, it was determined to secure a pair of foreign cattle from the mission farm in Chihli province, 1,800 miles away. Rev. E. D. Kellogg, accompanied by a native druggist, started on the long journey and brought back the animals, the round trip taking forty-six days, and the travel being by various modes of transportation, rail, large and small river steamers, river boats, Peking carts and several hundred miles on foot. The animals were landed in the mission in good condition, the cow furnishing much milk for the natives along the route, in some places the demand being far greater than the supply.

DANGERS AND INCONSISTENCIES IN SOME NOTABLE SHORT-TIME TREATMENTS FOR DRUG ADDICTIONS

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The Harrison Antinarcotic Act has precipitated an unusual number of drug cases on our hands. It seems wise, therefore, to warn the profession against a routine following of some of the more notable short-time treatments—such as the Lambert-Towns treatment and others based on the belladonna group of drugs or their active principles. I began to use the Lambert treatment shortly after its publication in *THE JOURNAL*.¹ Very soon, however, I found that, in the majority of cases, it was safer if modified. I have used it, with varying modifications, in a large series of cases and from the first have been a strong advocate of what is valuable in it. But there may be grave dangers in its use if applied as a routine to all comers, as seems to be advised by its promoters. There are patients who, owing to age or to general debility, are unable to withstand the heroic medication prescribed, and who cannot make the sudden readjustment to normal functioning that such rapid withdrawal necessitates. One of my morphin patients, a woman of 60, well-nourished, without apparent cardiac complications, was given the Lambert treatment carefully as directed. All seemed to go well until the third day, when she passed rather suddenly into a state of collapse. She became stuporous with a rapid and irregular heart, and stertorous and labored shallow breathing. The corneal and pupillary reflexes were abolished. There were signs of beginning edema of the lungs. Considerable motor restlessness presented itself through involuntary movements of the limbs. It was several days before she reacted to the cardiac and respiratory stimulants and oxygen employed. Another patient of the same age and of good constitution, seen later, who had been given this treatment for morphinism, passed, at the end of a like period of time, into a similar profound stupor from which she did not recover. The syndrome presented in these patients was very like that frequently seen in drug addicts following sudden withdrawal without treatment. Collapse in each instance is evidently due largely to the same cause—too rapid withdraw of the drug. The symptoms presented in all these cases resembled strongly those often seen in surgical shock. My records show a number of cases which, while not reaching so serious a state, showed alarming symptoms mainly attributable to cardiovascular paresis, while being given a straight Lambert treatment. It is strange that more attention has not been called to the kinds of cases to which such robust therapy cannot without danger be applied.

Especial caution should be exercised in treating certain cases of alcoholism. The alcoholic presenting the picture of predelinium tremens is very likely to be precipitated into active delirium by the administration of belladonna as prescribed by the Lambert treat-

1. Lambert, Alexander: The Obliteration of the Craving for Narcotics, *THE JOURNAL*, A. M. A., Sept. 25, 1909, p. 985; The Treatment of Drug Addiction, Feb. 18, 1911, p. 503; The Treatment of Narcotic Addiction, June 21, 1913, p. 1933.

ment. This predelinium is the stage of mild fleeting hallucinations, easily escaping observation; at this time the patient presents usually marked muscular tremor, restlessness and anxiety. On the whole, the Lambert treatment is contraindicated more frequently, and is of less value in alcoholism than in any other form of drug addiction. The alcoholic, from the standpoint of therapy, is a very different individual physically and psychically from the victim of the other narcotic drugs. In his case, generally speaking, there is no particular advantage in any of the so-called "specific" treatments; a judicious application, widely varying with individuals, of a sedative, eliminating, and supporting therapy is in most cases safer, practically as brief, and equally adequate. The most that we can expect ordinarily from drug therapy, in alcoholism, is the clearing up of the patient, and the quieting of what we term his craving. Permanent abstinence in the case of the alcoholic will come, in the majority of cases, only when an enduring incentive has been established which is a stronger urge than the intoxication impulse.

It seems inconsistent to announce the permanent and complete removal, within a few days or even weeks, of the craving for habit-forming drugs. We must remember that this craving, dependent on perverted deep-rooted habits in mind and body, has become so dominant that its satisfaction is, in a sense, a biologic necessity. In reality the craving, in the real sense of the term, of the addict for a drug like morphin is rarely finally obliterated by a short-time treatment. It is safe to say that the appetite is but in abeyance so long as the patient is in a condition such that under given circumstances the craving will again spring into activity. There has invariably been produced in the habitué a marked lowering of resistance for withstanding pain either in the physical or the mental realm. Flight from pain, or the possibility of pain, has become an obsession. In circumstances, therefore, in which distress or the expectation of it arises, the individual is often helpless; in his panic of fear he rushes instinctively to that which, his memory informs him, will give him relief—his drug. He is under the yoke of his associative-memory processes; and in such times of stress his craving dominates him body and soul. Advocates of "specific" treatments warn against the first dose, or the first drink. It is rather our business to protect the patient, for a sufficient length of time, from conditions which may create what seems to him a necessity for the first dose, or the first drink.²

I do not mean to say that getting a patient off his drug is not an important step toward cure; it is an indispensable one. And for its accomplishment my experience has been that the Lambert-Towns treatment, adapted to individual idiosyncrasies, is our best method for morphin and allied habits. But this step is generally only a preliminary in any therapy making for adequate and lasting results.

That we cannot often look for cure from a short-time, or so-called "specific," treatment, is evidenced by the mental and physical changes which take place in an individual addicted to narcotics. These maladjustments have become established, on the part of the organism, often with great effort over a long period of time. The changes are manifest everywhere in the organism—in the mental life and character, in the secretory musculatory and circulatory systems, in the digestive sphere. In the digestive system, the dis-

torted condition which has become habitual is partially revealed by the nausea, vomiting and griping which set in on sudden withdrawal of the drug. In the circulatory system, the rapid pulse arrhythmia and general cardiovascular embarrassment point to the dependence on the drug which has been established. Internal glandular secretions often undergo grave alterations. For example, a familiar finding in the morphinist is the absence of sexual capacity or desire. In the female the sexual aberration is further emphasized by the frequent disappearance of the menstrual function, a condition which is at times accompanied by an almost complete atrophy of the breasts. Marked eroticism frequently appears with returning sexual functioning. Another evidence of anomalous ductless gland activity is the fact that, after withdrawal, many of these patients show an unusual disposition to adiposity. Furthermore, I have seen very active hyperthyroid symptoms with great increase in the size of the gland follow withdrawal of morphin. Time is needed for righting such profound biochemic and physiologic disturbances.

Probably the gravest alterations—distorted judgment, emotional deterioration, character changes, etc.—occur in the mental sphere. These perverted mental habits present, ordinarily, the greatest difficulty in establishing ultimate cure; yet it is to these changes that least attention is usually paid. The mathematical schedule of therapy is addressed to the physical side, and after such administration, those in attendance often feel that they have done their whole duty, and the patient is likely to be dismissed with a complacent "Now you're off your drug; it's your own fault if you go back." As a matter of fact, comparatively few of these persons do go back to their drug deliberately. It is interesting to note that in cases of reversion the obloquy is almost always put on the patient; the question of the efficacy of the treatment rarely seems to arise. Furthermore, many cases of addiction are found to be an expression of a definite neurosis or psychoneurosis. Such cases can often be reached adequately only by psychoanalysis. Again, faulty habits of living are frequently back of the addiction, and a correction of these, often involving a different environment, is necessary. To expect to cure a neurosis or psychosis, or bad environment, by means solely of intensive purgation and belladonna or scopolamin medication is simple folly. It is true that for certain cases the "specific" treatments prove adequate; but, in spite of apparent statistics, I believe that such cases are greatly in the minority.

In the matter of statistics, the term "cure," as applied to drug addicts, seems to be used in a vague and relative way. If by cure is meant permanent relief from the habit, and complete rehabilitation as to mental and physical usefulness, the statistics submitted by advocates of various treatments are of little value. If, however, the term "cure" implies merely that the patient is off his drug at the time of leaving the hospital or sanatorium, the statistics for cure will be high, but in the light of scientific knowledge regarding these cases, of little value as to prognosis.

While suggestion, within bounds, is legitimate, a serious weakness in the specific treatments is the fact that cure, so-called, is dangled before the patient's eyes as a kind of miracle; a marvelous transformation is to take place in which weakness shall become strength, temptation vanish, the victim take his place as equally efficient among his fellows, with little effort

2. Wholey, C. C.: Psychopathologic Phases Observable in Individuals Using Narcotic Drugs in Excess, *Pennsylvania Med. Jour.*, June, 1913.

or suffering on his own part. We all know that character is transformed in no such way. I have found the most lasting results in those cases in which the patient has understood from the beginning that there is a fight on, and that from the first hour it is largely up to him. Indeed, I will not treat a patient who is not ready to give the needed cooperation; and I prefer to have the struggle undergone consciously, with realization of the effort and conquest that is being made. I do not throw my patients into a semidelirium in which they have little or no after-knowledge of what has gone on. Character fibers are not toughened by passing through any such twilight sleep.

Moreover, serious consequences may arise from throwing a patient into these automatic amnesic states, often induced by pushing belladonna or scopolamin medication to the limit of physiologic tolerance, in which there takes place an interference in the functioning of consciousness such as to obliterate the memory of events through which the patient is passing. This amounts to a dissociated state. There has been produced more or less disintegration of the personality, which brings about lessened capacity, later on, for coherent and coordinated functioning. This helps to explain the lowered efficiency so frequently seen in the recovered addict who is driven to the necessity of taking up an occupation of a less exacting and complex nature.

Some modifications, which seem to render the Lambert-Towns treatment safer and no less efficacious, for getting a patient off a drug like morphin, we employ, generally speaking, as follows: The belladonna mixture and purgatives are administered much after the Lambert plan, except that they are extended over two, or three, or many times, the length of the period outlined in the original treatment; and are given in correspondingly less intensive amounts. The belladonna mixture is given, when not contraindicated, at hourly intervals only if the patient is awake. Sleep is provided for from the beginning through such drugs as sulphonal, trional, veronal, paraldehyd, bromids, etc. An amount of the patient's narcotic sufficient to insure cardiac support and a fair degree of general comfort is given from the first. It has not been found necessary to give more than 2 grains of morphin at a dose, regardless of the accustomed daily amount, and even so much is rarely needed; it is administered before meals and at bedtime. The patient's drug is rapidly cut down until at the end of a week, or of two, or three, or in some cases longer, he is off his drug. Our experience has discovered no prognostic virtue residing in a puttylike stool scheduled to be delivered toward the end of a successful Lambert treatment. Always other and varying therapy, according to the needs of the individual, accompanies the foregoing medication. The patient is in no case ever made to conform to a set course of treatment.

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Engineering and Medicine.—In combating pestilence the profession of engineering has combined with that of medicine. When disease comes from without it requires the aid of a profession which deals with things external, and as disease always acts within it requires the aid of a profession which deals with things internal. It is idle to discuss whether the doctor or the engineer plays the greater part in preventing disease. Where so much has been accomplished by both, where the work to be done is so great, there are tasks enough and rewards enough for both professions.—George C. Whipple, *Science*, Oct. 23, 1914.

ROENTGENIZATION OF THE THYMUS GLAND IN GRAVES' DISEASE

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BALTIMORE

At the meeting of the Johns Hopkins Hospital Medical Society on Dec. 7, 1914, Dr. W. S. Halsted¹ discussed the effect of Roentgen-ray treatment of the thymus gland in Graves' disease. This work was undertaken at Dr. Halsted's suggestion and the object of this paper is to report the method of roentgenization employed in treating these patients, together with a brief review of the results obtained.

Within recent years, the various organs of internal secretion have been subjected to roentgenization in the treatment of this disease. Attention has been called by Stoerk² and Sinozersky³ to a new field of usefulness for the Roentgen ray, namely, the Roentgen treatment of the thymus gland in hyperthyroidism or Graves' disease.

Sielmann,⁴ in treating goiter patients by systematic Roentgen exposures applied to the thyroid, arrives at the conclusion that the ovaries, pituitary and other glands of internal secretion cooperate in bringing on Graves' disease, and that thyroidectomy does not remove all the cause. Mannaberg⁵ suggests roentgenizing the ovaries in these patients and reports favorable results.

Ludin⁶ has compiled articles from two hundred and eight authors on the Roentgen treatment of the thyroid in exophthalmic goiter and with the exception of a few, all report very encouraging results. Stoney⁷ regards it as the treatment of the future, and of her forty-one cases, only one failed to show benefit; fourteen cases being entirely cured. Stegemann⁸ irradiated the thyroid of patients with Graves' disease and found that they gained in weight from 3 kg. in three sittings to 20 kg. by the end of the seventh. Ludin remarks that the most serious objection to Roentgen treatment of the thyroid is the liability to transformation into a clinical picture of myxedema. Wagner,⁹ Howell,¹⁰ Holland,¹¹ Bergonié and Speder¹² have each reported a case displaying this tendency. Ledoux¹³ urges exposing the thymus gland also in the

1. Halsted, W. S.: The Results of the X-Ray Treatment of the Thymus Gland in Graves' Disease, *Bull. Johns Hopkins Hosp.*, 1915, xxvi, 55; Harvey Lecture, The Significance of the Thymus Gland in Graves' Disease, March 14, 1914.

2. Stoerk: Thymusbestrahlung bei M. Basedowii, *Gesellsch. f. inn. Med. u. Kinderheilk. in Wien*, 1913, xv, 231.

3. Sinozersky, A. A.: Roentgen Exposures to the Thymus in Treatment of Exophthalmic Goiter, *Russk.-Vrach*, June 20, 1914.

4. Sielmann: Diskussion zum Vortrag Kaestle, *Referencen in München. med. Wchnschr.*, 1911, xvii, 92; Zur Behandlung der Basedowschen Krankheit mittels Roentgenstrahlung, *München. med. Wchnschr.*, 1914, lxi, 2125.

5. Mannaberg: Ueber Versuche, die Basedowsche Krankheit mittels Roentgenbestrahlung der Ovarien zu beeinflussen, *Wien. klin. Wchnschr.*, 1913, xxvi, 693; *Semaine Méd.*, June 11, 1912.

6. Ludin: Die Behandlung der Strumen und des Morbus Basedowii mit Röntgenstrahlen, *Centralbl. f. d. Grenzgeb. d. Med. u. Chir.*, 1914, xviii, No. 3, p. 205.

7. Stoney, F. A.: On the Results of Treating Exophthalmic Goiter with X-Rays, *Brit. Med. Jour.*, 1912, ii, 476.

8. Stegemann: Die Behandlung der Struma mit Röntgenstrahlen, *München. med. Wchnschr.*, 1905, lii, 1, 247.

9. Wagner: Basedow Debatte in der k. k. gesellsch. der Aerzte in Wien, *Wiener klin. Wchnschr.*, 1909, v, 22.

10. Howell: Discussion in the Royal Society of Medicine, *Electrothérapie Sect. XX*, December, 1907, Reference in *Fortschr. a. d. Geb. d. Röntgenstrahlen*, 1907, xii, 286.

11. Holland: The X-Ray Treatment of Exophthalmic Goiter, Reference in *Fortschr. a. d. Geb. d. Röntgenstrahlen*, 1908, xiv, 149.

12. Bergonié and Speder: Contribution à la radiothérapie dans la maladie de Basedow, *Arch. d'électric. méd.*, 1912, xii, 358.

13. Ledoux: Die Röntgenbehandlung der Basedowschen Krankheit, *Jour. d. Physiothérap.*, 1912, x, 233. Reference in *Therap. Monatsh.*, 1912, x, 906.

treatment of this disease and Kuchendorf includes the heart in the organs which should receive irradiation.

Kocher¹⁴ states that in nearly 50 per cent. of all cases of Graves' disease the thymus shows either hyperplasia or tardy involution, which, however, is more evident in younger goiter patients, and suggests that these patients might be prepared for an operation on the thyroid by a course of thymus extract and irradiations of the thymus.

Friedlander¹⁵ was probably the first to report the treatment of thymic enlargement by the Roentgen ray; and later, Myers¹⁶ and Lange¹⁷ also reported favorable results from this method. The patients (children) treated were suffering from thymic asthma, and marked atrophy of the gland followed roentgenization, together with improvement in the symptoms.

A number of investigators, Lange,¹⁷ Rudberg,¹⁸ Aubertin and Bordet,¹⁹ Weill and Pehn,²⁰ D'Oelsnitz and Paschetta,²¹ Regaud and Cremieu,²² Sinozersky,² Stoerk¹ and others who have shown experimentally that Roentgen irradiation to the thymus gland causes atrophy and destruction of the gland tissue and finally varying degrees of fibrosis. Involution begins in from one to two hours after exposure and continues for a variable length of time, according to the intensity of the irradiation, regenerative changes gradually taking place after treatment had been discontinued for some time.

Regaud and Cremieu²³ in a recent publication have shown experimentally that after a dose of 14 H applied to the thymus gland of young cats, a reduction was demonstrable on the second day after irradiation. On the fifth day it was found to be 80 per cent. and by the fourteenth day 90 per cent. This reduction they found was due to necrobiosis and absorption of the thymus lymph nodes. The cells of the connective tissue are said to be transformed into Hassell's bodies. Also that regeneration begins about the fifteenth day in the lymphocytes that have remained intact, which finally leads by karyokinesis to complete *restitutio ad integrum*. They also found that the thymus could be completely destroyed with one irradiation of 50 H.

TECHNIC

The technic employed in this work has been uniform and the observations have been made from sixty cases treated by this method. Different types of cases and different stages of the disease have been dealt with. The treatments were divided into three series, with intervals varying from two to three weeks

between irradiations. Six treatments were given in each series, over the anterior chest wall, starting in the first interspace on the right side close to the sternal margin, through a portal of entry 5 cm. in diameter. Irradiations were given in the majority of cases on six successive days in the first, second and third intercostal interspaces along the right and left sternal margin; however, a number of the patients received six treatments at one seance. The patients were then allowed to wait until two weeks had elapsed after the last treatment before beginning the second series of irradiations. They were again treated in the same manner as before and a like interval of time allowed before receiving the third or final series; therefore, no cases have received more than three series, or eighteen treatments, and some only one and two series comprising six and twelve treatments, respectively. Each individual irradiation consisted of a six-minute exposure, given through a 1 mm. aluminum filter at a focal and pastille distance of 20 cm. We have used the full pastille distance, that is, the same as the focal distance; and contrary to the general rule of inverse proportions of multiplying the reading of the pastille by four, we have multiplied by two and one-half; thus we have given a dose of $7\frac{1}{2}$ H units through each portal of entry, this constituting the erythema dose.

Holzknicht, Sabouraud, Noire and Benoist radiometric systems were employed throughout the work, and the unexposed parts of the body were covered with a 1 mm. lead sheet, and the chest wall reinforced by a 3 mm. lead protector. A spark gap of 7 inches, tungsten target and Coolidge tubes with from 5 to 7 milliamperes of current were used.

Of the sixty patients treated, only two atypical reactions occurred. In one a brilliant blush came on thirty minutes after receiving the third irradiation and lasted as such for six weeks, gradually fading away with no vesications or other ill effects. The other patient, after receiving the last dose of the third series, developed, within twenty-four hours, acute prostration with elevation of temperature lasting for five days, followed by a complete cure. This case we are now able to explain by learning from the patient's brother, a physician, that she had experienced the same psychoneurotic attacks before.

Sixteen patients received the full three series or 135 H; of these, eight patients, or 50 per cent., are "apparently cured." Seven, or 43.75 per cent., have shown very marked improvement. One patient, or 6.25 per cent., not affected, failed to respond to treatment other than a mere psychic improvement. Nine patients, received two series with two cures, 22 per cent. Five patients, or 58 per cent., showed marked improvement, and two patients showed very little change, 22 per cent.

Twenty-four patients have received only the one series, and while the evidence is not sufficient to warrant drawing any definite conclusions as to the value of this small amount of irradiation, some of the patients have steadily improved since receiving their one and only series. Sixteen patients in this group showed no change; four slightly improved; two much improved, and two were operated on after the third irradiation.

The nervous disturbance and general health appear from our observations to be the first to show improvement, later a slowing of the pulse rate, and finally, improvement in the blood picture.

14. Kocher: Die Behandlung der Basedowsche Krankheit, München. med. Wchnschr., 1910, xiii, 680.

15. Friedlander, Alfred: The Diagnosis and Treatment of Enlarged Thymus, Am. Jour. Dis. Child., July, 1913, p. 38; Status Lymphaticus and Enlargement of the Thymus, with Report of a Case Successfully Treated by X-Rays, Arch. Pediat., 1907, xxiv, 490; Involution of the Thymus by the X-Ray, Arch. Pediat., 1911, xxviii, 810.

16. Myers: Congenital Laryngeal Stridor Apparently Due to an Enlarged Thymus Gland, Report of a Case, Arch. Pediat., 1908, xxv, 607.

17. Lange: The Present Status of the X-Ray Therapy of Enlarged Thymus, Am. Jour. Roentgenol., 1913, i, 73.

18. Rudberg: Studien über die Thymusinvolution, Arch. f. Anat. u. Entwicklungsgesch. Leipsic, 1907, Suppl. Bd., 123.

19. Aubertin and Bordet: Action des rayons X sur le thymus, Arch. d. mal. du Coeur, 1909, ii, 321.

20. Weill and Pehn: Sur deux cas d'hypertrophie thymique traités avec succès par la radiothérapie, Lyon Méd., 1911, cxvii, 1448.

21. D'Oelsnitz and Paschetta: Les caractères de l'image radioscopique dans l'hypertrophie du thymus, Bull. Soc. Pédiat. de Paris, 1911, xiii, 462.

22. Regaud and Cremieu: Sur l'involution du thymus produite par les rayons X; résultats expérimentaux; deductions thérapeutique, Lyon Méd., 1912, cxviii, 5-20.

23. Regaud and Cremieu: Die experimentellen Grundlagen der röntgentherapeutischen Behandlung der Thymus-Hypertrophie, Strahlen-therap., 1914, iv, 708.

The exophthalmos offered the greatest resistance, but in five cases this showed very marked improvement.

The evidence of improvement in the blood picture must be regarded with skepticism until the improvement has lasted a long time after irradiations have been discontinued, on account of the extreme susceptibility of blood to changes after Roentgen exposures on lymphoid tissue.

Stoerk¹ calls attention to the fact that practically the same blood picture change took place after roentgenization of a normal patient, as that occurring after irradiation of a Graves' patient; also that the blood picture curve in dogs after thymectomy and thymus extract injections shows practically the same change as when roentgenized.

The changes in the blood picture in our cases occurred principally with an increase in the neutrophilic element and a decrease in the small mononuclear lymphocytes.

CONCLUSIONS

Roentgenization will cure, temporarily at least, some cases of Graves' disease. It will effect an apparent cure in some cases of hyperthyroidism when other measures have failed. Intensive irradiation under strict and rigid technic has no bad or ill effect on patients with Graves' disease. From results in this and foreign clinics, evidence enough is at hand to warrant a more liberal employment of this treatment.

ROENTGEN-RAY KERATOSES ON HAND OF ROENTGENOLOGIST CURED BY RADIUM *

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My own hands had long been disfigured by these growths which resulted from my Roentgen-ray work and which occasioned some anxiety from the fact that many of my acquaintances in this specialty had developed fatal cancer from a similar origin. The lesions were of two types. A very few were raised, almost pedunculated, healthy looking fleshy tumors with a black pigmented apex. About thirty others were exceedingly hard black lumps projecting slightly above the surface of the skin. The smaller ones of this type had a tendency to undergo spontaneous exfoliation about once a year, leaving a healed surface somewhat depressed but surrounded by an indurated base. In a very few days a deposit of pigment granules would take place looking, under a magnifying glass, like particles of anthracite coal and in a week or two the black lump would have been renewed. The smaller lumps of this type could be curetted out at any time, leaving a dry, reddish, granular depression on which a similar growth was quickly reproduced. There were a few larger ones of this type which never came away spontaneously and which looked as if the bone would almost be exposed if they should be curetted out. Some of these were associated with deep painful fissures of the skin.

Eleven years ago, that is, in 1904, one of this type was removed by circular incision extending deeply into

the flesh and not of a nature to be closed by suture, but being left to heal by granulation. This was examined microscopically and found not to be malignant. There remains to this day a small white indurated cicatrix.

For years I used to keep these unsightly excrescences under some kind of control by application of salicylic and lactic acids, which removed them temporarily. Another application which was not permanently successful was formaldehyd in 40 per cent. solution. About a year ago, at the suggestion of a general surgeon, two of the larger growths were treated with pyrogallic acid, 1 dram to collodion 1 ounce, applied three times a day. This application was not painful at first, but later produced two terribly sore fingers with suppuration underneath the area destroyed. Eventually, the growth came away and the ulcer healed; but the growth returned in a short time and all my suffering had been in vain.

If there had been only a few of these growths they would have been excised long since; but there never seemed to be a convenient time to give up the entire use of both hands long enough to have thirty growths removed surgically.

Dr. Caldwell had succeeded in curing certain Roentgen-ray lesions on his hands with radium and I had used this material successfully in many malignant and benign conditions not due to the Roentgen ray. I was moved on Nov. 11, 1914, to give it a trial on my own hands.

I selected one of the largest growths which formed a regular horn on the dorsum of the interphalangeal articulation on the left ring finger. The field of application was limited by a contrivance of my own¹ which I have found exceedingly convenient.

The protective sheet metal is rendered adhesive by coating it with double-faced adhesive plaster. Twenty mg. of radium element enclosed in a small glass tube covered with the thinnest soft rubber, was kept almost in contact with the skin for thirty minutes. The growth had been pared down almost to the bleeding point with a scalpel.

The result of the application was not perceptible for about ten days, then the skin became somewhat red and shiny. Twenty days more passed without any further decided change. During this whole month the pared-off keratosis had not sprung up again, as would have been the case if the radium had not been applied. On the thirty-first day, however, it looked a little doubtful and just at the same time the reddened skin around its edges was discovered to be loosened from the underlying tissues and in a few minutes the entire destroyed growth was removed like a scab. The surface beneath was pink and tender, but fully healed, and now, ten weeks after the radium application, the skin there is strong and presents no mark of any kind.

I have been treating all the other growths seriatim. Some have been slightly blistered, but even these could scarcely be called painful, though looking red and angry. They all come away in about a month, leaving a healthy surface beneath.

The histologic examination by Dr. F. E. Sondern gave the following findings:

The gross appearance of one of the original black crusts curetted out before treatment was that of a hard cornified epithelium showing some brownish-black pigmentation of

* Case exhibited before the New York Roentgen-Ray Society, Jan. 12, 1915, and the Surgical Section, New York Academy of Medicine, Feb. 5, 1915, and reported at the Western Section of the American Roentgen-Ray Society, Chicago, March 3, 1915.

1. Tousey, Sinclair: Radium and Roentgen Therapy Facilitated by Double-Coated Adhesive Plaster, New York Med. Jour., Dec. 26, 1914.

the outer exposed surface. The scales have an imbricated formation and are rather brittle in consistency. The surface that was in opposition to the skin lesion was slightly saucer-shaped and has a gray color devoid of pigmentation. Microscopic examination shows marked keratosis of the proliferated upper strata of epidermis. The pigmentation noted above is of very superficial extent. The destroyed growth which came away a month after the radium application showed no essential difference from the above except that there was much less marked pigmentation.

Evidently Roentgen-ray keratoses, while in the precancerous state, are curable by radium applications.

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TISSUE EXTRACT AS A HEMOSTATIC

A PRELIMINARY REPORT *

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For some time we have been carrying out experiments with various preparations which increase the coagulability of the blood and would therefore be expected to be of value in stopping hemorrhage. The most useful of these preparations has been found to be one made from tissue. At first homologous tissue was used—in the case of bleeding in human beings, human uterine tissue; more recently, however, the liver or the brain of cattle has been employed. This tissue is obtained fresh from the slaughter-house, washed thoroughly free from blood, ground up in a machine, extracted in salt solution in the refrigerator and then filtered. In its preparation, aseptic precautions are observed as far as possible. The extract, which contains some fine suspension of tissue in addition to tissue juice, is made up with 0.3 per cent. of trikresol and preserved in this way. Aerobic and anaerobic cultures of this fluid have been found sterile. In addition to this liquid preparation, a powder has been prepared—the tissue has been desiccated and then finely ground up in a mortar.

Thromboplastic preparations treated with this small percentage of trikresol have been found to maintain their potency for at least a month. This is a distinct advantage. The difficulty has been that these preparations rapidly undergo autolysis with the formation of antithrombic substances, rendering them not only inert, but of negative value.

It is not intended in this brief report to enter into the details of our experiences with this product. We have found, however, in animals, that bleeding following a skin incision or incision into the liver is quickly checked by the local application of these preparations, and that when it has been given intravenously, for example, 2 c.c. of a 10 per cent. solution injected into the ear vein of a rabbit, it has been possible to shorten the coagulation time by one half. In human beings we have had only a very limited experience with this thromboplastin given intravenously, having as yet confined ourselves mainly to its local use. Recently it rendered most welcome service when applied locally in two cases of hemophilia. One of these cases, a boy aged about 9 years, who has been under our observation for a year or more, was sent to the hospital on account of bleeding from the tongue which he had bitten while playing. As is so

frequently the case in hemophilia, the bleeding was a mere oozing, which at first appeared to be of insignificant importance; it continued unchecked, however, in spite of the local application of fibrinogen, pure thrombin, calcium solution, gallic acid, serum and coagulose. The last-named preparation, as well as horse serum, was also injected subcutaneously, but without effect. After the boy had been bleeding almost continuously for four days, as he manifested increasing anemia and his pulse was becoming weak and his general condition critical, it was decided to obtain a donor and perform a transfusion on the following day. On the evening in question, however, as a last resort, a preparation of tissue extract was made from a uterus which had been removed in the operating room that very day. This was applied locally with almost instantaneous effect; the bleeding ceased and did not recur. In the test tube, the addition to blood of this tissue extract, which in the laboratory we have termed "thromboplastin," brings about coagulation with almost explosive rapidity. In the case of oxalated plasma (calcium must also be added), the clotting proceeds so quickly that no fibrin threads can be seen in the transparent clot. It is therefore to be expected that a substance with such properties would be especially indicated in hemophilia—a disease in which the primary, if not the entire defect, consists of a delay in the coagulation of the blood.

A second case bore out this supposition. This concerned a boy about 5 years of age, a marked bleeder with a pronounced family history of bleeding. The coagulation time of his blood had frequently been found to be remarkably delayed; ten drops at times took over three hours to coagulate in a small flat-bottomed tube. One day last December he began to bleed from a tear of the frenum of the tongue, and after various hemostatic measures had been resorted to in vain, he was referred to the Research Laboratory. There was found to be a soft clot incompletely covering the wound, from which there was slight but continuous oozing. On removal of this clot, the blood flowed more freely. Thromboplastin was applied on cotton for a few minutes, with the result that the bleeding ceased at once and did not recur.

These two cases seem to establish the value of thromboplastin in hemophilia. It remains to be ascertained whether it will be of value in purpura, a condition so frequently confused with hemophilia, but which is not characterized by a greatly delayed coagulation time, but by a marked decrease of platelets. It has been effective in controlling hemorrhage when the blood is normal, for example, after tonsillectomy, and therefore may be found of value in checking the bleeding which so frequently disturbs the operator in the surgery of the nose, brain, the abdominal organs, etc. When given intravenously, thromboplastin may prove to be of aid in checking various acute internal hemorrhages which are the result of ulceration or rupture of the vessel walls.

16 West Eighty-Sixth Street.

Failure to Meet Liabilities Means Bankruptcy.—Sick people are an expense to the state, whether the expense be borne by the state or by individuals, for the wealth of the state is but the aggregate wealth of its people, and any state that will not assume the duty of caring for the public health will fail in its competition with other states.—H. L. Sutherland, *Bull. Mississippi State Board of Health*.

* From the Research Laboratory, Department of Health, New York City.

Special Article

PRACTICAL PHARMACOLOGY *

(Continued from page 1322)

XVI

DRUGS WHICH STIMULATE SYMPATHETIC ENDINGS

EPINEPHRIN

Oliver and Schaefer investigated the actions of extract of the suprarenal gland previous to the isolation of an active principle by Abel in 1897. This active principle has been prepared by many workers, by whom it has been given different names, including "epinephrin," "suprarenalin," "supracapsulin," "adrenin" and "adrenalin," the last being the commercial name by which it is commonly known. The synthetic preparation has likewise received a number of names, including "homorenon" and "l-suprarenin synthetic."

The epinephrin obtained from the gland is levorotary, but the artificial is either levorotary or dextrorotary, or it may consist of a mixture of these two. Levorotary epinephrin is of uniform activity, so long as it has not undergone decomposition, to which it is prone, whether it is derived from the gland or prepared artificially. The market supply of artificial epinephrin is levorotary.

Dextrorotary epinephrin is only about one-fifteenth as active as the levorotary, according to Cushny. Mixtures of the two forms are of variable activity.

Epinephrin stimulates the sympathetic myoneural junctions in muscles. Elliott has stated it as a law that action of epinephrin on these connections between any given nerve and its muscle proves that the given innervation is of the sympathetic system—in other words, that epinephrin acts only on the endings of the sympathetic. It is also true that it acts on all of these, with possibly one exception, and we shall see that the innervation of the sweat-glands in the skin, which is always attributed to the sympathetic, behaves toward many drugs, including atropin and pilocarpin, as though it belonged to the parasympathetic system. Epinephrin does not act on them.

This conception of the actions of epinephrin simplifies its pharmacologic study, for the actions of epinephrin on any structure of the body are simply those of stimulation of the sympathetic.

When this stimulation results in inhibition, as it does in the non-pregnant uterus of some animals, then epinephrin also causes inhibition; but if stimulation of the nerve causes motor effects, as it usually does in the pregnant uterus, then epinephrin also causes motor effects. A given dose of epinephrin, however, varies widely in the intensity of its action in different organs, and these differences must be understood in order that epinephrin may be used therapeutically.

When it is injected intravenously no pronounced action is observed on the higher parts of the central nervous system, and the effects on the medullary centers are mainly secondary to the rise of blood-pressure. For example, the heart is accelerated at once after an intravenous injection, because of the stimulation of the sympathetic myoneural junctions, or endings, as we shall call them for convenience, in the heart; fol-

lowing this the vagus center is stimulated by the higher blood-pressure, and the heart is slowed. The action on the respiratory center is somewhat peculiar, resulting in an interruption of respiration, followed by a period during which the rate and the depth are increased, interruption and augmentation alternating.

The most prominent effect which follows the intravenous injection of epinephrin is the sudden high rise of blood-pressure, which is comparable to that seen after the intravenous injection of convulsive doses of strychnin. This is due to the increased heart-rate and strength of beat and to the constrictor action on the vessels. In practice this sudden rise of pressure is avoided by injecting very dilute solutions slowly. The heart soon becomes much slower and the blood-pressure falls below normal and then returns to its original level. The cause of the extreme brevity of the action of epinephrin on the vessels has been the subject of much debate. Apparently the action lasts only so long as the drug is actually in course of penetration into the endings, and when equilibrium is reached between the concentration of the drug in the blood and that in the nerve-endings the action ceases. It has been shown that the musculature of the vessel walls does not become fatigued so readily, for the high blood-pressure can be maintained almost indefinitely by the slow, continuous injection, and the destruction of the drug in the blood is not sufficiently rapid to account for the fleeting nature of the action.

Epinephrin does not affect the vessels of all areas equally, some being much less under the control of the sympathetic than others, and the cerebral, pulmonary and coronary arteries react so slightly that it has been denied frequently that the drug has any influence over them. The larger trunks of the pulmonary artery do, however, show marked constriction, the primary branches less and the smaller twigs little or none.

There are reasons why the coronary arteries should often behave in a manner opposite to that of the vessels of other large areas. It has been found that exceedingly small amounts of epinephrin—much less than those required to increase the general blood-pressure—cause constriction of the coronaries; with moderate amount, such as cause a rise in the general blood-pressure, the coronaries show at most a fleeting constriction and a rapidly following dilatation.

The necessity for the difference in the behavior of the coronary arteries and those of the general arterial system is readily apparent. When the general blood-pressure rises, the heart must perform more work, which would be impossible if its supply of blood were diminished essentially, for it has been shown conclusively that the functional capacity of the heart and its blood-supply are very closely related. If the rise of blood-pressure following the injection of epinephrin were attended with constriction of the coronaries of sufficient degree to interfere seriously with its supplying blood to the heart, the latter would be exhausted rapidly. This discussion bears on the action of other drugs which affect the heart and the general circulation, and it may be accepted as a rule that no drug which increases the work of the heart can interfere seriously with its blood-supply if the condition of the heart improves under its use. Mention of this will be made when digitalis is under discussion. Epinephrin stimulates the vasodilators as well as the vasoconstrictors, in the general circulation, but the action on the latter usually predominates, at least for a time.

* This is the sixteenth of a series of articles on useful drugs—on practical pharmacology for the general practitioner. As soon as completed, these articles, elaborated by additional subjects, will be published in book form.

When the vasoconstrictor nerves are paralyzed by apocodein or ergotoxin, the administration of epinephrin results in stimulation of the dilators from the beginning, and the primary action of epinephrin then causes a fall of blood-pressure.

This secondary dilatation which follows the constrictor effect of epinephrin may become annoying at times. If epinephrin is heated to a temperature of 120 C. (248 F.), the constrictor action is lost while the dilator is maintained, and a similar change may apparently take place when the solution has been kept open for a time. At least one of us (Hatcher) has seen a specimen of which even small doses caused a rapid fall in the blood-pressure without any preliminary rise. The specimen had been kept on hand, but unopened, for some weeks.

Epinephrin causes blanching of the mucous membrane to which the solution is applied, resulting in relief in various inflammatory conditions, but the frequent application with alternate constriction and dilatation may ultimately give rise to hypertrophy of the mucous membrane, with a chronic inflammatory condition. Secondary hemorrhage may follow the use of epinephrin when the vascular dilatation succeeds the constriction, and a fall of blood-pressure may succeed its use in shock of minor importance.

The pupil behaves differently to epinephrin in different animals; in man epinephrin has little effect under normal conditions, but in exophthalmic goiter the sympathetic nerve to the eye shares with other sympathetic nerves an increased susceptibility to stimulation; epinephrin then causes dilatation of the pupil. Hence this reaction may become of some diagnostic importance in cases of suspected exophthalmic goiter. It is possible that the reason for the increased effect of epinephrin in exophthalmic goiter is that the blood contains a larger amount of epinephrin than normal, and that the sympathetic is kept under more active control by it, but this hardly seems probable if it is true that epinephrin is effective only while it is actually passing into the structures on which it acts.

A similar mydriatic action occurs with epinephrin in pancreatic diabetes.

The application of epinephrin to the eye causes constriction of the vessels of the conjunctiva and increases the mydriatic action of cocain. We have already seen that cocain increases the constrictor action of epinephrin.

The uterus behaves differently toward stimulation of the sympathetic in different animals, and in some it responds with contraction in the later stages of pregnancy, but not in the virgin. The human uterus during pregnancy responds with contraction to sympathetic stimulation; consequently it responds to epinephrin with contraction, and so actively that even the subcutaneous injection of epinephrin, which does not affect the blood-pressure to an important degree, causes uterine contractions. This is of therapeutic importance, in that it permits of the use of epinephrin after delivery of the placenta in securing firm contraction of the uterus without increasing the blood-pressure. Increase of blood-pressure is undesirable, since the object is to prevent post-partum hemorrhage.

Epinephrin acts on the heart in various ways. It affects the heart directly, causing an increased force of contraction. It also accelerates the rate and increases the energy by stimulating the sympathetic.

This and the vasoconstriction induced cause an increase of blood-pressure which acts on the vagus center, producing a secondary slowing of the rate. When the vasoconstriction ceases, as it does in two or three minutes after the injection is completed, the blood-pressure falls, and the heart is again accelerated by the stimulation of the sympathetic, or it may be that the increased rate is due to the lowered blood-pressure, since the heart normally responds to lowered blood-pressure by increase in rate.

So remarkable is the action of epinephrin on the heart that it may sometimes be restored to normal rhythm after having been stopped by ether. On the other hand, there are few drugs which are capable of causing a normal heart to stop more promptly than an overdose of epinephrin or a too rapid injection of even a normal dose. Intravenous injections of epinephrin must be made with extreme caution. It will be recalled that other drugs are also very much more active by intravenous injection than by other modes of administration, and while this method is essential in some cases, it must be looked on as suitable only for emergencies.

The action of epinephrin on the intestine is that of stimulation of the sympathetic, but the action is too brief to admit of its therapeutic application.

Epinephrin is one of the few alkaloids in the *materia medica* which are not absorbed from the gastro-intestinal canal with such rapidity as to induce any appreciable effect. When injected subcutaneously it causes an unimportant rise in blood-pressure, but, as previously stated, enough of it is absorbed to cause tonic contraction of the uterus when it is administered after the delivery of the placenta. Intramuscular injections are followed by a greater rise of blood-pressure than are subcutaneous injections, but not nearly so great as that following the intravenous injection. The intense constriction of the vessels in the immediate region of the injection retards the absorption.

Epinephrin is absorbed from the mucous membrane of the nose, throat, mouth, urethra, vagina and rectum.

Epinephrin is destroyed almost immediately in alkaline solution, and it was suggested that the brief action after intravenous injection might be explained by its destruction in the alkaline blood. The blood, however, is now known to be practically neutral in reaction, and epinephrin mixed with blood and allowed to stand twenty-four hours is not totally destroyed, but if oxygen be passed through the blood after the addition of epinephrin, the latter is destroyed rapidly. Epinephrin is also destroyed in the other tissues.

Many biologic tests have been proposed for estimating the amount of epinephrin in specimens taken from the circulating blood, but most of the reactions which have been proposed are given by other substances; hence they have only a negative value. That is, when the blood fails to respond to these tests, epinephrin may be considered as absent; at least, no more than traces can be present. A recently proposed test of extreme delicacy, which is said to respond only to epinephrin among the substances which one might expect to find in the blood, consists in the perfusion of the vessels of an isolated limb of the frog with the blood to be tested, which is added to Ringer's solution in such dilution that it just causes constriction. One part of epinephrin in 800,000,000 of the perfused fluid causes active constriction.

Solutions of epinephrin decompose on exposure to light and air, becoming pinkish and later brown in color.

THERAPEUTIC USES

The principal therapeutic indications of epinephrin have been indicated, for nearly all of these depend on its constrictor action. The circulatory effects may be utilized when a rise of blood-pressure is desired; where it is necessary to maintain an increased blood-pressure for some time, resort may be had to slow intravenous injection of a very dilute solution (1:100,000), but there are many difficulties in the way of maintaining the injection for prolonged periods. It should be noted that the administration of epinephrin may result in an increase in a hemorrhage, quite as well as in a decrease. Nature lessens hemorrhage by a fall of blood-pressure not by a rise—the latter occurring only when the circulation in the nervous centers becomes insufficient to sustain life.

Epinephrin finds its greatest field of usefulness in local applications for constricting the vessels of mucous membranes, and in bleeding areas. It is added to solutions of cocaine to delay absorption and thus prolong and intensify the anesthetic action.

Applications of epinephrin to the nasal mucous membrane during an attack of hay fever or acute catarrh cause immediate shrinking of the inflamed tissues, affording prompt relief. The action is brief, but if the patient remains quiet in a warm room the relief is much more lasting. As previously stated, dilatation commonly follows the constriction after application to the nasal mucous membrane, and if the drug be repeated too frequently for prolonged periods, chronic inflammation occurs.

Epinephrin is used in bronchial asthma, but as the cause of this condition is unknown, the mode of action of epinephrin is not understood.

It is sometimes injected subcutaneously—not intravenously—after the delivery of the placenta to induct firm contraction of the uterus, preventing hemorrhage.

Epinephrin has been suggested as an antidote to strychnin, but it increases the action of that alkaloid on the cord and cannot be considered as in any way antidotal, though strychnin is said to be antagonistic to the depressant action of epinephrin. The action of the latter is usually so rapid after fatal doses that little time is available for treatment.

HEMORRHAGE

When hemorrhage results from injury to a vessel which can be tied, the latter treatment is obviously indicated; but when it occurs in an inaccessible region, or results from injury to large areas where capillaries are involved, resort to drugs is often necessary. The most diverse methods have been employed in attempting to stop hemorrhage from inaccessible vessels; but since bleeding has a strong tendency to cease spontaneously owing to the formation of a clot when the pressure falls sufficiently, it is difficult to define the rôle of drugs, and when success attends their use, they are too frequently credited with the result when they have actually done harm, or had no appreciable effect.

The results of experiments with drugs in hemorrhage are contradictory, and it is impossible to state just what value many of these have under different conditions.

Epinephrin stops capillary hemorrhage, but when the constriction has passed, dilation and increased oozing

may occur. A laboratory experiment serves to illustrate the natural control of hemorrhage and the effects of the injection of epinephrin during bleeding. If the dog's chest be opened under ether anesthesia, and a section of the chest be removed, there is at first a copious hemorrhage from numerous arteries which are cut across; but with the exposure of the thoracic cavity, there is a sudden fall of blood pressure and the hemorrhage ceases almost completely; if epinephrin, or other vasoconstrictor be injected into a vein, the blood begins to spurt from numerous arteries. This continues until the constriction passes, or until the loss of blood causes a great fall in the pressure.

There is a superficial similarity between the action of heat and that of epinephrin. When a bleeding finger is dipped in water, the bleeding increases temporarily, because the vessels in the finger dilate while the general blood pressure is unaffected, of course; when the finger is removed from the hot water, constriction soon takes place and the retardation of the flow favors the formation of a clot.

It has been said that certain vasoconstrictors lessen hemorrhage by favoring the formation of a clot, after temporarily increasing the bleeding, in the manner described above.

Whether such a drug will do harm or good in a given case depends on factors which cannot always be determined. If the loss of blood has been so great as to have reduced that in the body to the point at which further loss will be fatal, it is obvious that the sudden rise of pressure and the consequent loss of blood may prove fatal promptly; but when the fall of pressure does not suffice to stop the flow or permit of the formation of an effective clot, it may be better to suffer the slight additional loss if clotting will ensue. It can only be said that our knowledge on this point is wholly unsatisfactory, and interference will often prove disastrous, at a time when one must feel the urgent need of action.

Tannin, ferric salts, including the solution of ferric subsulphate or Monsell's solution, alum and dilute acids, such as vinegar, are among the best of the astringents for local application to stop bleeding by favoring the formation of a clot.

Since the fall in blood pressure is the natural means of favoring clotting, it may be advisable to administer a vasodilator early in severe hemorrhage before the pressure has fallen dangerously low; amyl nitrite, sodium nitrate or nitroglycerin may be used in an emergency.

It would be preferable to lessen the circulation by slowing the heart, if this could be accomplished without causing an increased force of the individual beat, for the stronger impulse tends to dislodge clots, and the mechanism controlling the circulation usually results in stronger beats to compensate for any slowing.

Gelatin has been used to some extent in solution for hypodermic injection to promote the formation of a clot in aneurysm and to arrest hemorrhage. It is sometimes contaminated with the spores of tetanus which are not killed by boiling for a few minutes, and many cases of tetanus have been reported from its injection.

Gelatin is used in making capsules for taking drugs in powdered form, and for making glycerinated gelatin used as a base for suppositories.

DOSAGE

The dose of epinephrin will obviously depend much on the purpose for which it is employed. It is applied to the nasal mucous membrane in the form of a spray of the 1:1,000 solution for hay fever, catarrh, or to reduce the swelling of the turbinated body. From 0.2 to 0.3 c.c. (3 to 5 drops) of a 1:1,000 solution may be added to a solution of cocain for subcutaneous injection to delay absorption and prolong local anesthesia. Much larger doses are sometimes injected subcutaneously in order to secure bloodless fields of operation. No harm follows unless the dose is excessively large, because of the slow absorption, but when the dose exceeds 0.5 mg. (1/125 grain), care must be taken to see that the hypodermic needle does not enter a vein.

When epinephrin is injected intravenously to increase the blood-pressure in shock, a solution of 1:10,000, or even a weaker one, should be used, and this should be injected very slowly, 1 c.c. (15 minims) in five or ten minutes being sufficient to maintain slight rise in the pressure. For capillary hemorrhage a solution of 1:1,000 is used. It is said that little improvement is to be expected in most cases of bleeding from gastric ulcer, because of the dilution to which the epinephrin is subjected in the fluid in the stomach. Epinephrin may be used in far larger doses by the mouth than intravenously, and if it fails to stop the bleeding it will probably do no harm. From 5 to 10 c.c. (from 1 to 2 teaspoonfuls) of a solution 1:10,000 may be used.

For the relief of bronchial asthma 0.6 to 1.0 c.c. (10 to 15 minims) of a solution of 1:1,000 subcutaneously is recommended, or sprayed into the nose at the beginning of the attack, or 1 mg. (1/60 grain) may be used in the form of a tablet which is allowed to dissolve in the mouth.

When the heart stops suddenly during the administration of ether or chloroform, it is essential that the beat be restored immediately, for the chambers of the heart are then filled with blood containing the anesthetic, and especially when this occurs with chloroform, the heart is rapidly paralyzed and rendered incapable of contracting again. If epinephrin is injected intravenously in such cases it must traverse the right heart and the pulmonary circulation before it can act on the left ventricle, involving the loss of valuable time. If the injection is made intravenously the heart should be massaged through the chest wall at the same time. Delay is avoided by injecting the solution of epinephrin, 1 c.c. (15 minims) of 1:10,000, directly into the heart by means of a fine hypodermic needle.

MATERIA MEDICA

Epinephrina.—Epinephrin, N. N. R.

This substance, commonly referred to and used as adrenalin, is chemically described as 1,2-dihydroxy-4²-methyl-amino ethyl-4¹-ol, benzine. It is the blood-pressure-raising principle of the suprarenal gland, also produced synthetically. It is official in the French, Italian and Belgian pharmacopeias as "adrenalin," and in the German Pharmacopeia and in the supplement to the Netherlands Pharmacopeia as "suprarenin." Among the names, other than those already mentioned, that have been applied to epinephrin or epinephrin-like substances in literature are "adnephrein," "adrenal," "adrenamine," "atrabilin," "chelafrin," "epinenan," "haemostasin," "hemisine," "ischaemin," "paraneph-

rin," "renaglandin," "renastyptin," "renoform," "supranefran," "suprarenadin," "1-suprarenalin," "suprarenaden" and "suprenalin."

The several mixtures of epinephrin with cocain, eucain and other substances have also been given special names, so that the nomenclature of this article and its simple mixtures would probably total at least one hundred titles.

Epinephrin, as such, occurs in commerce as a finely crystalline white or yellowish white powder, odorless, having a slight bitter taste. The free base is practically insoluble in water and the product is usually dispensed in the form of an aqueous, usually acid, solution, 1:1,000, of one of its salts. Epinephrin is oxidized readily with the development of a red color; and such red, pink or turbid solutions should not be used.

Epinephrin is frequently used in the nose in the form of a spray. For this purpose the commercial 1:1,000 solution may be diluted with 4 parts of water or physiologic solution of sodium chlorid, and if necessary a sufficient amount of cocain hydrochlorid added as in the following formula:

	C.c. or Gm.	
R Solution of epinephrin, 1:1,000	6	fl 3 iss
Cocain hydrochlorid.....	0 | 6	
Distilled water or physiologic solution of sodium chlorid to make.....	30 |	fl 3 i

For use in suppositories epinephrin hydrochlorid is preferable to epinephrin itself because of the greater solubility and consequent activity of the salt. Suppositories of epinephrin may be prescribed by directing that each suppository contain approximately 0.001 gm. (1/65 grain) of epinephrin hydrochlorid and a sufficient amount of oil of theobroma to make 1 gm.

PITUITARY

The pituitary body consists of two portions, the anterior and posterior lobes. Various extracts of the posterior lobe have been prepared under different names, and some of them are marketed with extravagant claims. The active principle of these extracts is unknown, and it seems probable that there are several principles present in variable proportion in the different commercial preparations, which show a total want of uniformity in their actions, both qualitative and quantitative.

The extract of the posterior lobe causes a slight rise of blood-pressure when injected intravenously, and while this action is usually more prolonged than that of epinephrin, the difference is not very important, and is more than counterbalanced by the uncertainty of the action.

Pituitary extract causes contraction of the pregnant uterus, and may be used sometimes to hasten delivery. Published reports indicate that it is dangerous when rapid delivery is impossible. Its use in labor should be limited to normal cases after full dilatation of the cervix has occurred. It has also been used in cases of paralytic distention of the intestine, but this use is as yet on an experimental basis.

Active diuresis is commonly seen after its injection; some extraordinary results have been reported in experiments on goats in which the secretion of milk was said to be increased.

Different investigators have reported widely different results with pituitary extracts. The introduction of these preparations is comparatively recent and the indications for their use as well as the proper dosage, etc., are not yet established.

(To be continued)

Preventogram.—Good health is good cheer; therefore look always to good health.—*Buffalo Sanitary Bull.*

Therapeutics

INTESTINAL STASIS

With evidence of general chronic disturbances, we should not be satisfied with the diagnosis of constipation. Intestinal stasis may lead to an enterogenous toxemia that will raise the blood-pressure, irritate the kidneys, congest the liver, irritate the brain, and cause sleeplessness and future organic disease.

Intestinal stasis may be caused by ptosis, adhesions, incompetency of the ileocecal valve, megacolon, dilated rectum and a tight sphincter. Reflex causes should be remembered, and the most frequent are chronic appendicitis, ulcer, chronic abdominal inflammations (whether pericolicitis, pelvic or gall-bladder), and any kind of chronic abdominal pain such as ovarian, or that due to calculi in the kidneys or gall-bladder. Malpositions and adhesions known under the names of Jackson's membrane, Lane's kink, Morris' cobwebs, or Codman drag, must all be considered, both medically as a cause of the stasis, and surgically, if the abdomen is opened.

Intestinal stasis causes infection, or allows the colon bacillus to migrate to other parts of the body and cause it. Whether other pathogenic germs migrate from this cause has not been determined, but the toxins formed by maldigestion, toxalbumins of different types, are potent causes of systemic irritation. Considerable amounts of indican in the urine are usually signals of intestinal putrefaction, and free catharsis should be caused and a modified diet should be inaugurated to ascertain whether the intestinal disturbance is persistent, or can be stopped.

If a chronic apparently causative condition of the intestinal stasis is diagnosed and operation seems advisable, all means of diagnosis should be exhausted before the operation, so that after the abdomen is opened all abnormal conditions may be corrected, if possible. Toward this end the intestinal activity should be determined by roentgenograms after the administration of barium sulphate or a salt of bismuth. Bismuth subcarbonate should be the salt of bismuth used, and never the bismuth subnitrate, as the latter can cause poisoning, while the subcarbonate probably never does, when administered by the mouth.

Another test of intestinal stasis is to administer charcoal and note when it appears in the feces. The limit of its evacuation should be under sixty hours, probably normally a much shorter time than that, but anything longer than sixty hours shows intestinal stasis. Also in these chronic cases of intestinal disturbances test meals should be given and the stomach contents examined.

There may be retained masses of feces in both the rectum and colon, and still the patient have daily movements of the bowels, and even a diarrhea. Such accumulations, if not noted by physical examination, may be inferred from the fact that the patient occasionally passes a fecal mass of hard consistency and very offensive odor.

It is superfluous to state that a tight sphincter should be dilated, that a pendent abdomen and ptosed organs should be supported with a belt, or that it is necessary for a patient to go to stool at an appointed hour each day, the best hour being after breakfast.

The morning food and drink are apparently the most stimulant to intestinal activity.

The diet in intestinal stasis is important. Many persons undereat; many eat foods which leave but little residue; many drink insufficient amounts of water, although large amounts of water do not necessarily increase the movements of the bowels. In other words, a constipated patient may be loaded with water and pass enormous amounts of urine, or become edematous, if his circulation is insufficient, and still have no increased bowel activity.

While many fruits are laxative and very valuable, in some persons they cause hyperacidity, and are inadvisable. The laxative vegetables need not be named. Fats and oils, provided they cause no indigestion, form soaps which are laxative. Therefore, salads, cream and butter are aids when the bowels are sluggish. Oatmeal is laxative if properly taken, which means in a gruel and thoroughly cooked.

Substances that retain water are valuable, such as gelatin, tapioca, etc. Bananas, if well tolerated, are of value because they absorb and retain water. Half an ounce of agar-agar, morning and night, is often efficacious.

After once or twice thoroughly cleaning out the bowels it is not advisable, in ordinary constipation without any other disease, to give repeated doses of saline cathartics in amount sufficient to cause purging. A small dose of a saline once a day, however, may be good treatment.

Massage, exercise and vibrations to the abdomen are all valuable additions to the physical treatment of constipation.

A colon wash once a week with 3 or 4 quarts of physiologic saline solution at a temperature of about 110 F., with the reservoir held at a height of 2½ to 3 feet, is many times a very valuable addition to other treatment. An injection of a few ounces of olive oil into the rectum or a half pint or more into the colon, allowing it to remain there for some hours, is at times almost curative in sluggishness of the bowels. This is best given at night, perhaps once or twice a week.

If the stools are dry, oils are indicated, and pure white, tasteless and odorless liquid petrolatum is often of value. This oil should never be given directly after meals as it delays absorption and digestion. It should be given on an empty stomach, and the ordinary dose would be a tablespoonful at night, or three times a day, between meals, in cold water, or in lemonade or orangeade. It has not been proved that liquid petrolatum inhibits bacterial growth.

The value of the ordinary vegetable laxatives, with or without strychnin, and with or without atropin or belladonna, is recognized by all. When the intestinal walls are relaxed and inefficient, a smooth muscle stimulant as physostigmin sulphate, in dose of 0.001 gm. (1/60 grain), or ergot may be of value.

If there is putrefactive fermentation, lactic acid bacilli may be given, best in the form of the Bulgarian bacillus. The restriction of proteins and a preponderance of carbohydrate in the diet makes this measure more satisfactory. After three or four days, or at most a week, the intestinal flora theoretically should have been changed in its character. The treatment should then be stopped, to be repeated in two or three weeks, if needed.

Phenolphthalein, if used too frequently and too long, can cause intestinal irritation.

STATE BOARD STATISTICS FOR 1914

THE ANNUAL PRESENTATION BY THE COUNCIL ON MEDICAL EDUCATION OF RESULTS OF STATE BOARD EXAMINATIONS

On pages 1402 to 1411 are three tables, A, B and C, giving in detail the results of the various state medical license examinations held during 1914. These statistics are complete, since full reports were obtained from all state licensing boards.

Tables A and B have been arranged so that, read from left to right, they give the results by colleges, showing the number of graduates appearing for examination in each state, whether they passed or failed, the total number examined during the year, the number who passed, the number who failed, the percentage of failures and the number of states in which graduates of each school appeared for examination. Read from above downward, they give the results by states, showing the number registered and rejected from each college, the total number examined, the total number registered, the total number rejected and the percentage of rejections. The fact that the majority of graduates take the license examination in the state in which the college is located is shown by the dark diagonal zone made by the grouping of figures, passing from the upper left to the lower right corner of each table. This shows also *that the states in which low-grade medical schools are permitted to exist are themselves the recipients of the greater portion of the ill-trained output of such schools.* These tables are worthy of careful study, for important deductions are possible. The marginal numbers will enable the reader more readily to follow the lines for any colleges in which he is interested.

CAUTION IN FORMING CONCLUSIONS

In making comparisons on the basis of these statistics, several factors should be kept in mind. The number examined is important since, if all other conditions are equal, the larger the number of graduates examined the more accurate is the finding. But other conditions are seldom equal. The number of states in which a school's graduates have been examined is important. The larger this number the more accurate will be the conclusions. Again, the character of the board making the examination and the methods employed are important factors to be considered, since some boards hold very careful examination and include practical laboratory and clinical tests, or they may mark the papers more severely, while others, especially partisan boards, may be very lenient. In this connection it should be stated that although conditions are undergoing a steady improvement, it is still true that the character of the license examination as usually conducted is such that graduates of colleges conducted largely by quiz-class methods may easily be successful in passing them. It is particularly important in forming conclusions based on these statistics to note for each college *the states in which its graduates are not admitted to examinations*—information set forth with these statistics, in Table D.

GRADUATES OF ALL YEARS EXAMINED IN 1914

Table A shows the results for all candidates who took examinations in 1914 regardless of the years in which they graduated. This shows that altogether 5,570 candidates were examined last year, as compared with 6,435 in 1913, 6,879 in 1912, 6,960 in 1911 and 7,004 in 1910. There has been a steady decrease each year since 1906 when 8,035 physicians were examined. The decrease each year has been due largely to (1) the wider extension of reciprocity and (2) the general diminution in the number of medical colleges, students and graduates. Of those examined this year, 21.6 per cent. failed, as compared with 18.6 per cent. in 1913; 20.5 per cent. in 1912; 19.9 per cent. in 1911 and 18.4 per cent. in 1910.

There were 96 medical colleges in the United States granting degrees in 1914 which had graduates examined, as compared with 99 in 1913 and 110 in 1912. This is a decrease

of 57 since 1905 when graduates of 153 medical colleges in the United States were examined. Foreign graduates were examined in twenty-eight states, the total number being 117, and of this number 49, or 41.0 per cent., failed. The largest numbers of foreigners examined in any state were 24 in Texas where 22 passed, and 23 in New York where only 3 passed. Graduates of Canadian schools were examined in eighteen states, more appearing, naturally, in the borderline states. The figures for the Canadian colleges are given separately in order to show the number of candidates coming from each as well as to show the successes of their graduates at the examinations. Altogether 57 candidates from Canadian colleges were examined, of whom 4, or 7 per cent., failed. Of all Canadian colleges, the University of Toronto had the largest number examined. The highest percentages of failures were for Laval University, 66.7 and Queen's University, 20.0.

UNDERGRADUATES EXAMINED DURING 1914

Line 107 of Table A shows the number of non-graduates examined in seven states during 1914. Altogether 293 non-graduates were examined, of which number 180, or 61.4 per cent. failed, as compared with 37.8 per cent. in 1913, 35 per cent. in 1912, and 38.5 per cent. in 1911. Such candidates were examined during 1914 in Colorado, Massachusetts, Oregon and Tennessee. Of such candidates none was licensed in Colorado, 13 in Oregon, 24 in Massachusetts and 76 in Tennessee. In Tennessee in the last five years 1,296 candidates were registered by examination, and of these 591, or 45.6 per cent., were non-graduates. Meanwhile, Tennessee has just secured from its legislature a new practice act which shuts that door which has for so long been open to non-graduates. Oregon, likewise, has barred the way to these incompetents by an amendment. This leaves only Colorado and Massachusetts which will examine non-graduates. In the former, however, only two non-graduates have been licensed in nine years, while in the same time 121 were licensed in Massachusetts. Massachusetts, therefore, is now the only state which has a wide open door for non-graduates—those whose medical training is known to be incomplete—to secure the legal right to practice medicine.

RECENT GRADUATES EXAMINED DURING 1914

Table B gives the results for graduates of 1910 to 1914 inclusive, who were examined during 1914. This table is particularly important since it deals with recent graduates and is, therefore, the fairest basis for comparison between colleges. Such comparisons are worthless, however, unless reference is also made to Table D, showing in what states graduates of certain colleges are reported not eligible for examination. Of all candidates examined in 1914, 4,549, or 81.7 per cent., were recent graduates, and of this number 17.6 per cent. failed, as compared with 21.6 per cent. for all candidates. The figures regarding graduates of several medical schools which have ceased to exist either through merger or otherwise, have been included in the line for miscellaneous colleges.

OLD PRACTITIONERS EXAMINED DURING 1914

Table C is so arranged as to show in comparison the result of all years (first column), for recent graduates (second column), the graduates of 1909 and previous years (third column), and the graduates of 1914 (fourth column). Of the graduates of 1909 and previous years—of "old practitioners"—728 were examined, and of this number 219, or 30.0 per cent. failed, as compared with 17.6 per cent. of failures for recent graduates. This high percentage of failures is probably due chiefly to the long time these candi-

CONTINUED ON PAGE 1414

Marginal Number	NAME OF COLLEGE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	Marginal Number														
		Alabama	Alaska	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	District of Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan															
		P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F															
ALABAMA																																						
1	Birmingham Medical College.....	26	23			1	0																	1														
2	University of Alabama, School of Medicine.....	30	2																					2														
ARKANSAS																																						
8	University of Arkansas, Medical Dept.					30	2																	3														
CALIFORNIA																																						
4	California Eclectic Medical College.—E.			0	1			6	5															4														
5	College of Medical Evangelists.....							3	2															5														
6	College of Phys. and Surgs., Los Angeles.....			1	0			33	4															6														
7	College of Phys. and Surgs., San Francisco.....							1	5															7														
8	Hahnemann Medical College of the Pacific.—H.							5	2															8														
9	Leland Stanford Junior Univ., School of Med.							10	1															9														
10	Oakland College of Medicine and Surgery.....							3	1															10														
11	University of California, Medical School.....							15	0															11														
COLORADO																																						
12	University of Colorado, School of Medicine.....			2	0	2	0	1	0	21	0			1	0			3	0			1	0		12													
CONNECTICUT																																						
13	Yale Medical School.....									4	0			2	0									1	0		13											
DISTRICT OF COLUMBIA																																						
14	Georgetown University School of Medicine.....							1	0			1	0	8	0							1	0		3	0		14										
15	George Washington University Medical School.....			1	0					1	0			10	0	1	0					1	0		1	0		15										
16	Howard University School of Medicine.....	2	0		1	0	1	0				1	0	9	5							1	0		1	1		16										
GEORGIA																																						
17	Atlanta Medical College.....	6	5											28	2	113	1									17												
18	Georgia College of Eclectic Med. and Surg.—E.					2	0									4	8										18											
19	Southern College of Medicine and Surgery.....													1	4	0	2										19											
20	University of Georgia, Medical Dept.	0	1											6	0	22	0										20											
ILLINOIS																																						
21	Bennett Medical College.....	1	3			0	1	1	0	1	0			1	0	1	1		86	12	1	0	6	0		0	1		21									
22	Chicago College of Medicine and Surgery.....	5	1		1	1		1	0					2	0	2	0		114	39	7	1	8	0	1	0	1	0		22								
23	Hahnemann Medical College and Hospital.—H.							1	0			1	0						17	8	2	1	2	0				1	0		23							
24	Jenner Medical College.....							0	1							1	0	7	4											24								
25	Northwestern University Medical School.....				2	0	1	0			1	0			1	0	46	6	1	0	5	0	1	0						25								
26	Rush Medical College.....		1	0	2	1		1	0	1	0			3	0		1	0	65	4		10	0							26								
27	University of Illinois College of Medicine.....							0	1				2	0			1	0	91	8	1	0	3	0					3	0	27							
INDIANA																																						
28	Indiana University School of Medicine.....																		22	0										28								
IOWA																																						
29	State University of Iowa College of Medicine.....							1	0					1	1									13	0	1	0		0	1		29						
30	State Univ. of Iowa Coll. of Homeo. Med.—H.	1	0																									2	0		30							
KANSAS																																						
31	University of Kansas School of Medicine.....																								10	0			1	0		31						
KENTUCKY																																						
32	University of Louisville, Medical Dept.	1	0			2	2			1	0			1	1	1	0	1	0	1	0	2	0				40	2	1	1		0	1	0	2	2	0	32
LOUISIANA																																						
33	Tulane University of Louisiana, School of Med.	10	1			1	0						3	0													59	1						33				
MAINE																																						
34	Medical School of Maine.....												1	0														18	2			7	0		34			
MARYLAND																																						
35	College of Phys. and Surgs., Baltimore.....									3	1			2	0												1	0	14	3	4	1			35			
36	Johns Hopkins University, Medical Dept.	2	0					2	0			2	0		1	0	1	0		4	0						1	0		29	0	2	0			36		
37	University of Maryland School of Medicine.....	1	0		2	0				3	0		1	0	3	0	2	0	1	0							2	0	43	5	3	0			37			
MASSACHUSETTS																																						
38	Boston University School of Medicine.—H.					2	0			1	0																1	1		17	0				38			
39	College of Physicians and Surgeons, Boston.....									0	1			0	1	0	2										5	4	0	1	5	13			39			
40	Medical School of Harvard University.....	1	0					5	0	1	0			1	0				2	0							7	0		28	1				40			
41	Tufts College Medical School.....				1	0				1	0				1	0												5	0		62	5				41		
MICHIGAN																																						
42	Detroit College of Medicine and Surgery.....																		1	0			0	1								54	0		42			
43	University of Michigan, Dept. of Med. and Surg..	2	0					1	0			2	0			1	0													1	0	41	0		43			
44	University of Michigan, Homeo. Med. College.—H.													0	1														1	0		21	1		44			
MINNESOTA																																						
45	University of Minnesota, Medical School.....																																			45		
MISSOURI																																						
46	American Medical College.....					2	0												2	3			1	0											46			
47	Eclectic Medical University.—E.					11	0																												47			
48	Ensforth Medical College.....																																			48		
49	Kansas City Hahnemann Medical College.—H.					8	0						1	0																					49			
50	St. Louis College of Physicians and Surgeons.....			0	1			0	1						1	0				0	1			1	1										50			
51	St. Louis University School of Medicine.....																		2	1	2	0	3	0										51				
52	Washington University, Medical School.....				3	0														1	0			2	0										52			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22															

[illegible]

Marginal Number	NAME OF COLLEGE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
		Alabama	Alaska	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	District of Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan
		P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F
NEBRASKA																							
53	John A. Creighton Medical College.....			1 0				1 0			0 1			1 0		4 0						1 0	
54	Cotner University Medical College.—E.																						
55	University of Nebraska, College of Medicine.....													1 0									
NEW HAMPSHIRE																							
56	Dartmouth Medical School.....																					4 0	
NEW YORK																							
57	Albany Medical College.....		1 0					1 0					1 0							2 0	4 0	4 0	
58	Columbia University, Coll. of Phys. and Surgs. .	1 0				2 0		3 0		1 0													
59	Cornell University, Medical College.....					1 0		1 0	1 0														
60	Fordham University, School of Medicine.....							0 1						1 0								1 0	
61	Long Island College Hospital.....				1 0															1 0	1 0		
62	New York Homeo. Med. Coll. and Flower Hosp.—H.					1 0		1 0	3 0			1 0								1 0			
63	New York Med. Coll. and Hosp. for Women.—H....							1 0															2 0
64	Syracuse University, College of Medicine.....							1 0		1 0								1 0					
65	University and Bellevue Hospital Med. Coll.					1 0								1 0		1 0				0 1		2 1	
66	University of Buffalo, Medical Dept.																						
NORTH CAROLINA																							
67	Leonard Medical School.....									0 2	1 1	2 0											
68	North Carolina Medical College.....											1 0									1 0		
OHIO																							
69	Cleveland-Pulte Medical College.—H.																						
70	Eclectic Medical College.—E.				5 0	0 1				1 0					1 0			1 0					
71	Medical College of University of Cincinnati.....													1 0	1 0			1 0					
72	Ohio State University, College of Medicine.....						1 0																
73	Western Reserve University, School of Medicine....												1 0	1 0		2 0							
OKLAHOMA																							
74	University of Oklahoma, School of Medicine.....				1 0												2 0						
OREGON																							
75	University of Oregon, Dept. of Medicine.....					1 0							1 0										
PENNSYLVANIA																							
76	Hahnemann Medical College and Hospital.—H.					1 0		1 0	2 0												3 0		
77	Jefferson Medical College.....	1 0	1 0	0 1	1 0	1 0		1 0	2 0	2 0	2 0			1 0		1 0	1 0	1 0		1 0	1 0	5 0	1 0
78	Medico-Chirurgical College of Philadelphia.....	0 1		1 1		1 1			4 0												1 0	2 1	
79	Temple University, Dept. of Medicine.....									2 0											0 1	1 0	
80	University of Pennsylvania, School of Medicine....	1 0		1 0				1 0	1 0	1 0	2 0			2 0		2 0	1 0			1 0	2 0	1 0	
81	University of Pittsburgh, School of Medicine.....																						
82	Woman's Medical College of Pennsylvania.....							1 0			1 0			1 0		1 0						1 0	
SOUTH CAROLINA																							
83	Medical College of the State of South Carolina...										2 0	2 0											
TENNESSEE																							
84	Lincoln Memorial University, Medical Dept.										0 1							3 0					
85	Meharry Medical College.....	5 5			5 5	0 2				0 1	5 3	7 4		7 6			1 2	3 0	0 2		0 1		
86	University of Tennessee, College of Medicine.....	1 3		0 1	15 2						1 2	0 2		1 0			2 0	2 0	4 7				
87	University of West Tennessee, College of Med.											1 0								0 1		0 1	
88	Vanderbilt University, Medical Dept.	3 1		1 0	1 0						2 1	4 0				1 0		3 1	1 0				1 0
TEXAS																							
89	Baylor University, College of Medicine.....																		1 0				
90	Southern Methodist University, Medical Dept.																						
91	Texas Christian University, School of Medicine....																						
92	University of Texas, Dept. of Medicine.....					1 0																	
VERMONT																							
93	University of Vermont, College of Medicine.....							4 0		1 0	1 0									2 0		8 1	
VIRGINIA																							
94	Medical College of Virginia.....										1 0										0 1		
95	University of Virginia, Dept. of Medicine.....									1 0													
WISCONSIN																							
96	Marquette University, School of Medicine.....										1 0			3 0									
CANADIAN																							
97	Dalhousie University, Faculty of Medicine.....																					1 0	
98	Laval University, Medical Faculty.....																						
99	McGill University, Faculty of Medicine.....		1 0			2 0						1 0								1 0			
100	Montreal School of Medicine and Surgery.....																					1 0	
101	Queen's University, Faculty of Medicine.....					0 1																	
102	University of Manitoba, Manitoba Med. Coll.																				1 0	2 0	6 0
103	University of Toronto, Faculty of Medicine.....					1 0										1 0							1 0
104	Western University, Medical Faculty.....																						1 0
105	Foreign Colleges			1 0		3 4	2 0	2 1			0 3		0 1	6 2	1 0	1 0	1 0			1 1	0 1	8 5	3 0
106	Miscellaneous Medical Colleges.....	15 14		5 9	5 4	6 13	1 0	7 4	2 0	4 2	22 14	8 1	3 0	17 15	6 0	6 0	4 0	1 3	5 13	3 1	3 11	13 8	2 10
107	Undergraduates						0 1															24 53	0 0
Totals by States.....		175	4	42	113	158	32	54	18	59	143	200	21	594	50	78	41	66	100	65	132	323	140
Totals—Examined—Passed		115	4	26	97	113	31	46	18	47	106	179	19	484	48	77	37	59	76	54	105	226	138
Totals—Examined—Failed		60	0	16	16	45	1	8	0	12	37	21	2	110	2	1	4	7	24	11	27	97	2
Percentage of Failures.....		34.3	0.0	38.1	14.2	28.5	3.1	14.8	0.0	20.3	25.9	10.5	9.5	18.5	4.0	1.3	9.8	10.6	24.0	16.9	20.5	30.0	1.4
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22

Marginal Number	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	Totals	Examined— Passed	Examined— Failed	Percentage of Failures	No. States Ex. in	Marginal Number	
	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F							
53				3	2	31	0																					1	0	45	43	2	4.4	8	53
54					6	2																							9	6	3	33.3	1	54	
55					12	0																							13	13	0	0.0	2	55	
56							8	0		0	2						1	0											15	15	0	0.0	4	56	
57								1	0	39	20																		69	48	21	30.4	6	57	
58		1	0	1	0		1	0		51	5		1	0	2	0	4	0		5	0								96	91	5	5.2	21	58	
59					1	0				16	0							1	0			1	0						21	21	0	0.0	6	59	
60								2	1	24	6							1	0										37	29	8	21.6	6	60	
61							1	0		95	14																		114	100	14	12.3	6	61	
62								5	1	16	18		1	0				2	0										50	31	19	38.0	9	62	
63								1	0	7	3																		12	9	3	25.0	3	63	
64										18	5		1	0		1	0												30	25	5	16.7	7	64	
65	1	0			1	0		8	0	63	10		1	0		1	0			1	0					1	0		96	84	12	12.5	15	65	
66										56	7																		63	56	7	11.1	1	66	
67											4	9		0	1				2	2							1	1	28	10	18	64.3	8	67	
68											18	8							9	3									40	29	11	27.5	4	68	
69										0	1		11	0															12	11	1	8.3	2	69	
70						0	1			0	2		16	7	1	0													39	27	12	30.8	11	70	
71										0	1		12	0							1	1							17	15	2	11.8	6	71	
72													51	10				1	0										66	56	10	15.2	4	72	
73										1	0		25	0	1	0													31	31	0	0.0	6	73	
74			2	0										11	0														16	16	0	0.0	4	74	
75															12	3													28	25	3	10.7	4	75	
76								1	0	1	2					8	1							1	0				21	18	3	14.3	8	76	
77		2	0	2	0	2	0	10	2	11	4	16	0		2	0	1	0	3	0	18	0	1	0					110	103	7	6.4	34	77	
78					1	2				1	4	1	0		1	0		20	0	1	1								46	35	11	22.9	15	78	
79																													5	4	1	20.0	4	79	
80	1	0		3	0	1	0			7	1	10	0		3	0	1	1		10	0		2	0					67	65	2	3.0	27	80	
81																													2	2	0	0.0	2	81	
82										4	2					4	1	1											23	19	4	17.4	11	82	
83											1	1								20	7								34	26	8	23.5	5	83	
84																													12	4	8	66.7	3	84	
85		0	3	5	1						0	2			1	3			0	1	4	5			1	7			153	75	78	51.0	22	85	
86		19	5		1	0			1	1		0			2	0													111	69	42	37.8	17	86	
87				1	2						0	3			0	1				4	8								47	8	39	83.0	8	87	
88		2	1	2	0										0	1				1	0								59	54	5	8.5	17	88	
89															1	0													21	20	1	4.8	3	89	
90																													18	18	0	0.0	1	90	
91																													10	10	0	0.0	1	91	
92										1	0				1	0													31	31	0	0.0	5	92	
93							3	1		6	1		1	0							1	0							57	54	3	5.3	12	93	
94										2	0	12	2																100	91	9	8.1	6	94	
95		4	0					1	0	1	3								1	0	1	0							15	12	3	20.0	7	95	
96	0	1								0	2		3	0															61	54	7	11.5	8	96	
97																													1	1	0	0.0	1	97	
98										0	1		1	0					0	1									3	1	2	66.7	3	98	

Marginal Number.	NAME OF COLLEGE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	Marginal Number							
		Alabama	Alaska	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	District of Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan								
		P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F		P	F					
1	ALABAMA																														
2	Birmingham Medical College.....	26	23								0	1	5	2					1	0				1							
3	University of Alabama, School of Medicine.....	28	1									1	0					1	0				2								
4	ARKANSAS																														
5	University of Arkansas, Medical Dept.				28	2												2	0				8								
6	CALIFORNIA																														
7	California Eclectic Medical Collc.—E.			0	1		6	5					1	0									4								
8	College of Medical Evangelists.....					3	2																5								
9	College of Physicians and Surgeons, Los Angeles....			1	0		33	4															6								
10	College of Phys. and Surgs., San Francisco.....					1	3																7								
11	Hahnemann Medical College of the Pacific.—H. ...					5	2																8								
12	Leland Stanford Junior Univ., School of Med.					10	1																9								
13	Oakland College of Medicine and Surgery.....					3	1																10								
14	University of California, Medical School.....					15	0																11								
15	COLORADO																														
16	University of Colorado, School of Medicine.....			2	0	1	0	1	0	21	0		1	0		3	0		1	0				12							
17	CONNECTICUT																														
18	Yale Medical School.....								4	0							1	0						13							
19	DISTRICT OF COLUMBIA																														
20	Georgetown University School of Medicine.....					1	0			1	0	8	0						1	0		3	0	14							
21	George Washington University Medical School....			1	0					10	0	1	0		1	0				1	0			15							
22	Howard University School of Medicine.....	1	0			1	0			1	0	8	4				1	0			1	1		16							
23	GEORGIA																														
24	Atlanta Medical College.....	6	5											28	1	13	1							17							
25	Georgia College of Eclectic Med. and Surg.—E.				2	0									4	8								18							
26	Southern College of Medicine and Surgery.....											1	4	0	2									19							
27	University of Georgia, Medical Dept.	0	1									6	0	21	0									20							
28	ILLINOIS																														
29	Bennett Medical College.....	1	3			0	1	1	0	1	0			1	0	1	1		86	12	1	0	5	0	21						
30	Chicago College of Medicine and Surgery.....	5	1		1	1		1	0					2	0	2	0		113	38	7	1	8	0	22						
31	Hahnemann Medical College and Hospital.—H.											1	0					16	8	2	1	2	0		23						
32	Jenner Medical College.....																	7	4						24						
33	Northwestern University Medical School.....				1	0		1	0									45	6	1	0	5	0	1	0	25					
34	Rush Medical College.....		1	0	1	0		1	0	1	0							64	4			9	0			26					
35	University of Illinois College of Medicine.....					0	1					2	0					91	8	1	0	3	0			27					
36	INDIANA																														
37	Indiana University School of Medicine.....														22	0									28						
38	IOWA																														
39	State University of Iowa College of Medicine....						1	0									13	0					0	1	29						
40	State Univ. of Iowa Coll. of Homeo. Med.—H.																					2	0		30						
41	KANSAS																														
42	University of Kansas School of Medicine.....																10	0					1	0	31						
43	KENTUCKY																														
44	Unlversity of Louisville, Medical Dept.				0	1						1	1	1	0	1	0		2	0			40	2	1	1	32				
45	LOUISIANA																														
46	Tulane University of Louisiana, School of Med. ...	9	1			1	0					2	0									59	0			33					
47	MAINE																														
48	Medical School of Maine.....																				17	2			7	0	34				
49	MARYLAND																														
50	College of Physicians and Surgeons, Baltimore....								3	1			2	0							1	0			14	3	4	1	35		
51	Johns Hopkins University, Medical Dept.	2	0				2	0			2	0		1	0	1	0		3	0				1	0	29	0	2	0	36	
52	University of Maryland School of Medicine.....	1	0		2	0			3	0		1	0	3	0	2	0				2	0	43	5	3	0			37		
53	MASSACHUSETTS																														
54	Boston University School of Medicine.—H.								1	0													1	1			17	0		38	
55	College of Physicians and Surgeons, Boston....											0	1	0	2								4	3	0	1	4	11		39	
56	Medical School of Harvard University.....	1	0				5	0	1	0			1	0									4	0			27	1		40	
57	Tufts College Medical School.....								2	0												5	0			60	5			41	
58	MICHIGAN																														
59	Detroit College of Medicine and Surgery.....													0	1													54	0	42	
60	Unlversity of Michigan, Dept. of Med. and Surg....	2	0						2	0							1	0										41	0		43
61	University of Michigan, Homeo. Med. College.—H.										0	1																21	1		44
62	MINNESOTA																														
63	University of Minnesota, Medical School.....																													45	
64	MISSOURI																														
65	American Medical College.....				1	0																								46	
66	Eclectic Medical University.—E.				10	0																								47	
67	Ensworth Medical College.....																													48	
68	Kansas City Hahnemann Medical College.—H.				8	0							1	0																49	
69	St. Louis College of Physicians and Surgeons....					0	1																							50	
70	St. Louis University School of Medicine.....																													51	
71	Washington University, Medical School.....			1	0																									52	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22								

H.—Homeopathic; E.—Eclectic.

[illegible]

Marginal Number	NAME OF COLLEGE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	Marginal Number
		Alabama	Alaska	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	District of Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	
		P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	
NEBRASKA																								
53	John A. Creighton Medical College.....							1 0						1 0		4 0						1 0		53
54	Cotner University Medical College.—E.																							54
55	University of Nebraska, College of Medicine.....													1 0										55
NEW HAMPSHIRE																								
56	Dartmouth Medical School.....																					2 0		56
NEW YORK																								
57	Albany Medical College.....		1 0										1 0									4 1		57
58	Columbia University Coll. of Phys. and Surgs.					1 0		1 0		1 0									2 0	1 0	3 0			58
59	Cornell University Medical College.....					1 0		1 0	1 0															59
60	Fordham University, School of Medicine.....													1 0								1 0		60
61	Long Island College Hospital.....																							61
62	New York Homeo. Med. Coll. and Flower Hosp.—H.					1 0		1 0	3 0			1 0								1 0	1 0			62
63	New York Med. Coll. and Hosp. for Women.—H.							1 0																63
64	Syracuse University, College of Medicine.....							1 0		1 0								1 0					1 0	64
65	University and Bellevue Hospital Med. Coll.					1 0								1 0		1 0						1 1		65
66	University of Buffalo, Medical Dept.																							66
NORTH CAROLINA																								
67	Leonard Medical School.....										0 2	1 1	2 0											67
68	North Carolina Medical College.....																				1 0			68
OHIO																								
69	Cleveland-Pulte Medical College.—H.																							69
70	Eclectic Medical College.—E.				2 0	0 1					1 0				1 0			1 0						70
71	Medical College of the University of Cincinnati....													1 0	1 0			1 0						71
72	Ohio State University, College of Medicine.....						1 0																	72
73	Western Reserve University, School of Medicine....												1 0	1 0		2 0								73
OKLAHOMA																								
74	University of Oklahoma, School of Medicine.....				1 0												2 0							74
OREGON																								
75	University of Oregon, Dept. of Medicine.....					1 0							1 0											75
PENNSYLVANIA																								
76	Hahnemann Medical College and Hospital.—H.					1 0		1 0	2 0												3 0			76
77	Jefferson Medical College.....	1 0	1 0			1 0		1 0	2 0	1 0	1 0					1 0	1 0	1 0		1 0	1 0	4 0		77
78	Medico-Chirurgical College of Philadelphia.....	0 1		1 1		1 1			4 0												1 0	2 1		78
79	Temple University, Dept. of Medicine.....									2 0											0 1	1 0		79
80	University of Pennsylvania, School of Medicine....	1 0						1 0	1 0	1 0	1 0			1 0		1 0	1 0				1 0	1 0		80
81	University of Pittsburgh, School of Medicine.....																							81
82	Woman's Medical College of Pennsylvania.....							1 0								1 0						1 0		82
SOUTH CAROLINA																								
83	Medical College of the State of South Carolina....										2 0	2 0												83
TENNESSEE																								
84	Lincoln Memorial University, Medical Dept.										0 1							3 0						84
85	Meharry Medical College.....	5 5			3 4	0 2					0 1	5 3	7 3		6 4			1 2	8 0	0 1		0 1		85
86	University of Tennessee, College of Medicine....	1 3			15 2						0 2	0 2					2 0	1 0	4 7					86
87	University of West Tennessee, College of Med.											1 0								0 1		0 1		87
88	Vanderbilt University, Medical Dept.	3 1			1 0							1 0	4 0				1 0		3 1	1 0			1 0	88
TEXAS																								
89	Baylor University, College of Medicine.....																		1 0					89
90	Southern Methodist University, Medical Dept.																							90
91	Texas Christian University, School of Medicine....																							91
92	University of Texas, Dept. of Medicine.....																							92
VERMONT																								
93	University of Vermont College of Medicine.....							4 0		1 0										2 0		5 1		93
VIRGINIA																								
94	Medical College of Virginia.....										1 0										0 1			94
95	University of Virginia, Dept. of Medicine.....																							95
WISCONSIN																								
96	Marquette University, School of Medicine.....										1 0			3 0										96
CANADIAN																								
97	Dalhousie University, Faculty of Medicine.....																					1 0		97
98	Laval University, Medical Faculty.....																							98
99	McGill University, Faculty of Medicine.....					2 0						1 0												99
100	Montreal School of Medicine and Surgery.....																					1 0		100
101	Queen's University, Faculty of Medicine.....																							101
102	University of Manitoba, Manitoba Medical Coll.																							102
103	University of Toronto, Faculty of Medicine.....																				1 0	2 0	3 0	103
104	Western University, Medical Faculty.....															1 0						1 0		104
105	Foreign Colleges					1 2	2 0	1 1			0 2		0 1	1 2		1 0	1 0					3 2	1 0	105
106	Miscellaneous Medical Colleges.....	8 13		0 2	0 3	0 3		4 2	2 0	3 2	8 2	5 0	1 0	8 6		3 0	1 0	0 1	4 7	3 1	3 11	7 6	1 0	106
Totals by States.....		159	3	15	88	128	29	40	18	54	92	193	12	554	43	71	36	62	91	53	127	212	131	
Totals—Examined—Passed		101	3	10	75	99	29	36	18	43	72	174	11	457	41	71	32	57	75	45	101	175	130	
Totals—Examined—Failed		58	0	5	13	29	0	4	0	11	20	19	1	97	2	0	4	5	16	8	26	37	1	
Percentage of Failures.....		57.4	0.0	50.0	14.8	22.7	0.0	10.0	0.0	20.4	21.7	10.9	8.3	17.5	4.7	0.0	11.1	8.1	17.6	15.1	20.5	17.5	0.8	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	

H.—Homeopathic; E.—Eclectic.

[illegible]

Marginal Number	NAME OF COLLEGE	Graduates of All Years					Graduates of 1910-1914					Graduates of 1909 and Previous					Graduates of 1914					Marginal Number
		Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	
ALABAMA																						
1	Birmingham Medical College.....	60	34	26	43.3	6	59	33	26	44.1	5	1	1	0	0.0	1	33	17	16	48.5	3	1
2	University of Alabama, School of Medicine.....	41	38	3	7.3	7	34	33	1	2.9	5	7	5	2	28.6	3	17	17	0	0.0	3	2
ARKANSAS																						
3	University of Arkansas, Medical Dept.	44	38	6	13.6	5	42	36	6	14.3	5	2	2	0	0.0	1	31	29	2	6.5	3	3
CALIFORNIA																						
4	California Eclectic Medical College.—E.	15	8	7	46.7	5	15	8	7	46.7	5	...	...	...	...	..	13	8	5	38.5	4	4
5	College of Medical Evangelists.....	5	3	2	40.0	1	5	3	2	40.0	1	...	...	...	...	..	5	3	2	40.0	1	5
6	College of Physicians and Surgeons, Los Angeles.....	41	37	4	9.8	5	41	37	4	9.8	5	...	...	...	...	..	34	30	4	11.8	3	6
7	College of Phys. and Surgs., San Francisco.....	11	4	7	63.6	4	7	2	5	71.4	3	4	2	2	50.0	2	4	1	3	75.0	2	7
8	Hahnemann Medical College of the Pacific.—H. ...	8	6	2	25.0	2	8	6	2	25.0	2	...	...	...	...	..	4	4	0	0.0	2	8
9	Leland Stanford Junior Univ., School of Med. ...	11	10	1	9.1	1	11	10	1	9.1	1	...	...	...	...	..	11	10	1	9.1	1	9
10	Oakland College of Medicine and Surgery.....	4	3	1	25.0	1	4	3	1	25.0	1	...	...	...	...	..	3	2	1	33.3	1	10
11	University of California, Medical School.....	17	16	1	5.9	2	15	15	0	0.0	1	2	1	1	50.0	1	12	12	0	0.0	1	11
COLORADO																						
12	University of Colorado, School of Medicine.....	39	39	0	0.0	11	36	36	0	0.0	9	3	3	0	0.0	2	13	13	0	0.0	3	12
CONNECTICUT																						
13	Yale Medical School.....	24	23	1	4.2	7	20	19	1	5.0	6	4	4	0	0.0	3	4	4	0	0.0	2	13
DISTRICT OF COLUMBIA																						
14	Georgetown University School of Medicine.....	34	31	3	8.8	14	30	28	2	6.7	12	4	3	1	25.0	4	6	6	0	0.0	4	14
15	George Washington University Medical School....	24	23	1	4.2	12	20	20	0	0.0	10	4	3	1	25.0	3	10	10	0	0.0	3	13
16	Howard University School of Medicine.....	30	21	9	30.0	13	24	18	6	25.0	12	6	3	3	50.0	5	12	7	5	41.7	5	16
GEORGIA																						
17	Atlanta Medical College.....	167	155	12	7.3	5	166	155	11	6.6	6	1	0	1	100.0	1	166	155	11	6.6	6	17
18	Georgia College of Eclectic Med. and Surg.—E. ...	15	6	9	60.0	3	15	6	9	60.0	3	...	...	...	...	..	13	5	8	61.5	2	18
19	Southern College of Medicine and Surgery.....	13	3	10	76.9	4	12	2	10	83.3	3	1	1	0	0.0	1	2	0	2	100.0	1	19
20	University of Georgia, Medical Dept.	31	30	1	3.2	4	30	29	1	3.3	4	1	1	0	0.0	1	22	22	0	0.0	3	20
ILLINOIS																						
21	Bennett Medical College.....	142	119	23	15.6	23	137	115	22	16.1	21	5	4	1	20.0	4	87	75	12	13.8	9	21
22	Chicago College of Medicine and Surgery.....	242	185	57	23.6	31	235	182	53	22.6	31	7	3	4	57.1	4	161	126	35	21.7	19	22
23	Hahnemann Medical College and Hospital.—H. ...	34	25	9	26.5	7	32	23	9	28.1	6	2	2	0	0.0	2	15	9	6	40.0	3	23
24	Jenner Medical College.....	13	8	5	38.4	3	11	7	4	36.3	1	2	1	1	50.0	2	7	6	1	14.3	1	24
25	Northwestern University Medical School.....	98	91	7	7.1	21	84	78	6	7.1	16	14	13	1	7.2	9	66	63	3	4.5	11	25
26	Rush Medical College.....	137	129	8	5.8	23	119	114	5	4.2	20	18	15	3	16.7	12	76	74	2	2.6	10	26
27	University of Illinois College of Medicine.....	131	122	9	6.9	17	131	122	9	7.1	17	...	...	...	...	..	113	104	9	8.0	14	27
INDIANA																						
28	Indiana University School of Medicine.....	22	22	0	0.0	1	22	22	0	0.0	..	...	...	...	...	..	22	22	0	0.0	1	28
IOWA																						
29	State University of Iowa College of Medicine.....	22	19	3	13.6	8	15	14	1	6.7	3	7	5	2	28.6	5	14	14	0	0.0	2	29
30	State Univ. of Iowa Coll. of Homeo. Med.—H. ...	6	6	0	0.0	5	2	2	0	0.0	1	4	4	0	0.0	4	....	....	...	....	..	30
KANSAS																						
31	University of Kansas School of Medicine.....	13	12	1	7.7	3	11	11	0	0.0	2	2	1	1	50.0	1	10	10	0	0.0	1	31
KENTUCKY																						
32	University of Louisville, Medical Dept.	83	64	19	22.9	24	75	58	17	22.7	19	8	6	2	25.0	6	48	47	1	2.1	10	32
LOUISIANA																						
33	Tulane University of Louisiana, School of Med. ...	103	99	4	3.9	12	94	93	1	1.1	10	9	6	3	44.4	7	69	69	0	0.0	5	33
MAINE																						
34	Medical School of Maine.....	32	30	2	6.2	4	30	28	2	6.7	3	2	2	0	0.0	2	23	21	2	8.7	3	34
MARYLAND																						
35	College of Physicians and Surgeons, Baltimore...	73	62	11	15.1	19	64	55	9	14.1	15	9	7	2	22.2	7	36	30	6	16.7	9	35
36	Johns Hopkins University, Medical Dept.	78	74	4	5.1	20	73	69	4	5.5	20	5	5	0	0.0	3	39	39	0	0.0	11	36
37	University of Maryland School of Medicine.....	104	96	8	7.7	21	97	90	7	7.2	17	7	6	1	14.3	5	81	77	4	4.9	14	37
MASSACHUSETTS																						
38	Boston University School of Medicine.—H.	32	28	4	12.5	10	29	26	3	10.3	9	3	2	1	33.3	2	22	20	2	9.1	5	38
39	College of Physicians and Surgeons, Boston.....	37	12	25	67.6	10	29	9	20	69.0	7	8	3	5	62.5	5	3	3	0	0.0	3	39
40	Medical School of Harvard University.....	83	78	5	6.0	19	64	61	3	4.7	15	19	17	2	10.5	12	36	35	1	2.8	11	40
41	Tufts College Medical School.....	105	92	13	12.4	13	93	83	10	10.8	9	12	9	3	25.0	9	46	44	2	4.3	5	41
MICHIGAN																						
42	Detroit College of Medicine and Surgery.....	59	58	1	1.7	6	56	55	1	1.8	3	3	3	0	0.0	3	54	54	0	0.0	1	42
43	University of Michigan, Dept. of Med. and Surg..	59	59	0	0.0	12	51	51	0	0.0	7	8	8	0	0.0	7	38	38	0	0.0	3	43
44	University of Michigan, Homeo. Med. Coll.—H. ...	28	24	4	14.3	6	27	23	4	14.8	5	1	1	0	0.0	1	23	22	1	4.3	2	44
MINNESOTA																						
45	University of Minnesota, Medical School.....	34	34	0	0.0	4	31	31	0	0.0	4	3	3	0	0.0	3	27	27	0	0.0	1	45
MISSOURI																						
46	American Medical College.....	49	37	12	24.5	9	46	34	12	26.1	9	3	3	0	0.0	3	35	27	8	22.9	4	46
47	Eclectic Medical University.—E.	18	13	5	27.8	3	17	12	5	29.4	3	1	1	0	0.0	1	17	12	5	29.4	3	47
48	Ensworth Medical College.....	19	15	4	21.1	7	16	14	2	12.5	4	3	1	2	66.7	3	11	11	0	0.0	4	48
49	Kansas City Hahnemann Medical College.—H. ...	21	21	0	0.0	4	20	20	0	0.0	3	1	1	0	0.0	1	16	16	0	0.0	3	49
50	St. Louis College of Physicians and Surgeons.....	44	22	22	50.0	9	32	17	15	46.9	4	12	5	7	58.3	7	22	13	9	40.9	2	50
51	St. Louis University School of Medicine.....	65	61	4	6.2	12	60	59	1	1.7	10	5	2	3	60.0	4	49	48	1	2.0	7	51
52	Washington University, Medical School.....	27	27	0	0.0	7	21	21	0	0.0	7	6	6	0	0.0	3	14	14	0	0.0	2	52

Marginal Number	NAME OF COLLEGE	Graduates of All Years					Graduates of 1910-1914					Graduates of 1909 and Previous					Graduates of 1914					Marginal Number																				
		Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States																					
NEBRASKA																																										
53	John A. Creighton Medical College.....	45	43	2	4.4	8	42	41	1	2.4	6	3	2	1	33.3	3	29	29	0	0.0	3	53																				
54	Cotner University Medical College.—E.	9	6	3	33.3	1	7	5	2	28.6	1	2	1	1	50.0	2	5	4	1	20.0	1	54																				
55	University of Nebraska, College of Medicine.....	13	13	0	0.0	2	13	13	0	0.0	2	...	...	...	...	..	12	12	0	0.0	1	55															
NEW HAMPSHIRE																																										
56	Dartmouth Medical School.....	15	15	0	0.0	4	13	13	0	0.0	4	2	2	0	0.0	1	4	4	0	0.0	2	56																				
NEW YORK																																										
57	Albany Medical College.....	69	48	21	30.4	6	67	46	21	31.3	5	2	2	0	0.0	2	33	23	10	30.3	2	57																				
58	Columbia University, Coll. of Phys. and Surgs. ..	96	91	5	5.2	21	82	77	5	6.1	17	14	14	0	0.0	10	41	40	1	2.4	10	58																				
59	Cornell University, Medical College.....	21	21	0	0.0	6	21	21	0	0.0	6	...	...	...	...	..	10	10	0	0.0	1	59															
60	Fordham University, School of Medicine.....	37	29	8	21.6	6	36	29	7	19.4	5	1	0	1	100.0	1	16	14	2	12.5	2	60																				
61	Long Island College Hospital.....	114	100	14	12.3	6	113	99	14	12.4	5	1	1	0	0.0	1	71	65	6	8.5	1	61																				
62	New York Homeo. Med. Coll. and Flower Hosp.—H.	50	31	19	38.0	9	48	30	18	37.5	8	2	1	1	50.0	2	13	8	5	38.5	2	62																				
63	New York Med. Coll. and Hosp. for Women.—H.	12	9	3	25.0	3	12	9	3	25.0	3	...	...	...	...	..	8	6	2	25.0	2	63															
64	Syracuse University, College of Medicine.....	30	25	5	16.7	7	29	24	5	17.2	7	1	1	0	0.0	1	8	6	2	25.0	1	64																				
65	University and Bellevue Hospital Med. Coll.	96	84	12	12.5	15	91	80	11	12.1	11	5	4	1	20.0	5	56	53	3	5.4	5	65																				
66	University of Buffalo, Medical Dept.	63	56	7	11.1	1	63	56	7	11.1	1	...	...	...	...	..	36	35	1	2.8	1	66															
NORTH CAROLINA																																										
67	Leonard Medical School.....	28	10	18	64.3	8	28	10	18	64.3	8	...	...	...	...	..	9	7	2	22.2	3	67															
68	North Carolina Medical College.....	40	29	11	27.5	4	36	28	8	22.2	3	4	1	3	75.0	3	28	24	4	14.3	3	68																				
OHIO																																										
69	Cleveland-Pulte Medical College.—H.	12	11	1	8.3	2	12	11	1	8.3	2	...	...	...	...	..	10	10	0	0.0	1	69															
70	Eclectic Medical College.—E.	39	27	12	30.8	11	34	23	11	32.4	9	5	4	1	20.0	3	27	19	8	29.6	6	70																				
71	Medical College of the University of Cincinnati..	17	15	2	11.8	6	17	15	2	11.8	6	...	...	...	...	..	15	15	0	0.0	4	71															
72	Ohio State University, College of Medicine.....	66	56	10	15.2	4	66	56	10	15.2	4	...	...	...	...	..	62	53	9	14.5	2	72															
73	Western Reserve University, School of Medicine...	31	31	0	0.0	6	31	31	0	0.0	6	...	...	...	...	..	30	30	0	0.0	5	73															
OKLAHOMA																																										
74	University of Oklahoma, School of Medicine.....	16	16	0	0.0	4	16	16	0	0.0	4	...	...	...	...	..	16	16	0	0.0	4	74															
OREGON																																										
75	University of Oregon, Dept. of Medicine.....	28	25	3	10.7	4	27	24	3	11.1	4	1	1	0	0.0	1	16	15	1	6.3	4	75																				
PENNSYLVANIA																																										
76	Hahnemann Medical College and Hospital.—H. ...	21	18	3	14.3	8	21	18	3	14.3	8	...	...	...	...	..	6	6	0	0.0	4	76															
77	Jefferson Medical College.....	110	103	7	6.4	34	96	90	6	6.2	29	14	13	1	7.2	12	47	44	3	6.4	17	77																				
78	Medico-Chirurgical College of Philadelphia.....	46	35	11	22.9	15	42	34	8	19.0	12	4	1	3	75.0	2	16	11	5	31.3	8	78																				
79	Temple University, Dept. of Medicine.....	5	4	1	20.0	4	5	4	1	20.0	4	...	...	...	...	..	2	2	0	0.0	2	79															
80	University of Pennsylvania, School of Medicine...	67	65	2	3.0	27	56	55	1	1.8	25	11	10	1	9.1	10	23	23	0	0.0	10	80																				
81	University of Pittsburgh, School of Medicine.....	2	2	0	0.0	2	2	2	0	0.0	2	...	...	...	...	..	...	...	...	...	...	81										
82	Woman's Medical College of Pennsylvania.....	23	19	4	17.4	11	15	12	3	20.0	8	8	7	1	12.5	5	5	4	1	20.0	3	82																				
SOUTH CAROLINA																																										
83	Medical College of the State of South Carolina..	24	26	8	23.5	5	31	25	6	19.4	4	3	1	2	66.7	2	22	20	2	9.1	3	83																				
TENNESSEE																																										
84	Lincoln Memorial University, Medical Dept.	12	4	8	66.7	3	12	4	8	66.7	3	...	...	...	...	..	8	2	6	75.0	2	84															
85	Meharry Medical College.....	153	75	78	51.0	22	136	70	66	48.5	22	17	5	12	70.6	10	98	54	44	44.9	17	85																				
86	University of Tennessee, College of Medicine.....	111	69	42	37.8	17	104	63	41	39.4	14	7	6	1	14.3	7	80	51	29	36.3	10	86																				
87	University of West Tennessee, College of Med. ...	47	8	39	83.0	8	44	8	36	81.8	7	3	0	3	100.0	2	37	7	30	81.1	4	87																				
88	Vanderbilt University, Medical Dept.	59	54	5	8.5	17	50	47	3	6.4	13	9	7	2	22.2	8	31	29	2	6.5	9	88																				
TEXAS																																										
89	Baylor University, College of Medicine.....	21	20	1	4.8	3	21	20	1	4.8	3	...	...	...	...	..	19	18	1	5.3	2	89															
90	Southern Methodist University, Medical Dept.	18	18	0	0.0	1	18	18	0	0.0	1	...	...	...	...	..	16	16	0	0.0	1	90															
91	Texas Christian University, School of Medicine...	10	10	0	0.0	1	10	10	0	0.0	1	...	...	...	...	..	10	10	0	0.0	1	91															
92	University of Texas, Dept. of Medicine.....	31	31	0	0.0	5	29	29	0	0.0	3	2	2	0	0.0	2	23	23	0	0.0	3	92																				
VERMONT																																										
93	University of Vermont College of Medicine.....	57	54	3	5.3	12	52	49	3	5.8	10	5	5	0	0.0	3	31	30	1	3.2	9	93																				
VIRGINIA																																										
94	Medical College of Virginia.....	100	91	9	8.1	6	98	89	9	8.2	6	2	2	0	0.0	2	81	76	5	6.2	5	94																				
95	University of Virginia, Dept. of Medicine.....	15	12	3	20.0	7	12	9	3	25.0	4	3	3	0	0.0	3	6	5	1	16.7	3	95																				
WISCONSIN																																										
96	Marquette University, School of Medicine.....	61	54	7	11.5	8	60	54	6	10.0	7	1	0	1	100.0	1	43	42	1	2.3	2	96																				
CANADIAN																																										
97	Dalhousie University, Faculty of Medicine.....	1	1	0	0.0	1	1	1	0	0.0	1	...	...	...	...	..	1	1	0	0.0	1	97															
98	Laval University, Medical Faculty.....	3	1	2	66.7	3	2	1	1	50.0	2	1	0	1	100.0	1	...	...	...	...	...	98															
99	McGill University, Faculty of Medicine.....	12	12	0	0.0	9	6	6	0	0.0	4	6	6	0	0.0	6	2	2	0	0.0	2	99																				
100	Montreal School of Medicine and Surgery.....	2	2	0	0.0	2	2	2	0	0.0	2	...	...	...	...	..	...	...	...	...	...	100										
101	Queen's University, Faculty of Medicine.....	10	8	2	20.0	4	6	5	1	16.7	2	4	3	1	25.0	3	...	...	...	...	...	101															
102	University of Manitoba, Manitoba Med. Coll.	1	1	0	0.0	1	1	1	0	0.0	1	...	...	...	...	..	1	1	0	0.0	1	102															
103	University of Toronto, Faculty of Medicine.....	23	23	0	0.0	9	14	14	0	0.0	7	9	9	0	0.0	5	2	2	0	0.0	1	103																				
104	Western University, Medical Faculty.....	5	5	0	0.0	5	3	3	0	0.0	3	2	2	0	0.0	2	...	...	...	...	...	104															
Foreign Colleges																						117	68	49	41.9	27	46	23	23	50.0	18	71	45	26	29.6	21	105
Miscellaneous Medical Colleges.....																						506	301	205	40.5	45	232	127	105	45.3	35	274	174	100	36.4	41	8	2	6	75.0	3	106
Undergraduates																						293	113	180	61.4	4	107
Totals.....																						5570	4370	1200	21.6	..	4549	3748	801	17.6	..	728	509	219	30.0	..	2868	2504	364	12.7

TABLE D.—NON-RECOGNITION OF MEDICAL COLLEGES

[illegible]

(x) According to official reports the licensing boards of the states thus indicated do not grant full recognition to, or have taken action refusing to admit to their examinations graduates of, the colleges marked by this letter—x.

CONTINUED FROM PAGE 1401

dates have been out of college and to the fact that they are required to take the same examination as recent graduates. Undoubtedly the less favorable conditions in medical colleges at the time these physicians graduated have some bearing on this result. Justice to such candidates, who have been licensed, but who, for good reasons, desire to change their locations, is the strongest argument for interstate reciprocity in medical licensure, or for special percentage allowances at the examinations for years of practice. The total number of these candidates is diminishing each year as increased reciprocal relations are established. As a rule, the states which do not have reciprocal relations with other states (as Florida, Montana, Massachusetts, Oregon, Washington, see Table L) examined the largest numbers of old practitioners.

GRADUATES OF 1914 EXAMINED DURING 1914

Table C also gives the results for the graduates of 1914 who were examined during the year by the state boards, and shows that 2,868, or 51.5 per cent. of all candidates examined during the year, graduated in 1914, including six

TABLES E.—COLLEGES GROUPED BY STATES
Showing the Number Examined and Percentage of Failures

All Colleges of	Graduates								State Rank According to the Number Examined	Rank According to Suc- cesses at Examinations
	Of All Years		Of 1910 to 1914		Of 1909 & Prev.		Of 1914			
	Number Ex- amined	Per Cent. Failed	Number Ex- amined	Per Cent. Failed	Number Ex- amined	Per Cent. Failed	Number Ex- amined	Per Cent. Failed		
Alabama.....	101	28.7	93	29.0	8	25.0	50	32.0	14	26
Arkansas.....	44	6.8	42	14.3	2	0.0	31	6.5	22	8
California.....	112	22.3	106	20.8	6	50.0	86	18.6	12	23
Colorado.....	39	0.0	36	0.0	3	0.0	13	0.0	23	1
Connecticut.....	24	4.2	20	5.0	4	0.0	4	0.0	27	5
Dist. of Columbia...	88	14.8	74	10.8	14	35.7	28	17.9	15	17
Georgia.....	226	14.2	223	13.9	3	66.7	203	10.3	8	16
Illinois.....	797	14.8	749	14.4	48	20.8	525	13.0	1	17
Indiana.....	22	0.0	22	0.0	..	....	22	0.0	28	1
Iowa.....	28	10.7	17	5.9	11	18.2	14	0.0	26	14
Kansas.....	13	7.7	11	0.0	2	50.0	10	0.0	31	10
Kentucky.....	83	22.9	75	22.7	8	25.0	48	2.1	16	23
Louisiana.....	103	3.9	94	1.1	9	33.3	69	0.0	13	4
Maine.....	32	6.2	30	6.7	2	0.0	23	8.7	25	7
Maryland.....	255	9.0	234	8.5	21	14.3	156	6.4	6	11
Massachusetts.....	257	18.3	215	16.7	42	26.2	107	4.7	5	20
Michigan.....	146	3.4	134	3.7	12	0.0	115	0.9	10	3
Minnesota.....	34	0.0	31	0.0	3	0.0	27	0.0	24	1
Missouri.....	243	19.3	212	16.5	31	41.9	164	14.0	7	21
Nebraska.....	67	7.5	62	4.8	5	40.0	46	2.2	19	9
New Hampshire.....	15	0.0	13	0.0	2	0.0	4	0.0	30	1
New York.....	588	16.0	562	16.2	26	11.5	292	11.0	2	18
North Carolina.....	68	27.9	64	40.6	4	75.0	37	16.2	18	25
Ohio.....	165	17.6	160	15.0	5	20.0	144	11.8	9	19
Oklahoma.....	16	0.0	16	0.0	..	....	16	0.0	29	1
Oregon.....	28	10.7	27	11.1	1	0.0	16	6.3	26	14
Pennsylvania.....	274	10.2	237	9.2	37	16.2	99	9.1	4	12
South Carolina.....	34	23.5	31	19.4	3	66.7	22	9.1	24	24
Tennessee.....	382	45.0	346	41.6	36	50.0	254	43.7	3	27
Texas.....	80	1.2	78	1.3	2	0.0	68	1.5	17	2
Vermont.....	57	5.3	52	5.8	5	0.0	31	3.2	21	6
Virginia.....	115	10.4	110	10.9	5	0.0	87	6.9	11	13
Wisconsin.....	61	11.5	60	10.0	1	100.0	43	2.3	20	15
Totals Ex. in 1914	4597	16.6	4236	15.9	361	25.2	2854	12.5		

This table gives data relating to the group of colleges in each state. For example, it shows that, of all the medical schools in Illinois, 797 graduates of various years were examined by state boards during 1914, and of this number, 14.8 per cent. failed. Of the 749 who graduated in recent years (1910 to 1914 inclusive), 14.4 per cent. failed; of the 48 who graduated previous to 1910, 20.8 per cent. failed, and of the 525 graduates of 1914, 13.0 per cent. failed.

The ninth column gives the rank of each state group of colleges according to the number of graduates examined. The Illinois group of colleges leads, having 797 graduates examined by state boards during 1914, followed by New York with 588, Tennessee with 382, Pennsylvania with 274, Massachusetts with 257 and Maryland with 255.

The tenth column gives the rank of each state group of colleges according to the success of the graduates at the examinations. It is interesting to compare the figures of these two last columns. While the Illinois group ranks first according to the number examined it ranks seventeenth in the success of its graduates at the examinations. While New York ranks second as to the number examined, it ranks eighteenth in the success of its graduates at the examinations, and while Tennessee ranks third as to the number examined, it ranks as the twenty-seventh in the success of its graduates at the examinations.

TOTAL RESULTS
Comparison with Previous Years

Year	Table A				B		C		A		K	Total Registered
	Total Examined	Examined—Passed	Examined—Failed	Percentage Failed	Recent Grads. Examined	Percentage Failed	Older Prac. Examined	Percentage Failed	Non-Grads. Examined	Percentage Failed	Registered with-out Written Examination	
1904	7035	5672	1363	19.3	4773	14.1	579	29.7	515	52.6	999	6671
1905	7170	5680	1490	20.8	6054	16.2	690	37.7	472	61.9	394	6074
1906	8035	6368	1667	20.7	6250	16.4	793	27.1	703	51.3	1497	7865
1907	7271	5723	1548	21.3	5922	15.1	675	27.7	674	69.6	1426	7149
1908	7770	6084	1686	21.7	6477	17.8	796	31.5	494	56.8	1276	7360
1909	7287	5857	1430	19.6	5891	15.4	958	30.0	438	54.1	1373	7230
1910	7004	5712	1292	18.4	5678	14.9	973	29.1	353	45.6	1640	7352
1911	6960	5578	1382	19.9	5685	17.2	945	29.4	330	38.5	1246	6824
1912	6879	5466	1413	20.5	5770	18.6	856	29.2	253	34.8	1257	6723
1913	6435	5236	1199	18.6	5390	16.5	225	32.1	251	37.8	1265	6501
1914	5570	4370	1200	21.6	4549	17.6	728	30.0	293	61.4	1427	5797

RESULTS FOR LARGER COLLEGES
Comparison with Previous Years (Table F)

Year	Colleges Represented	Total Examined		Colleges, 100 or More Examined	Total Examined		Colleges, 50 to 100 Examined	Total Examined		Colleges, Less than 50 Examined	Total Examined		Foreign, Misc., and Non-grads. Exam'd	Per Cent. Failed
		Total Examined	Per Cent. Failed		Total Examined	Per Cent. Failed		Total Examined	Per Cent. Failed		Total Examined	Per Cent. Failed		
1904	149	6241	16.4	14	2271	11.7	28	1817	16.9	107	2153	21.0	794	43.1
1905	153	6411	18.3	14	2350	12.4	37	2543	17.7	102	1518	28.9	759	51.1
1906	151	6938	17.3	16	2504	14.5	34	2381	16.9	96	2053	21.3	1097	42.5
1907	146	6207	13.8	12	1626	12.7	36	2578	14.7	98	2003	13.6	1064	55.5
1908	137	6491	17.2	19	2596	15.6	26	1825	15.5	92	2070	20.8	1279	14.6
1909	134	6341	16.2	17	2476	16.9	27	1920	12.3	90	1945	19.2	946	42.6
1910	121	5953	15.3	17	2379	13.3	25	1791	13.7	79	1783	19.3	1051	36.5
1911	119	6062	17.2	18	2508	11.0	28	1895	17.1	73	1659	20.1	898	37.6
1912	110	5563	17.1	12	1776	15.6	31	2148	17.3	67	1639	18.5	790	37.0
1913	99	5339	15.2	15	2143	12.6	27	815	37.5	57	1381	17.1	1096	35.2
1914	96	4597	16.6	13	1719	16.5	19	1342	12.5	64	1536	20.2	973	45.0

who graduated from Canadian medical colleges. Educational statistics show that the medical colleges of the United States graduated 3,594 students last year; therefore, about 80 per cent. of all graduates in 1914 took examinations for license during that year. In some of the states, graduates in medicine are allowed to serve as hospital interns without first becoming licensed practitioners, which doubtless accounts for some of the remaining 20 per cent. Of the 1914 graduates examined, 364, or 12.7 per cent., failed.

Table C permits an interesting study of medical schools from the point of view of state board examinations. For some colleges a marked improvement in teaching methods is apparent from the fact that while the percentages of failures are high for old practitioners, they are lower for recent graduates and still lower for graduates of 1914. Other colleges, however, show no improvement either for recent graduates or for graduates of 1914. In the latter an accurate knowledge of these colleges, based on a careful study which included an inspection of the colleges, bears out what the figures of this table indicate, that some of these institutions are teaching medicine no better to-day than they did ten or more years ago.

NON-RECOGNITION OF MEDICAL COLLEGES

Table D shows for each college the state in which its diplomas are not given unqualified recognition. Non-recognition is expressed by different terms in different states. Some boards list colleges as "in good standing" or "not in good standing," some give them as "reputable" or "not reputable"; in New York, full recognition is given only to colleges which are "registered," and in Michigan colleges are divided into groups, only those of Group I having full

recognition. This table also shows the latest rating given to each college by the Council on Medical Education.

The information given in this table is from official correspondence, and the data have been carefully verified. From the point of view of the prospective student who may be selecting a medical college, the facts are highly important. The table shows that there are 33 medical colleges which have complete recognition in all states. Four high grade colleges for one reason or another have apparently not complied with the requirements in one state. If the student has completed two or more years' work in a recognized college or university before he gains entrance to a medical college, he may take his choice from among 29 other colleges; otherwise he will find that his diploma will not enable him to secure a license in nine states. If he gets his medical training in one of the remaining 36 colleges, he will find on graduation that his diploma is not recognized in from 10 to 33 states!

RECOGNITION OF MEDICAL COLLEGES

(Based on Table D)

	Number of Colleges
Recognized by all State Boards.....	33
Not recognized by 1 to 9 State Boards.....	34
Not recognized by 10 to 17 State Boards.....	20
Not recognized by 23 to 33 State Boards.....	15
Total	102

Without the information published in Table D, these state board statistics would be not merely incomplete—they would be actually misleading. For example, in 1912, thirteen graduates of the Eclectic Medical University of Kansas City, Mo., were examined by the Arkansas Eclectic Board of Medical Examiners and all passed. None was examined elsewhere during the year, so the statistics showed no failures for this college during 1912, making it appear to rank among the best teaching institutions in the country. How different the picture, however, when the facts are told that the Eclectic Medical University is not recognized in Missouri, its home state, and that in 30 states the diplomas of this college are not considered an acceptable qualification for the license to practice medicine!

Thirty-two state licensing boards, to some extent at least, are utilizing their legal power to refuse recognition to medical colleges which do not meet certain educational standards, or which otherwise do not meet the requirements in the respective states. In the other 18 states, however, this table indicates that either the practice acts do not give the boards the right to enforce a requirement of reasonable standards, or else the boards are not exercising their privileges. It is clearly evident that if the graduates of low-standard medical colleges are not eligible for license in 32 states they will flock to the other 18 states which still grant

TABLE F.—COLLEGES HAVING FIFTY OR MORE EXAMINED

TABLE SHOWS TOTAL NUMBER EXAMINED, TOTAL NUMBER PASSED, TOTAL NUMBER FAILED, PERCENTAGE OF FAILURES AND NUMBER OF STATES IN WHICH EACH COLLEGE HAD REPRESENTATIVES

COLLEGE	Graduates of All Years					Graduates of 1910-1914					Graduates of 1909 and Previous					Graduates of 1914					Marginal Number
	Number Examined	Number Passed	Number Failed	Per Cent. Failed	No. of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	No. of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	No. of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	No. of States	
Chicago College of Medicine and Surgery.....	242	185	57	23.6	31	235	182	53	22.6	31	7	3	4	57.1	4	161	126	35	21.7	19	22
Atlanta Medical College.....	167	155	12	7.2	5	166	155	11	6.6	17	1	0	1	100.0	1	12	7	5	41.7	5	17
Meharry Medical College.....	153	75	78	51.0	22	136	70	66	48.5	22	17	5	12	70.6	10	98	54	44	44.9	17	85
Bennett Medical College.....	142	119	23	15.6	23	137	115	22	16.1	21	5	4	1	25.0	3	87	75	12	13.8	9	21
Rush Medical College.....	137	129	8	5.8	23	119	114	5	4.2	20	18	15	3	16.7	12	76	74	2	2.6	10	26
University of Illinois College of Medicine.....	131	122	9	6.9	17	131	122	9	6.8	17	.....	.....	.....	.....	.....	113	104	9	8.0	14	27
Long Island College Hospital.....	114	100	14	12.3	6	113	99	14	12.4	5	1	1	0	0.0	1	71	65	6	8.5	1	61
University of Tennessee, College of Medicine.....	111	69	42	37.8	17	104	63	41	39.4	14	7	6	1	14.3	7	5	4	1	20.0	3	86
Jefferson Medical College.....	110	103	7	6.4	34	96	90	6	6.2	29	14	13	1	7.2	12	47	44	3	6.4	17	77
Tufts College Medical School.....	105	92	13	12.4	13	93	83	10	10.8	9	12	9	3	25.0	9	46	44	2	4.3	5	41
University of Maryland, School of Medicine.....	104	96	8	7.7	21	97	90	7	7.2	17	7	6	1	14.3	5	81	77	4	4.9	14	37
Tulane University of Louisiana, School of Med.	103	99	4	3.9	12	94	93	1	1.1	10	9	6	3	44.4	7	69	69	0	0.0	5	33
Medical College of Virginia.....	100	91	9	8.1	6	98	89	9	8.2	6	2	2	0	0.0	2	81	76	5	6.2	5	94
Northwestern University Medical School.....	98	91	7	7.1	21	84	78	6	7.1	16	14	13	1	7.2	8	66	63	3	4.5	11	25
Columbia University, College of Phys. and Surgs.	96	91	5	5.2	21	82	77	5	6.1	17	14	14	0	0.0	10	41	40	1	2.4	10	58
University and Bellevue Hospital Medical College	96	84	12	12.5	15	91	80	11	12.1	11	5	4	1	20.0	5	56	53	3	5.4	5	65
University of Louisville, Medical Dept.	83	64	19	22.9	24	75	58	17	22.7	19	8	6	2	25.0	6	48	47	1	2.1	10	32
Medical School of Harvard University.....	83	78	5	6.0	19	64	61	3	4.7	15	19	17	2	10.5	12	36	35	1	2.8	11	40
Johns Hopkins University, Medical Dept.	78	74	4	5.1	20	73	69	4	5.5	20	5	5	0	0.0	3	39	39	0	0.0	11	36
College of Physicians and Surgeons, Baltimore...	73	62	11	15.1	19	64	55	9	14.1	15	9	7	2	22.2	7	36	30	6	16.7	9	35
Albany Medical College.....	69	48	21	30.4	6	67	46	21	31.3	5	2	2	0	0.0	2	33	23	10	30.3	2	57
University of Pennsylvania, School of Medicine..	67	65	2	3.0	27	56	55	1	1.8	25	11	10	1	9.1	10	23	23	0	0.0	10	80
Ohio State University, College of Medicine.....	66	56	10	15.2	4	66	56	10	15.2	4	.....	.....	.....	.....	.....	62	53	9	14.5	2	72
St. Louis University School of Medicine.....	65	61	4	6.2	12	60	59	1	1.7	10	5	2	3	60.0	4	49	48	1	2.0	7	51
University of Buffalo, Medical Dept.	63	56	7	11.1	1	63	56	7	11.1	1	.....	.....	.....	.....	.....	36	35	1	2.8	1	66
Marquette University, School of Medicine.....	61	54	7	11.5	8	60	54	6	10.0	7	1	0	1	100.0	1	43	42	1	2.3	2	96
Birmingham Medical College.....	60	34	26	43.3	6	59	33	26	44.1	5	1	1	0	0.0	1	33	17	16	48.5	3	1
Detroit College of Medicine and Surgery.....	59	58	1	1.7	6	56	55	1	1.8	3	3	3	0	0.0	3	54	54	0	0.0	1	42
University of Michigan, Dept. of Med. and Surg..	59	59	0	0.0	12	51	51	0	0.0	7	8	8	0	0.0	7	38	38	0	0.0	3	43
Vanderbilt University, Medical Dept.	59	54	5	8.5	17	50	47	3	6.4	13	9	7	2	22.2	8	31	29	2	6.5	9	88
University of Vermont, College of Medicine.....	57	54	3	5.3	12	52	49	3	5.8	10	5	5	0	0.0	3	31	30	1	3.2	9	93
New York Homeo. Med. Coll. and Flower Hosp.—H.	50	31	19	38.0	9	48	30	18	37.5	8	2	1	1	50.0	2	13	8	5	38.5	2	62
Totals.....	3061	2609	452	14.8	..	2840	2434	406	14.3	....	221	175	46	20.8	....	1715	1526	189	11.0		

This table is especially interesting, since it gives data relating to the 32 larger medical colleges arranged according to the number of graduates examined. This allows of comparison between colleges having classes of nearly equal size. For the second consecutive year the Chicago College of Medicine and Surgery has had the largest number, the position having been held by the College of Physicians and Surgeons of Chicago in 1906, 1907 and 1912. In 1908 Jefferson Medical College had the highest number examined. In 1909, 1910 and 1911 the University of Louisville Medical Department had the largest number examined. The first place from the standpoint of the number examined, however, does not always mean first place from the standpoint of scholarship. Note the percentages of failures.

Of the 13 colleges having 100 or more examined, 7 have failure percentages of less than 10, while six stand out prominently with large failure percentages—12.3, 12.4, 15.6, 23.6, 37.8 and 51.0. These high percentages hold for four of these colleges even in respect to graduates of 1914. The three highest failure percentages are for Meharry Medical College, 51.0; University of Tennessee College of Medicine, 37.8, and the Chicago College of Medicine and Surgery, 23.6.

Of the 19 colleges having between 50 and 100 graduates examined, 10 had failure percentages of less than 10; 5 had failure percentages between 10 and 20, and 4 had failure percentages above 20, the three colleges having the highest failure percentages being Birmingham Medical College, 43.3; New York Homeopathic Medical College and Flower Hospital, 38.0, and Albany Medical College, 30.4.

The average percentage of failures for these larger colleges for graduates of 1909 and previous years was 20.8; for graduates of 1910 to 1914 inclusive (recent graduates), 14.3; for graduates of 1914, 11.0, and for graduates of all years, 14.8. Of the 4,597 graduates of the 96 colleges in the United States which had graduates examined by state boards in 1914, these larger (33.3 per cent. of all) schools furnished 3,061, or 66.6 per cent. of the graduates examined.

TABLE G.—COMPARISON OF RESULTS IN HOME STATES AND ELSEWHERE. BASED ON TABLE B

COLLEGES	Total Examined	Results in Home State			Results in Other States			COLLEGES	Total Examined	Results in Home State			Results in Other States		
		Passed	Failed	Per Cent. Failed	Passed	Failed	Per Cent. Failed			Passed	Failed	Per Cent. Failed	Passed	Failed	Per Cent. Failed
ALABAMA..... —10.8	93	54	24	30.8	12	3	20.0	MISSOURI..... —1.0	212	108	22	16.9	69	13	15.9
Birmingham Medical College.....	59	26	23	47.0	7	3	30.0	American Medical College.....	46	25	7	21.9	9	5	35.7
University of Alabama, School of Med.	34	28	1	3.4	5	0	0.0	Eclectic Medical University.....	17	.....	.....	.....	12	5	29.4
ARKANSAS..... +26.6	42	28	2	6.7	8	4	33.3	Ensworth Medical College.....	16	9	2	18.2	5	0	0.0
University of Arkansas, Medical Dept. ..	42	28	2	6.7	8	4	33.3	Kansas City Hahnemann Med. Coll.	20	3	0	0.0	17	0	0.0
CALIFORNIA..... +14.2	106	76	18	19.1	8	4	33.3	St. Louis College of Phys. and Surgs. ...	32	16	13	44.8	1	2	66.7
California Eclectic Medical College.....	15	6	5	45.5	2	2	50.0	St. Louis University.....	60	41	0	0.0	18	1	5.3
College of Medical Evangelists.....	5	3	2	40.0	.....	.....	.....	Washington University	21	14	0	0.0	7	0	0.0
College of Phys. and Surgs., Los Angeles	41	33	4	10.8	4	0	0.0	NEBRASKA..... +4.3	62	48	2	4.0	11	1	8.3
Coll. of Phys. and Surgs., San Francisco	7	1	3	25.0	1	2	66.7	John A. Creighton Medical College.....	42	31	0	0.0	10	1	9.1
Hahnemann Med. Coll. of the Pacific....	8	5	2	28.6	1	0	0.0	Cotner University	7	5	2	28.6	.....	.....	.....
Leland Stanford Junior University.....	11	10	1	9.1	.....	.....	.....	University of Nebraska.....	13	12	0	0.0	1	0	0.0
Oakland College of Med. and Surg.	4	3	1	25.0	.....	.....	.....	NEW HAMPSHIRE..... —	13	8	0	0.0	5	0	0.0
University of California.....	15	15	0	0.0	.....	.....	.....	Dartmouth Medical School.....	13	8	0	0.0	5	0	0.0
COLORADO..... —	36	21	0	0.0	15	0	0.0	NEW YORK..... —13.8	562	387	87	18.4	84	4	4.6
University of Colorado.....	36	21	0	0.0	15	0	0.0	Albany Medical College.....	67	39	20	33.9	7	1	12.5
CONNECTICUT..... +6.3	20	4	0	0.0	15	1	6.3	Columbia University, Coll. of P. and S.	82	53	5	8.6	24	0	0.0
Yale Medical School.....	20	4	0	0.0	15	1	6.3	Cornell University Medical College.....	21	16	0	0.0	5	0	0.0
DISTRICT OF COLUMBIA..... —4.2	74	26	4	13.3	46	4	9.1	Fordham University	36	24	6	20.0	5	1	16.7
Georgetown University	30	8	0	0.0	20	2	9.1	Long Island College Hospital.....	113	95	14	12.8	4	0	0.0
George Washington University.....	20	10	0	0.0	10	0	0.0	N. Y. Homeo. Med. Coll. and Flower Hos.	48	16	17	51.5	14	1	6.7
Howard University	24	8	4	33.3	10	2	16.7	N. Y. Med. Coll. and Hosp. for Women..	12	7	3	30.0	2	0	0.0
GEORGIA..... +8.8	223	136	11	7.4	62	12	16.2	Syracuse University	29	18	5	21.8	6	0	0.0
Atlanta Medical College.....	166	113	1	0.9	42	10	19.2	Univ. and Bellevue Hosp. Med. Coll.	91	63	10	13.7	17	1	5.6
Georgia Coll. of Eclectic Med. and Surg.	15	4	8	66.7	2	1	33.3	University of Buffalo, Med. Dept.	63	56	7	11.1	.....	.....	.....
Southern College of Med. and Surg.	12	0	2	100.0	10	0	0.0	NORTH CAROLINA..... +0.2	64	22	15	40.5	16	11	40.7
University of Georgia.....	30	21	0	0.0	8	1	11.1	Leonard Medical School.....	28	4	9	69.2	6	9	60.9
ILLINOIS..... —4.6	749	422	80	15.9	219	28	11.3	North Carolina Medical College.....	36	18	6	25.0	10	2	16.7
Bennett Medical College.....	137	86	12	12.2	29	10	25.7	OHIO..... +12.1	160	115	17	12.9	21	7	25.9
Chicago College of Med. and Surg.	235	113	38	25.2	69	15	17.9	Cleveland-Pulte Medical College.....	12	11	0	0.0	0	1	100.0
Hahnemann Medical Coll. and Hosp.	32	16	8	33.3	7	1	12.5	Eclectic Medical College.....	34	16	7	30.4	7	4	36.3
Jenner Medical College.....	11	7	4	36.3	.....	.....	.....	Med. Coll. of the Univ. of Cincinnati...	17	12	0	0.0	3	2	40.0
Northwestern University	84	45	6	11.8	33	0	0.0	Ohio State University.....	66	51	10	16.4	5	0	0.0
Rush Medical College.....	119	64	4	5.9	50	1	2.0	Western Reserve University.....	31	25	0	0.0	6	0	0.0
University of Illinois.....	131	91	8	8.1	31	1	3.1	OKLAHOMA..... —	16	11	0	0.0	5	0	0.0
INDIANA..... —	22	22	0	0.0	.....	.....	.....	University of Oklahoma.....	16	11	0	0.0	5	0	0.0
Indiana University	22	22	0	0.0	.....	.....	.....	OREGON..... —20.0	27	12	3	20.0	12	0	0.0
IOWA..... +25.0	17	13	0	0.0	3	1	25.0	University of Oregon.....	27	12	3	20.0	12	0	0.0
State Univ. of Iowa Coll. of Med.	15	13	0	0.0	1	1	50.0	PENNSYLVANIA..... +8.1	237	59	2	3.3	156	20	11.4
State Univ. of Iowa, Coll. of Homeo. Med.	2	.....	.....	.....	2	0	0.0	Hahnemann Medical Coll. and Hosp.	21	8	1	11.1	10	2	16.7
KANSAS..... —	11	10	0	0.0	1	0	0.0	Jefferson Medical College.....	96	18	0	0.0	72	6	7.7
University of Kansas.....	11	10	0	0.0	1	0	0.0	Medico-Chirurgical Coll. of Philadelphia..	42	20	0	0.0	14	8	36.4
KENTUCKY..... +40.6	75	40	2	4.8	18	15	45.4	Temple University	5	1	0	0.0	3	1	25.0
University of Louisville.....	75	40	2	4.8	18	15	45.4	University of Pennsylvania.....	56	10	0	0.0	45	1	2.2
LOUISIANA..... +2.9	94	59	0	0.0	34	1	2.9	University of Pittsburgh.....	2	1	0	0.0	1	0	0.0
Tulane University of Louisiana.....	94	59	0	0.0	34	1	2.9	Woman's Med. Coll. of Pennsylvania....	15	1	1	50.0	11	2	15.4
MAINE..... —10.5	30	17	2	10.5	11	0	0.0	SOUTH CAROLINA..... —3.3	31	20	5	20.0	5	1	16.7
Medical School of Maine.....	30	17	2	10.5	11	0	0.0	Medical College of South Carolina.....	31	20	5	20.0	5	1	16.7
MARYLAND..... +0.1	234	86	8	8.5	128	12	8.6	TENNESSEE..... —17.3	346	53	67	55.8	139	87	38.5
College of Phys. and Surgs., Baltimore..	64	14	3	17.7	41	6	12.8	Lincoln Memorial University.....	12	1	7	87.5	3	1	25.0
Johns Hopkins University.....	73	29	0	0.0	40	4	9.1	Meharry Medical College.....	136	16	23	59.0	54	43	44.3
University of Maryland.....	97	43	5	10.4	47	2	4.1	University of Tennessee.....	104	11	16	59.2	52	25	32.5
MASSACHUSETTS..... +7.5	215	108	17	13.6	71	19	21.1	University of West Tennessee.....	44	2	21	91.3	6	15	71.4
Boston University	29	17	0	0.0	9	3	25.0	Vanderbilt University	50	23	0	0.0	24	3	11.1
College of Phys. and Surgs., Boston....	29	4	11	73.3	5	9	64.3	TEXAS..... —1.4	78	68	1	1.4	9	0	0.0
Medical School of Harvard University...	64	27	1	3.6	34	2	5.6	Baylor University	21	18	1	5.3	2	0	0.0
Tufts College Medical School.....	93	60	5	7.7	23	5	17.9	Southern Methodist University.....	18	18	0	0.0	.....	.....	.....
MICHIGAN..... +22.6	134	116	1	0.9	13	4	23.5	Texas Christian University.....	10	10	0	0.0	.....	.....	.....
Detroit College of Med. and Surg.	56	54	0	0.0	1	1	50.0	University of Texas.....	29	22	0	0.0	7	0	0.0
Univ. of Michigan, Dept. of Med. and S.	51	41	0	0.0	10	0	0.0	VERMONT..... +10.3	52	23	0	0.0	26	3	10.3
Univ. of Michigan, Homeo. Med. Coll.	27	21	1	4.5	2	3	60.0	University of Vermont.....	52	23	0	0.0	26	3	10.3
MINNESOTA..... —	31	28	0	0.0	3	0	0.0	VIRGINIA..... +11.8	110	73	6	7.6	25	6	19.4
University of Minnesota.....	31	28	0	0.0	3	0	0.0	Medical College of Virginia.....	98	70	6	7.6	19	3	14.3
								University of Virginia.....	12	3	0	0.0	6	3	33.3
								WISCONSIN..... +33.5	60	45	1	2.2	9	5	35.7
								Marquette University	60	45	1	2.2	9	5	35.7
								Totals..... +2.8	4236	2320	397	14.6	1253	266	17.5

In this table the graduates of each college who were examined in the state in which the college is located are grouped in one column, while graduates of that college examined in other states are in another column. For example under Massachusetts, this table shows that, of the 29 graduates of College of Physicians and Surgeons, Boston, who were examined by state boards during 1914, 15 were examined in Massachusetts, of which number 4 passed and 11, or 73.3 per cent., failed, while 12 were examined in other states, of which number 9 passed and 3, or 25.0 per cent., failed.

This table shows that in many instances the graduates have better chances of passing examinations in the state in which their colleges are located than they have elsewhere. This should always be considered in making comparisons between colleges. A low standard college by having all its graduates examined in the home state, may sometimes show a lower percentage of failures than a college of much higher grade which has graduates examined by several states.

The heavy-faced figures give the results by states. The first column of heavy-faced figures preceded by the + and — signs, shows the differences between the percentages of examination in the home state and the examinations elsewhere. The plus sign indicates that graduates have better chances of success in the state where the colleges from which they graduated are located; the minus sign indicates that the chances are better elsewhere. The most marked variations in 1914 were in the examination of the graduates of the colleges of Kentucky, 40.6 per cent.; Wisconsin, 33.5; Arkansas, 26.6; Iowa, 25.0, and Michigan, 22.6, in all of which the chances of the graduates were better in the home state. The marked variations where the graduates' chances were better elsewhere were in Oregon, 20.0 per cent.; Tennessee, 17.3, and New York, 13.8 per cent.

The danger of forming hasty conclusions from these percentages taken alone, however, is very well shown by the figures for Iowa where only 20 graduates of the State University of Iowa, College of Medicine were examined in "other states" and where the failure of one of them could have been accidental. More reliable are the percentages in Tennessee, Illinois, Pennsylvania, Kentucky, New York and Missouri where larger numbers were examined both at home and in "other states." The totals show that on the average the chances of success were 2.8 per cent. better if the graduate took the examination in the state where his college was located.

them recognition. These 18 states, therefore, will literally be the dumping ground of the output of low-grade medical colleges until the licensing boards obtain the needed legal powers or until the boards having the authority take action in the matter.

STUDY OF TOTALS AND PERCENTAGES

A study of totals and percentages as compared with previous years is of interest. The total examined in 1914—5,570—is the lowest number of candidates examined for license in any year since the compiling of these statistics began. There was a decrease of 865 below the number examined in 1913 and a decrease of 2,265 below 1906, when 8,035 candidates were examined. Statistics regarding physicians licensed in the various states by reciprocity and by other methods are given in Tables I, J and K. By all methods—examination, reciprocity, under exemption, etc.—5,797 physicians were licensed during 1914, or 704 less than in 1913, and 2,068 less than in 1906, when 7,865 physicians were licensed.

Other deductions from the larger tables have been made and are presented in Tables E to H, which are worthy of study.

STUDY OF COLLEGES BY STATE GROUPS

Table E is based on the first three large tables and gives the results for the group of colleges located in each state. It shows what states are furnishing the largest number of physicians, and the failure percentages indicate what kind of training these colleges are furnishing so far as may be judged from the failures of their graduates before state boards. By comparing the percentages of the first column with the other columns, it can be seen whether or not there has been any reduction in failures for graduates of recent years. Of the 33 states having medical colleges which grant degrees, 14 furnished 100 or more candidates examined, and of these 14 groups of colleges, only 3 had failure percentages of less than 10 per cent.; 8 had failure percentages between 10 and 20, and 3 had over 20 per cent. of failures. Of all states, the highest failure percentage was obtained by the Tennessee group with 45 per cent., followed by the Alabama group with 28.7 per cent., and the North Carolina group with 27.9 per cent. of their graduates failing. Other deductions are given with the table.

STUDY OF LARGER COLLEGES

Table F is also based on the three large tables and gives the results of state board examinations as they affect the 32 largest medical colleges. Although these colleges represent one-third of the medical colleges in the United States having graduates examined, they furnish two-thirds of all the candidates for license coming from medical schools of the United States. This table shows, however, that the graduates of large classes by a medical college does not prove excellence of teaching, since several colleges having 100 or more examined have very high failure percentages, and this holds true even for the graduates of 1914. In fact, the larger the college from the point of view of the number of students and graduates, the more serious is inferior teaching ability, indicated by a high failure percentage. In fairness to medical students, and in the interests of the public, such schools should greatly strengthen their teaching facilities or reduce the size of their classes.

Altogether for these schools, 452, or 14.8 per cent. failed, as compared with 20.2 per cent. of failures for the 1,381 candidates from the 64 colleges having less than 50 each examined.

Besides the graduates of the medical colleges of the United States, 973 candidates were examined, made up of 57 graduates of Canadian colleges, 117 foreign college graduates, 506 graduates of miscellaneous colleges and 293 non-graduates. Of these 973 candidates, 438, or 45 per cent. failed.

RESULTS IN HOME STATES AND ELSEWHERE

Table G is of much interest, because it shows for each college the results of examinations in the state in which

the college is located, as compared with the results of examinations in other states, where there is less possibility of local influence. Of all recent graduates examined in 1914, coming from the 96 medical colleges now existing in the United States, 2,320, or 54.8 per cent., took their license examinations in the states in which the colleges from which they graduated were located. Of this number 14.6 per cent. failed on the average, whereas, of the 1,253 candidates examined in other states, 17.5 per cent. failed. This would indi-

TABLE H.—PHYSICIANS EXAMINED BY STATE BOARDS, 1910 TO 1914, INCLUSIVE

STATE	1910		1911		1912		1913		1914		Totals			
	Registered	Rejected	Registered	Rejected	Registered	Rejected	Registered	Rejected	Registered	Rejected	Examined	Registered	Rejected	Percentage Rejected
Alabama.....	94	64	107	54	84	72	90	57	115	60	797	490	307	38.5
Alaska.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Arizona.....	15	9	28	9	32	10	26	9	26	16	180	127	53	29.4
Arkansas.....	96	28	108	30	124	27	91	28	97	16	645	516	129	20.0
California.....	204	47	227	59	256	60	163	36	113	45	1210	963	247	20.0
Colorado.....	48	5	33	8	41	1	53	5	31	1	226	206	20	8.8
Connecticut.....	69	18	73	20	70	18	77	51	46	8	450	335	115	25.6
Delaware.....	21	2	22	0	22	1	12	1	18	0	99	95	4	4.0
Dist. of Columbia...	32	13	25	8	49	7	55	5	47	12	253	208	45	17.8
Florida.....	102	15	87	23	114	31	116	49	106	37	680	525	155	22.8
Georgia.....	148	9	148	28	178	17	171	24	179	21	923	824	99	10.7
Idaho.....	47	24	41	13	35	12	21	2	19	2	216	163	53	24.6
Illinois.....	631	100	432	154	505	134	567	98	484	110	3215	2619	596	18.5
Indiana.....	97	9	114	7	95	4	101	1	48	2	478	455	23	4.8
Iowa.....	113	4	75	6	131	7	107	4	77	1	525	503	22	4.2
Kansas.....	66	25	56	25	50	12	89	7	37	4	371	298	73	2.0
Kentucky.....	119	35	88	36	88	8	78	12	59	7	530	432	98	18.5
Louisiana.....	104	34	123	30	128	36	69	20	76	24	644	500	144	22.3
Maine.....	73	5	86	11	74	17	46	9	54	11	386	333	53	13.7
Maryland.....	131	32	160	39	160	46	108	40	105	27	848	664	184	21.7
Massachusetts.....	197	100	226	74	227	54	215	74	226	97	1490	1091	399	26.7
Michigan.....	131	3	127	1	159	3	99	3	138	2	666	654	12	1.8
Minnesota.....	76	22	58	7	55	5	71	4	47	3	348	307	41	11.8
Mississippi.....	84	150	115	113	56	48	61	19	51	17	714	367	347	48.6
Missouri.....	181	23	182	38	213	32	200	25	195	33	1122	971	151	13.5
Montana.....	73	24	44	19	50	9	57	16	58	25	375	282	93	24.8
Nebraska.....	50	0	67	11	88	10	87	2	66	6	417	388	29	7.0
Nevada.....	12	1	8	1	8	1	10	3	7	3	54	45	9	16.7
New Hampshire.....	34	8	18	5	36	7	17	3	36	6	170	141	29	17.1
New Jersey.....	63	17	107	15	59	14	69	7	41	13	405	339	66	16.3
New Mexico.....	6	1	2	2	6	2	6	1	8	2	36	28	8	22.2
New York.....	515	72	536	164	433	153	511	205	501	169	3259	2496	763	23.4
North Carolina.....	79	15	92	30	87	37	77	34	81	37	569	416	153	26.9
North Dakota.....	42	5	25	1	15	7	16	13	15	1	140	113	27	19.3
Ohio.....	172	10	170	8	199	12	189	3	146	18	927	876	51	5.5
Oklahoma.....	100	42	123	39	94	27	58	5	48	12	548	423	125	22.8
Oregon.....	93	55	94	50	96	65	112	36	76	42	719	471	248	34.5
Pennsylvania.....	451	52	515	27	356	170	345	59	101	22	2098	1768	330	15.7
Rhode Island.....	23	10	32	5	39	12	28	4	27	5	185	149	36	19.5
South Carolina.....	61	44	94	27	90	35	99	47	68	37	602	412	190	31.6
South Dakota.....	52	9	53	5	16	1	30	1	25	4	196	176	20	10.2
Tennessee.....	315	52	213	42	313	76	306	94	149	205	1765	1296	469	26.6
Texas.....	162	5	151	19	151	13	168	11	152	11	843	784	59	7.0
Utah.....	34	4	22	3	20	2	24	3	13	3	128	113	15	11.7
Vermont.....	21	1	51	1	45	2	24	2	28	0	175	169	6	3.4
Virginia.....	122	14	115	43	105	30	87	19	98	10	645	529	116	18.0
Washington.....	154	43	102	43	69	27	63	22	92	5	620	480	140	22.6
West Virginia.....	88	25	88	22	66	20	58	17	51	4	439	351	88	20.0
Wisconsin.....	71	7	107	7	68	19	98	8	81	4	470	425	45	9.6
Wyoming.....	10	0	8	0	11	0	10	1	4	0	44	43	1	2.3
Totals.....	7004		6960		6879		6435		5570		32848			
Registered.....	5712		5578		5466		5236		4370		26362			
Rejected.....	1292		1382		1413		1199		1200		6486			
Per Cent. Rejected.....	18.4		19.9		20.5		18.6		21.6		19.7			

This table gives the number of candidates registered and rejected on examination by each state during each of the last five years. The last four columns give the totals for the five years and the percentage rejected by each state.

Five states registered over 1,000 candidates by examination in the five years, these being Illinois, Massachusetts, New York, Pennsylvania and Tennessee. Over 2,000 were registered in only two states, Illinois and New York. Of the 1,296 candidates registered in Tennessee in the last five years, 591, or 45.6 per cent. were non-graduates.

The highest percentages of rejections were 48.6 in Mississippi, followed by Alabama, Oregon, South Carolina and Arkansas, with 38.5, 34.5, 31.6 and 29.4, respectively. Massachusetts, Oregon, Tennessee and (until 1912) Mississippi included non-graduates among those examined during the last five years, and for that reason would supposedly have higher percentages rejected. On the other hand, in several states the boards refuse to recognize certain colleges and eliminate many candidates prior to the examination by a careful scrutiny of credentials and as a result there are lower percentages of failures at the examinations.

Omitting Alaska, the lowest failure percentages were in Michigan, 1.8; Kansas, 2.0; Wyoming, 2.3; Vermont, 3.4; Delaware, 4.0; Iowa, 4.2, and Indiana, 4.8.

cate that, as a rule, the student's chances of passing the license examination are better if he takes the examination in the state in which the college is located. In this connection it is interesting to note that no graduate of any of the colleges in Connecticut, Vermont and Iowa failed in the examinations given in those states, although of the graduates of these colleges who were examined in other states, the failures of these groups of colleges were, respectively, 6.3, 10.3 and 25.0 per cent. There were no failures either at home or in other states for graduates of the colleges of Colorado, Indiana, Kansas, New Hampshire or Oklahoma. The student's chances for success at home and elsewhere

were equal or nearly so in the groups of colleges of Maryland, Minnesota, North Carolina and Texas. The student's chances were better in the home state in seventeen instances, while in ten instances the student's chances were better if he took his license examination in some other state.

TABLE I.—REGISTRATION BY STATE BOARDS DURING THE YEAR 1914

STATES	By Examination			By Reciprocity	Without Written Examination or Under Exemption	Total Registered
	Graduates, 1910-1914	Graduates, 1909 and Previous	Non-graduates			
Alabama.....	101	14	....	....	....	115
Alaska.....	3	1	....	....	....	4
Arizona.....	10	16	....	....	....	26
Arkansas.....	75	22	....	35	....	132
California.....	99	14	....	395	....	508
Colorado.....	29	2	....	54	....	85
Connecticut.....	36	10	....	8	....	54
Delaware.....	18	....	....	4	....	22
District of Columbia.....	43	4	....	4	....	51
Florida.....	72	34	....	....	....	106
Georgia.....	174	5	....	21	....	200
Idaho.....	11	8	....	5	....	24
Illinois.....	457	27	....	53	....	537
Indiana.....	41	7	....	37	....	85
Iowa.....	71	6	....	20	....	97
Kansas.....	32	5	....	23	....	60
Kentucky.....	57	2	....	10	3	72
Louisiana.....	75	1	....	8	....	84
Maine.....	45	9	....	13	....	67
Maryland.....	101	4	....	25	....	130
Massachusetts.....	175	27	24	....	....	226
Michigan.....	130	8	....	76	....	214
Minnesota.....	43	4	....	40	....	87
Mississippi.....	47	4	....	6	....	57
Missouri.....	156	39	....	17	....	212
Montana.....	33	25	....	....	....	58
Nebraska.....	60	6	....	48	....	114
Nevada.....	1	6	....	13	....	20
New Hampshire.....	32	4	....	9	....	45
New Jersey.....	41	0	....	74	....	115
New Mexico.....	3	5	....	3	42	53
New York.....	473	28	....	23	1	525
North Carolina.....	78	3	....	26	....	107
North Dakota.....	12	3	....	13	....	28
Ohio.....	144	2	....	73	....	219
Oklahoma.....	40	8	....	61	....	109
Oregon.....	45	18	13	....	....	76
Pennsylvania.....	94	7	....	20	....	121
Rhode Island.....	20	7	....	....	....	27
South Carolina.....	66	2	....	....	....	68
South Dakota.....	16	9	....	7	....	32
Tennessee.....	65	8	76	2	....	151
Texas.....	119	33	....	1	....	153
Utah.....	8	5	....	9	....	22
Vermont.....	27	1	....	3	....	31
Virginia.....	89	9	....	35	....	133
Washington.....	56	36	....	....	....	92
West Virginia.....	48	3	....	39	....	90
Wisconsin.....	74	7	....	68	....	149
Wyoming.....	3	1	....	....	....	4
Totals.....	3748	509	113	1381	46	5797

This table shows the total number registered during 1914 in each state by the various methods. The first three columns show those registered by examination; the first column showing the recent graduates registered, the second column, the old practitioners (graduates of 1909 and previous years) and the third column, the non-graduates. The fourth column shows the number licensed through reciprocity, the fifth column shows those licensed under various exemption clauses in the practice acts, such as because of national fame or by recognition of diplomas (New Mexico). It is interesting to note that as a rule states which have registered large numbers through reciprocity, Michigan for example, have examined very few old practitioners. The surprisingly large registration through reciprocity in California is due to the fact that registration under a practice act providing for the recognition of licenses granted in other states was begun only a year ago. There were no reciprocal registrations in eleven states, including Alaska. The last column shows the total number of physicians registered by all methods in each state during the year. Only three states registered over 300 each, these being Illinois, 537; New York, 525; and California, 508. Eleven states registered less than 50 each, Alaska and Wyoming registering only 4 each.

TOTAL RESULTS FOR FIVE YEARS

Table H shows the number registered and the number rejected in each state for each of the past five years. A comparison of this table with the statistics in the last educational number of THE JOURNAL (Aug. 22, 1914, p. 687, table 14), shows what would be expected, that the states having the largest number of medical graduates, examined the largest number of physicians. Now, only one state, New Mexico, will register candidates on presentation of diplomas, without examination. This table shows only those registered by examination. The next table (I) shows the total registered by all methods.

TOTAL REGISTRATION IN 1914

The tables thus far described have referred only to the results of examinations and to those registered on that basis. Table I, however, shows the total number who received licenses in each state, including those registered by examination, by reciprocity and under various exemption clauses. Altogether, 5,797 physicians were registered by all methods during 1914 as compared with 6,501 in 1913, 6,723 in 1912, 6,824 in 1911, 7,352 in 1910 and 7,865 in 1906. By reciprocity or under exemption clauses, 1,427 were licensed in 1914, as compared with 1,265 in 1913, 1,257 in 1912, and 1,246 in 1911. The last year, therefore, has shown a marked increase in the number registered through reciprocity, an increase of 162. Over 100 were registered by all methods in twenty-one states, over 200 in eight and over 300 in three, the largest numbers being registered in Illinois with 537, New York with 525, and California with 508. The results of the higher requirements for registration in Pennsylvania are shown by the fact that only 121 were registered in 1914, as compared with 366 in 1913. Tennessee also shows a reduction from 323 in 1913 to 151 in 1914. Of the 508 licensed in California, 395, or 77.8 per cent. were registered under the new practice act which provides for the endorsement of licenses granted by the boards of other states.

Table J gives those registered without examination on presentation of satisfactory credentials, which included a license issued by some other state. This is commonly referred to as "reciprocity," which conveys the idea that the state which accepts the license of another must be granted the same courtesy by the state issuing the original license. The term does not well describe this method of registration, however, since some state boards—Colorado and California, for example—accept the physician's credentials, if satisfactory, whether or not the state board issuing the original license returns the favor. Had not reciprocal relations been established by the 39 states shown in Table J, 1,381 physicians, many of whom have been in practice for ten or more years, would have been compelled to undergo the ordeal of a second trying examination.

RECIPROCITY AND EDUCATIONAL STANDARDS

As formerly administered, reciprocal relations tended to lower rather than to elevate educational standards, and this is still true in some states. A study of these statistics will show that in several instances such relations exist between states differing widely in their standards of education and in the methods and severity of their examinations. It can be seen, therefore, that a loosely administered provision for reciprocity provides a wide-open door through which unqualified candidates can obtain registration. There are some boards, however, which wisely reserve and exercise the right to reject any candidate who does not possess satisfactory credentials even though he is licensed in a state with which it has reciprocal relations. Some boards also prudently require that the applicant, before he is eligible to registration through reciprocity, must have been engaged in the actual

[illegible]

The line at the bottom shows in what states physicians who were registered through reciprocity obtained their original licenses. From Illinois 204 candidates obtained their original licenses, followed by New York with 103, Missouri with 98, Pennsylvania with 88 and Ohio with 71.

STATE	Physicians Going from States Named During					Totals	STATE	Physicians Going from States Named During					Totals
	1910	1911	1912	1913	1914			1910	1911	1912	1913	1914	
Alabama.....	....	3	1	2	1	7	New Jersey.....	16	14	18	10	19	77
Arizona.....	....	....	....	3	15	18	New Mexico.....	1	1	4	8	9	23
Arkansas.....	52	11	15	37	20	135	New York.....	224	42	46	70	103	485
California.....	2	1	....	....	2	5	North Carolina.....	7	16	12	14	7	56
Colorado.....	13	16	9	12	26	76	North Dakota.....	8	7	12	6	5	38
Connecticut.....	....	....	1	2	1	4	Ohio.....	45	40	39	50	71	245
Delaware.....	6	9	15	8	2	40	Oklahoma.....	21	3	28	74	22	148
District of Columbia.....	11	23	18	17	23	92	Oregon.....	....	....	....	3	3	6
Florida.....	1	....	1	1	2	5	Pennsylvania.....	21	12	57	86	88	264
Georgia.....	14	7	13	26	17	77	Rhode Island.....	....	....	....	....	1	1
Idaho.....	....	....	5	....	5	10	South Carolina.....	5	4	5	3	2	19
Illinois.....	286	236	193	171	204	1090	South Dakota.....	....	2	1	10	5	18
Indiana.....	50	37	40	33	44	204	Tennessee.....	45	28	51	39	42	205
Iowa.....	84	63	58	36	52	293	Texas.....	23	10	24	19	23	99
Kansas.....	63	50	27	32	42	214	Utah.....	1	2	3	12	8	26
Kentucky.....	74	42	36	43	35	230	Vermont.....	27	36	30	11	21	125
Louisiana.....	9	8	10	13	10	50	Virginia.....	31	28	25	26	41	151
Maine.....	15	14	23	9	10	71	Washington.....	2	7	3	2	18	32
Maryland.....	41	52	48	42	44	227	West Virginia.....	45	45	29	41	33	193
Massachusetts.....	....	2	2	2	7	13	Wisconsin.....	31	41	35	23	41	176
Michigan.....	51	69	59	66	60	305	Wyoming.....	1	2	4	4	3	14
Minnesota.....	31	29	29	29	24	142	Alaska, Hawaii, etc.....	....	....	1	1	2	4
Mississippi.....	1	3	5	15	10	34	U. S. Army.....	....	....	2	1	3	6
Missouri.....	91	59	67	61	98	376	U. S. P. H. Service.....	2	....	....	....	....	2
Montana.....	3	....	1	....	4	8	Canada.....	2	....	....	....	1	3
Nebraska.....	42	46	29	34	38	189	Foreign and Misc.....	....	....	3	....	2	5
Nevada.....	3	2	3	4	9	21							
New Hampshire.....	1	6	1	7	3	18	Totals.....	1502	1128	1141	1223	1381	6375

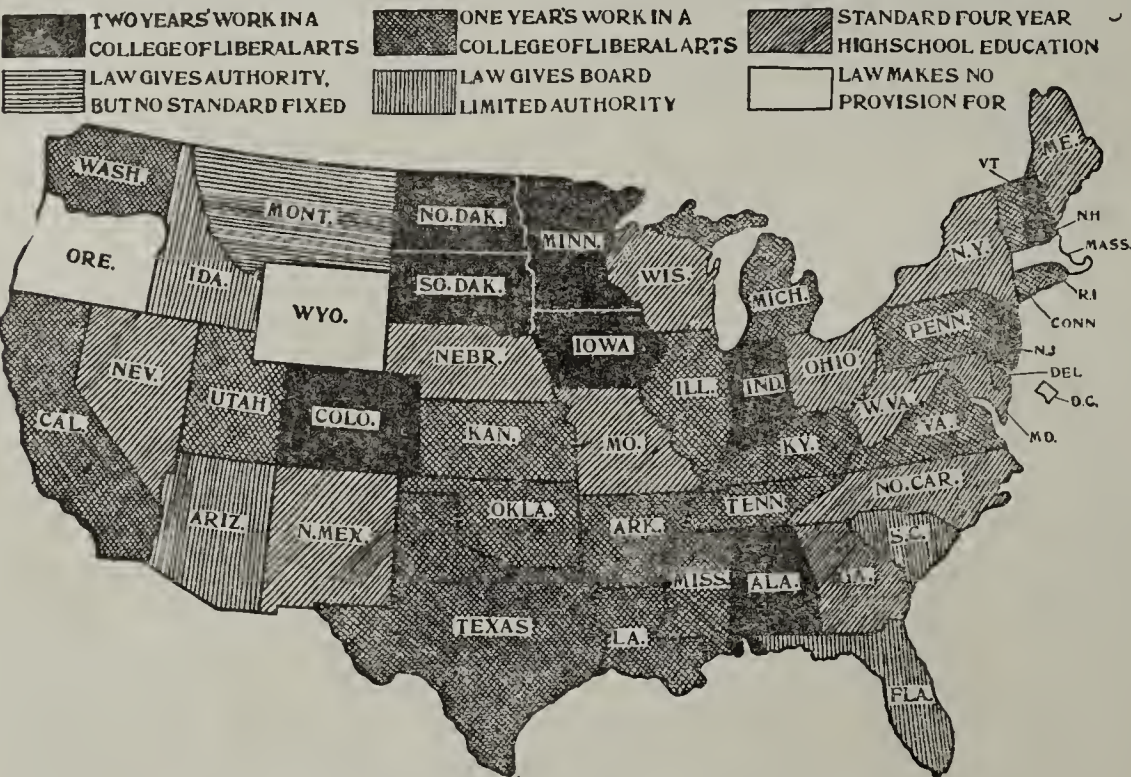
Ten states—Alabama, Arizona, Florida, Massachusetts, Montana, Oregon, Rhode Island, South Carolina, Washington and Wyoming—do not have reciprocal relations and would not appear in this table except for the fact that some states, like California, Colorado and New Jersey, will accept a physician's credentials if satisfactory, whether the state issuing his original license returns the favor or not.

and reputable practice of his profession for at least a year in the state in which the original license was granted. Without this provision a candidate would be tempted to obtain his original license in the state giving the easiest examination. Without the one-year residence clause, therefore, standards of examination are apt to be lowered.

Again, some states wisely refuse to register by reciprocity any candidates who have failed to pass their own examination, but this rule is not generally observed. In the establishing of reciprocal relations, therefore, the state board should reserve and exercise the discretionary power to *refuse*

In the light of the foregoing statement in regard to reciprocity, it will be interesting to study Table K, which shows in what states the original licenses were granted of those who were registered elsewhere under the reciprocity provision during the last five years. It should be noted that of the 6,375 physicians licensed through reciprocity during the last five years, the original licenses of 1,090 (17.1 per cent.) were obtained in Illinois, more than twice as many as came from any other state. In New York 485 physicians took their original license examinations, 376 in Missouri, 305 in Michigan and 293 in Iowa.

STATE REQUIREMENTS OF PRELIMINARY EDUCATION FOR PHYSICIANS



to register any candidate who could not originally have registered in that state, and, secondly, the board should require that the applicant shall have been in actual practice of medicine for at least a year before he is eligible to registration under the reciprocity provision.

TABLE L.—STATE REQUIREMENTS OF HIGHER PRELIMINARY EDUCATION

There are now twenty-seven states which have adopted requirements of preliminary education in addition to a standard four-year high-school education. These states, the number of college years required and the time the higher requirement becomes effective are as follows:

State Examining Board of	Number of Years Required	Affects Students Matriculating	Affects All Applicants
<i>Requiring two years—</i>			
Alabama.....	2	1915-16	1919
Colorado.....	2	1910-11	1914
Indiana.....	2	1910-11	1914
Iowa.....	2	1911-12	1915
Minnesota.....	2	1908-09	1912
New Hampshire.....	2	1915-16	1919
New Jersey.....	2	1917-18	1921
North Dakota.....	2	1908-09	1912
South Dakota.....	2	1911-12	1915
<i>Requiring one year—</i>			
Arkansas.....	1	1915-16	1919
California.....	1	1915-16	1919
Connecticut.....	1	1910-11	1914
Illinois.....	1	1915-16	1919
Kansas.....	1	1910-11	1914
Kentucky.....	1	1914-15	1918
Louisiana.....	1	1915-16	1919
Michigan.....	1	1914-15	1918
Mississippi.....	1	1915-16	1919
New Jersey.....	1	1916-17	1920
Oklahoma.....	1	1914-15	1918
Pennsylvania.....	1	1914-15	1918
Rhode Island.....	1	1914-15	1918
Tennessee.....	1	1915-16	1919
Texas.....	1	1914-15	1918
Utah.....	1	1910-11	1914
Vermont.....	1	1912-13	1916
Virginia.....	1	1914-15	1918
Washington.....	1	1914-15	1918

The accompanying chart shows the standards of preliminary education for each state. There are 9 states, Alabama, Colorado, Iowa, Indiana, Minnesota, New Hampshire, New Jersey, North Dakota and South Dakota, in which the standard is two years of collegiate work; in 18 states the standard is one year of college work; and in 13 states the standard is a four-year high-school education. There are 5 states in which the law seriously divides the authority between independent boards, or where the standard is less than a four-year high-school education, while in 3 states,* Massachusetts, Wyoming and the District of Columbia, the practice acts make no provision for preliminary education. Table L shows the states in which the boards have adopted the requirement of one or two years of collegiate work as a minimum. Table M shows the progress made in the requirements by state licensing boards since 1904.

IN CONCLUSION

In the gathering and publication of these statistics the endeavor has been to give an absolutely fair presentation of facts, a knowledge of which is always beneficial. Without question this annual presentation of the results of state licensing examinations has had a most helpful influence on medical education and medical licensure in this country. We reiterate our acknowledgments to the state licensing boards whose ready cooperation and complete reports have made the publication of these data possible.

* It is understood an amendment has been secured in Oregon providing for preliminary education.

TABLE M.—ADVANCES IN STATE LICENSE REQUIREMENTS IN TEN YEARS

Requirement or provision	States having provision for			States still having no provision for
	1904	1915	Increase	
Preliminary Education—				
Any requirement	20	46	26	3
A standard four-year high school education or higher.....	10	39	29	10
One or two years of college work as a minimum.....	0	27	27	22
That all applicants be graduates of a medical college.....	36	47	11	2
That all applicants undergo an examination for license.....	45	48	3	1
Requirement of practical tests in the license examinations	1	7	6	42
Full authority by board to refuse recognition to low-grade colleges....	14	33	19	16
Boards refusing to recognize low-grade colleges	5	32	27	17
Reciprocal relations with other states	27	39	12	10
Single boards of medical examiners	36	41	5	8

MINIMUM REQUIREMENTS FOR ADMISSION TO MEDICAL SCHOOLS

During the February conference on medical education, a joint committee of the Association of American Medical Colleges and of the Council on Medical Education, represented respectively by Drs. F. C. Waite and N. P. Colwell, assisted by Dr. Kendrick C. Babcock, dean of the College of Liberal Arts and Sciences of the University of Illinois, formerly Specialist in Higher Education in the United States Bureau of Education, was appointed to prepare a statement in greater detail in regard to the requirements of admission to medical colleges to be enforced during the next few years, including a statement of such conditions as may be allowed for the next two years. This committee met in Chicago on Thursday, Feb. 18, 1915, and prepared a preliminary statement which was submitted to fifty or more leading authorities on preliminary education for their suggestions and criticisms. Following the receipt of the replies, the committee held another meeting, April 10, 1915, and the following is the statement as revised:

I. HIGH SCHOOL REQUIREMENTS

(a) For admission to the preliminary college year, students must have completed a four-year course of at least fourteen units in a standard accredited high school or other institution of standard secondary school grade, or have its equivalent as demonstrated by an examination conducted by a duly authorized examiner of the College Entrance Examination Board, or by the authorized examiner of a standard college or university which has been approved by the Council on Medical Education, or by an examiner whose certificates are accepted by such approved standard colleges or universities. A detailed statement of attendance at the secondary school, and a transcript of the student's work should be kept on file by the medical school authorities. This evidence of actual attendance at the secondary school or schools should be obtained for every student no matter whether he is admitted to the freshman or to advanced classes. This information regarding high school education should be kept separate from the transcript of college work described below.

(b) The subjects for which credits for admission to the preliminary college year may be accepted are shown in the accompanying schedule.

II. WORK OF THE PRELIMINARY COLLEGE YEAR

(c) The preliminary college year, which is the present minimum requirement for admission to medical schools, shall extend through one college session of at least thirty-two weeks of actual instruction, including final examinations. Its purpose is to provide the student with a training that will enable him to enter more intelligently on the study of the fundamental medical sciences.

(d) In excellence of teaching and in content, the work of this preliminary college year shall be at least equal to the work done in the freshman year in standard colleges and universities which enforce for admission at least fourteen units of accredited high school work, and exact for graduation at least 120 semester hours¹ of collegiate work.

(e) This preliminary college year shall consist of at least thirty semester hours,¹ fully completed before the student enters the medical school. This is entirely in addition to the fourteen units of secondary school work. Each student before being admitted to the medical school must have fully completed fourteen (14) units of high school work and at least thirty (30) semester hours of college work. If the college work did not include the specified subjects, as shown in (f), the students must be required to remove such conditions as are permitted in those subjects by *additional* college work. Additional college credits are necessary also, to make up any deficiencies there may be in high school credits. For example, if a student completed only three years of high school work before entering "college," then two years of

collegiate work (60 semester hours) must be required before he is admitted to the medical school.

(f) This preliminary college year shall include courses in physics, chemistry and biology, each course to embrace at least eight semester hours of didactic and laboratory work as shown in the accompanying schedule, provided that the requirement in biology may be satisfied by presenting six semester hours of college zoology, or by presenting one unit of high school biology, including laboratory work, and completing four semester hours of college zoology; and provided

SCHEDULE OF SUBJECTS OFFERED IN ACADEMIC AND SECONDARY SCHOOLS, CREDITS IN WHICH ARE ACCEPTABLE FOR ENTRANCE TO THE PRELIMINARY COLLEGE YEAR LEADING TO THE MEDICAL COURSES

ENGLISH	SUBJECTS	UNITS	REQUIRED	ELECTIVE
	READING AND PRACTICE.....	2	2	...
	Study and Practice.....	1	...	1
MATHEMATICS				
	ALGEBRA TO QUADRATICS.....	1	1	...
	Algebra (Quadratic Equations, Binomial Theorem and Progressions).....	1 1/2	...	1/2
	PLANE GEOMETRY.....	1	1	...
	Solid Geometry.....	1/2	...	1/2
	Trigonometry.....	1/2	...	1/2
LATIN				
	GRAMMAR AND COMPOSITION.....	1	*	1
	CAESAR.....	1	*	1
	Cicero.....	1	...	1
	Virgil.....	1	...	1
	Cornelius Nepos.....	1	...	1
Greek				
	Grammar and Composition.....	1	*	1
	Xenophon.....	1	*	1
	Homer.....	1	...	1
GERMAN (OR FRENCH)				
	ELEMENTARY.....	2	2*	...
	Intermediate.....	1	...	1
Spanish				
	Elementary.....	2	...	2
Scandinavian				
	Elementary.....	2	...	2
HISTORY				
	AMERICAN HISTORY AND CIVIL GOVERNMENT.....	1	1	...
	Greek and Roman History.....	1	...	1
	Medieval and Modern History.....	1	...	1
	English History.....	1	...	1
Science †				
	Botany and Zoology, each.....	1	...	1
	or Biology.....	1	...	1
	Chemistry.....	1	...	1
	Physics.....	1	...	1
	Physiography.....	1/2	...	1/2
	Physiology.....	1/2	...	1/2
	Agriculture.....	1	...	1
	Drawing.....	1	...	1
	Manual Training.....	1	...	1
	Domestic Science.....	1	...	1
	Music.....	1	...	1
	Appreciation or Harmony.....	1	...	1
	Total.....	35 1/2	7	28 1/2

A unit is the credit value of at least 36 weeks' work of 4 or 5 recitation periods per week, each recitation period to be of not less than 40 minutes. In other words, a unit represents a year's study in any subject in a secondary school constituting approximately a quarter of a full year's work. A satisfactory year's work in any subject cannot be accomplished under ordinary circumstances in less than 120 sixty-minute hours, or their equivalent.

Required Branches: Of the 14 units of high-school work it is suggested that the subjects in capitals aggregating 7 units be required. Other work to the amount of at least 7 units may be made up from any of the other subjects of the above schedule.

* Two units of Greek or Latin may be substituted for the two required units of French or German.

† Credentials of each science course must include evidence of laboratory work.

that the requirement in physics may be satisfied by presenting one unit of high school physics, including laboratory work, and completing four semester hours of college physics which continues and does not duplicate the work done in high school. Under no arrangement, however, should there be a total of less than thirty semester hours of college work. It is strongly urged that these include six semester hours of a modern language other than English, preferably French or German.²

1. A semester hour is the measurement of work represented by one class period per week for half of the college year. Each laboratory period to be so valued must extend over at least two hours.

2. The inclusion of French or German is required for entrance to institutions which are members of the Association of American Medical Colleges.

(g) Credits for two or more years of collegiate work cannot be considered *fully* acceptable unless courses in physics, chemistry and biology, as described above, have been completed. It is urged that a reading knowledge of French or German also be required.

SCHEDULE

Subject	Lectures or Recitations Per Week	Laboratory Periods† Per Week	Total Hours Per Semester	Total Semester Hours Per Year
Physics, 1....	2 or 3	2 or 1	4	8
Chemistry, 1..	2	2	4	8
Biology, 1....	2 or 3	2 or 1	4	8
(or Zoology, 1)*	(1)	(2)	(3)	(6)
Elective, preferably French or German, 2*.	4 or 3	.....	4 or 3	8 or 6
Totals.....	9 or 11	6 or 5	16 or 15	32 or 30

* See paragraph (f).
† Each laboratory period must extend over at least two hours.

(h) Medical schools which aim to give a premedical year, including these science courses, should admit only those students who have completed at least fourteen units of unconditioned high school work,³ should provide expert full-time teachers in the various subjects in addition to the regular staff of the medical school; should provide standard laboratory equipment; and should provide a training in the subjects of the premedical year no less thorough than that given in standard colleges of liberal arts and the total work of this premedical year should amount to at least thirty semester hours of non-medical subjects.

(i) Postgraduate courses given in high schools cannot be considered equal to college courses given by college teachers, unless such postgraduate courses are definitely organized on a junior college basis, and credits for work done in them regularly recognized and accepted by a state university or other university of similar rank, approved by the Council.

(j) A year of work in a college of medicine, dentistry, pharmacy, or other professional college is not considered as an equivalent to the required premedical college year.

III. ENTRANCE CONDITIONS UNTIL JAN. 1, 1917⁴

(k) A student may be admitted with certain subject conditions provided he has completed at least one year [thirty semester hours, see paragraph (e)] of work in an approved college of liberal arts or science, provided no conditions may be permitted in the prescribed eight semester hours of college chemistry. These conditions may be either in (1) or (2), but not in both: (1) In one-half (four semester hours) of the required course in physics, or, (2) in one-half of the required course in biology (four semester hours), or in zoology (three semester hours). These conditions must be removed before the beginning of the work of the second medical year and the credits for these conditions must be in addition to the required thirty semester hours.

(1) A candidate who has completed two or more years of work in an approved college of liberal arts, or science, may be admitted conditioned in all of the required work in physics, or one-half of the work required in biology, to a total not to exceed eight semester hours. These conditions must be removed before the beginning of the second medical year. No condition may be permitted in the prescribed eight semester hours of college chemistry.

(m) A candidate who holds a baccalaureate degree from a standard four year college or university approved by the Council on Medical Education may be admitted, in the fall of 1915 only, conditioned in all the physics or all the biology

or in one-half of the physics and one-half of the biology, the total condition not to exceed eight semester hours. After 1915 only one-half of the biology (four semester hours) and one-half of the physics, or in all of the physics, the total not to exceed eight semester hours, may be carried as a condition. These conditions must be removed before the beginning of the second medical year. No condition may be permitted in the prescribed semester hours of college chemistry.

(n) Since the medical course demands the full energy of the student, especially in the freshman year, all deficiencies should be removed, so far as possible, during the summers preceding and following the freshman medical year.

(o) A medical school having students who were conditioned on entrance in 1914-15, under the former regulations, are entitled to have the conditions of such students brought into conformity with the rulings here announced without prejudice to its standing.

TABLE N.—ESSENTIAL FEATURES OF STATE LAWS AND CONDITIONS SURROUNDING MEDICAL LICENSURE

State	Graduation Required	Preliminary Education			Medical Education				Intern Year Required	Has Reciprocity with Other States	Single Board of Examiners	Examination Fee (Dollars)	Reciprocal Fee (Dollars)
		Law Provides For	Years in High School Required	Years in a College of Arts†	Required Years of Medical Study	Minimum Weeks per year	Required Months per year	Minimum Total Hours of Course					
Alabama.....	Yes	4	2	4	.....	.....	.....	.....	.....	No	.....	10	.....
Alaska.....	Yes	4	.....	4	32	8	3600	.....	.....	No	.....	25	.....
Arizona.....	Yes	4	.....	4	.....	.....	.....	.....	.....	No	.....	25	.....
Arkansas.....	Yes	4	1	4	.....	.....	.....	.....	.....	.....	No	15	25
California.....	Yes	4	1	4	32	8	4800	.....	.....	.....	.....	25	50
Canal Zone.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	No	.....	5	.....
Colorado.....	No	Yes	4	2	4	.....	9	3600	.....	.....	.....	25	25
Connecticut.....	Yes	4	1	4	26	6½	3744	.....	.....	.....	No	15	15
Delaware.....	Yes	4	.....	4	.....	7	.....	.....	.....	.....	No	10	50
Dist. of Col.	No	.....	.....	.....	.....	.....	.....	.....	.....	.....	No	10	10
Florida.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	No	No	15	.....
Georgia.....	Yes	4	.....	4	32	8	5120	.....	.....	.....	.....	20	50
Hawaii.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10	.....
Idaho.....	Yes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	25	25†
Illinois.....	Yes	4	1	4	30	7½	3200	.....	.....	.....	.....	10	10†
Indiana.....	Yes	4	2	4	30	7½	3600	.....	.....	.....	.....	25	50
Iowa.....	Yes	4	2	4	26	7	4180	.....	.....	.....	.....	10	50
Kansas.....	Yes	4	1	4	.....	6	.....	.....	.....	.....	.....	15	15†
Kentucky.....	Yes	4	1	4	30	7½	.....	.....	.....	.....	.....	10	10
Louisiana.....	Yes	4	1	4	.....	.....	.....	.....	.....	.....	No	25	50
Maine.....	Yes	4	.....	4	.....	.....	.....	.....	.....	.....	.....	15	15
Maryland.....	Yes	4	.....	4	.....	.....	.....	.....	.....	.....	No	15	25
Massachusetts... No	No	.....	.....	.....	.....	.....	.....	.....	.....	No	.....	20	.....
Michigan.....	Yes	4	1	4	34½	8½	3600	.....	.....	.....	.....	25	50
Minnesota.....	Yes	4	2	4	26	6½	.....	.....	.....	.....	.....	10	50
Mississippi.....	Yes	4	1	4	.....	7	.....	.....	.....	.....	.....	10	50
Missouri.....	Yes	.....	.....	4	.....	7	.....	.....	.....	.....	.....	15	25
Montana.....	.....	.....	.....	4	.....	6	.....	.....	.....	No	.....	25	.....
Nebraska.....	Yes	4	.....	4	.....	6	.....	.....	.....	.....	.....	25	25
Nevada.....	Yes	4	.....	4	.....	.....	.....	.....	.....	.....	.....	25	25
New Hampshire... Yes	4	2	4	.....	9	.....	.....	.....	.....	.....	.....	10	5
New Jersey.....	Yes	4	2	4	.....	7	.....	.....	Yes	.....	.....	25	50
New Mexico..... *	Yes	4	.....	4	30	7½	3600	.....	.....	No	.....	25	25
New York.....	Yes	4	.....	4	.....	7	.....	.....	.....	.....	.....	25	25
North Carolina.. Yes	4	.....	4	.....	.....	.....	.....	.....	.....	.....	.....	15	50
North Dakota... Yes	4	2	4	30	8	3600	.....	.....	.....	.....	.....	25	25
Ohio.....	Yes	4	.....	4	30	.....	.....	.....	.....	.....	.....	25	50
Oklahoma.....	Yes	4	1	4	.....	.....	.....	.....	.....	.....	.....	15	25
Oregon.....	Yes	4	.....	4	.....	.....	.....	.....	.....	No	.....	10	.....
Pennsylvania.... Yes	4	1	4	32	.....	4480	Yes	.....	.....	.....	.....	25	50
Philippine Is.	Yes	4	.....	.....	.....	.....	.....	.....	.....	No	.....	15	.....
Porto Rico.....	Yes	4	.....	4	.....	.....	.....	.....	.....	No	.....	10	.....
Rhode Island.... Yes	4	1	4	.....	.....	.....	.....	.....	.....	No	.....	20	.....
South Carolina.. Yes	.....	.....	4	.....	.....	.....	.....	.....	.....	.....	.....	10	10
South Dakota... Yes	4	2	4	26	6½	.....	.....	.....	.....	.....	.....	20	20
Tennessee.....	Yes	4	1	4	.....	.....	.....	.....	.....	.....	.....	10	10
Texas.....	Yes	4	1	4	.....	.....	3600	.....	.....	.....	.....	15	20
Utah.....	Yes	4	1	4	.....	.....	.....	.....	.....	.....	.....	25	75
Vermont.....	Yes	4	1	4	.....	.....	3600	.....	.....	.....	.....	20	50
Virginia.....	Yes	4	1	4	.....	.....	.....	.....	.....	.....	.....	25	25
Washington.....	Yes	4	1	4	.....	.....	.....	.....	.....	No	.....	25	.....
West Virginia... Yes	4	.....	4	.....	.....	.....	.....	.....	.....	.....	.....	10	10
Wisconsin.....	Yes	4	.....	4	.....	7	.....	.....	.....	.....	.....	20	25
Wyoming.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	25	25

3. Part courses or uncompleted courses are not to be accepted.
4. Deficiencies in preparation may be made up in large part in attendance at a summer session of the university, either before or following the freshman medical year.
* Will accept a diploma without examination if from a recognized college.
† Reciprocal fee is the same as that charged by the state from which applicant comes.
‡ Or its equivalent in the medical college.

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SATURDAY, APRIL 24, 1915

STATISTICS OF STATE BOARD EXAMINATIONS

We publish this week, for the twelfth consecutive year, tabulated statistics based on official reports of examinations conducted by state medical licensing boards. For the last two years, however, other information having a direct bearing on state boards and methods of registration has been included. For example, Table D, which shows in what states certain colleges are not recognized, although not based on reports of examinations, is based on official statements, and has a most important bearing on the statistics published. The figures have all been carefully verified, and reliance may be placed on the facts presented. Reports were received from all state boards this year, and the statistics are complete. This is in marked contrast with the statistics of 1903, when the publication of these data began. At that time, reports from a large number of boards could not be secured for the reason that no permanent records of the examinations had been kept.

IMPORTANCE OF THESE STATISTICS

The casual reader glancing over the tables will probably not appreciate the conditions which make the publication of these data so important. Medical education and medical licensure in this country are controlled by the fifty individual states (including Alaska), each of which in these matters is legally independent of the others. In the fifty states there are fifty different practice acts, providing for about sixty different licensing boards, no two of which entirely agree in the details of the methods followed or the standards enforced. No legal provision exists in this country for a national control in these matters, for a coordination of standards or for a cooperation between the different boards. The lack of a national control, the lack of uniformity of standards and the lack of equal effectiveness of methods are very serious matters. In some states the public is well protected against illiterate and incompetent doctors, while in other states, because of poor laws or political boards, the right to practice medicine is easily secured by any person, no matter how incompetent he may be. If

a doctor has had his license revoked in one state for malpractice or other reasons, he promptly goes to another state, often merely crossing a state line, where he seldom fails to secure a license. If he is caught again, he as promptly transfers his allegiance to a third state. To correct these serious conditions, a greater uniformity of standards and effectiveness of methods is highly essential among state boards. Toward that end the American Medical Association has been working since 1903 in voluntarily collecting and publishing information such as appears this week. If there were a national control of the licensing of physicians in the United States, such as exists in practically every other country, it would not be necessary for the American Medical Association to do this work.

The statistics deserve careful attention. A few additional comments are worth while, however, and the reader is urged to make a further study by referring to the tables and the descriptive matter accompanying them.

FACTS REGARDING EACH STATE

These tables give valuable information regarding medical licensure in each state. For example, Tables A and B show the number of candidates who appeared for examination, the colleges from which they graduated, the number from each college who passed and the number from each who failed, the total number registered, the total number rejected and the percentage of candidates rejected. This table allows of comparison between the totals and the percentages of one state and those of other states. If a state board's examinations are unusually lenient for graduates of medical schools located in that state as compared with the results for the same colleges in other states, the fact is shown in Table G.

Furthermore, if a state harbors a low-grade medical college, these figures show that that state is itself the recipient of the greater portion of the ill-trained output of that school. To decide whether or not a low percentage of rejections means "leniency," the reader should note in Table D whether the board has *refused to examine* graduates of low-grade colleges. If the board examines the graduates of only high-grade colleges, a low failure percentage is to be expected. If, on the other hand, a board admits graduates of any and all schools, or perhaps also nongraduates, an unusually high failure percentage would be expected. If in the latter circumstances there is still a low failure percentage, then "leniency" is perhaps too mild a term.

The total number of candidates examined, registered and rejected in the last five years by each board and the percentage of rejections are shown in Table H. This permits comparison not only of the figures of the last year with those of the four previous years, but also of the figures of one state with those of the others. Table I shows for each state the totals regis-

tered by all methods, by examination, by reciprocity and under exemption clauses. This table also shows the number of nongraduates licensed. Table J gives the number of candidates licensed by each state through reciprocity, and indicates in what states the original licenses were granted. Table K shows the total number of physicians who left each state during the last five years and secured licenses elsewhere through reciprocity. Table L gives the twenty-seven states which have adopted higher standards of preliminary education and the dates when the higher requirements are effective. The preliminary standards of all states are shown in the chart. Table M shows the progress in state board requirements during the last ten years. On the whole, these statistics call attention to the kind of protection the people of each state have against incompetent or ill-trained physicians.

FACTS REGARDING EACH COLLEGE

The tables also give much information regarding medical colleges. For example, Tables A and B show in what states graduates of each college were examined; they show the number who passed and the number who failed in each state, the total examined in all states, the number who passed, the number who failed, the percentage of failures and the number of states in which graduates of the college were admitted to examinations. In fact, Tables A, B and C permit a comparative study of medical colleges of much value in connection with any investigation of medical colleges. Table E shows for the group of colleges located in each state the total number of graduates examined in all states, the percentage of failures and the rank of each group according (*a*) to the number examined and (*b*) to the success of the graduates at the examinations. Table F furnishes an interesting study of the larger colleges—those having fifty or more graduates examined during the year—and allows of comparison between colleges of nearly equal size. The mere fact that a college has large classes is no indication that it furnishes a better medical training. In fact, the data in Table F show that often the contrary is true.

Before a conclusion is formed regarding any college, it is highly important to note in Table D whether or not its graduates are refused examination in any states. A low-grade college may occasionally have a very low percentage of failures by having all its graduates appear before a lenient board. The examination results taken alone in such an instance would seem to indicate good teaching methods. Such an erroneous conclusion is prevented, however, if it is found, as shown in Table D, that the college ranks low in the classification of the Council on Medical Education and that its graduates are not admitted to examination in from ten to thirty-two states. A fairly good college may occasionally have a high percentage of failures, especially if they are in states having more rigid examinations. It is seldom, however, that a well-

equipped and well-conducted medical college will, year after year, receive as high as 15 or 20 per cent. of failures of its graduates at state licensing examinations. These statistics regarding colleges are very interesting, and throw an important side-light on the facts regarding medical colleges published in August each year in the Educational Number of THE JOURNAL.

TOTAL REGISTRATION IN ALL STATES

These statistics show for each state the number of candidates coming not only from each medical school in this country, but also from Canadian and other foreign medical colleges. In short, they give an accurate record of the number and source of those who are entering the practice of medicine each year in this country. Without the data published this week, it could not be known that 5,797 physicians were licensed in this country during 1914, and that the total number licensed had been falling off each year since 1906—a reduction, meanwhile, that is the expected reaction to an inflated oversupply of medical graduates, and the natural result of the improved safeguards which have been established to protect the public against ignorant and unsafe doctors.

STATISTICS ACCURATE AND RELIABLE

The work of collecting and publishing these statistics was begun by THE JOURNAL in 1903; but since the Council on Medical Education began active work in 1905, they have been developed as an important part of the Council's work. Every report received from the state licensing boards is now carefully checked, duplications are avoided, errors are corrected and the statistics are thereby rendered accurate and reliable. This is made possible through the enormous amount of data collected by the Council regarding medical colleges, students and graduates. Through the possession by the Council of complete alumni lists of all existing medical colleges, the Council is in position to avoid charging a college with a failure which may have been erroneously accredited to it when, in fact, the candidate who failed was a graduate of some other college.

INFLUENCE ON MEDICAL LICENSURE

These statistics have had a much greater effect, however, than that rendered by a mere numerical record of physicians examined and licensed, and probably no one has recognized their value more than the state licensing boards themselves. As a result, in many states splendid systems of record-keeping are now to be found where formerly, in several states at least, no records whatever were kept, and in several other states the systems were far from perfect. During the last several years, furthermore, they have furnished abundant argument for practical tests in state license examinations and have undoubtedly had much to do with the improved character of these examinations.

and the better methods of conducting them. A study of the statistics for several years will show that, although there has been a gradual improvement, there is still much that needs to be done.

INFLUENCE ON MEDICAL COLLEGES

The influence on medical colleges resulting from the publication of these statistics has been tremendous. Whereas previously these institutions may have been unaware of the weakness in their methods of teaching, these statistics have shown them how frequently their graduates fail at the state license examinations. There has been marked improvement in their equipment, better teachers have been secured and better methods adopted, and it can be seen by a review of the statistics published during the last several years that a number of colleges have materially reduced the failure percentages of their graduates at these examinations.

COOPERATION MUTUALLY ADVANTAGEOUS

As will be understood by the careful reader, these statistics have their greatest value when studied in connection with other data collected by the Council on Medical Education and published in *THE JOURNAL* and in the Council's reports. The state board statistics are made more accurate and reliable through the data kindly furnished by medical colleges; they are based on reports received direct from state boards; but through the careful checking of those reports, errors are frequently corrected, the state boards are notified and in this way state records are also made more accurate. The statistics published this week, therefore, have been made possible only through the cordial cooperation of both the state boards and the medical colleges, and for this cooperation we again express our acknowledgments.

THE METABOLISM OF VEGETARIANS

The vegetarian propaganda, heretofore based in many instances on moral, religious or sentimental grounds, has of late turned to the science of nutrition for a justification of its claims. There has been a frank attempt on the part of the advocates to abandon sectarian and fanatical views and to seek recognition in the outcome of experimental researches for the vegetarian regimen both as a rational dietary and as a curative agency. The extremes of definition are being abandoned. In the words of a recent advocate, for all intents and purposes a vegetarian is one who does not habitually make use of flesh foods, in contradistinction to the habitual user.¹ Vegetarianism now frankly aims to emerge from a sentimental idea into a scientific truth. "It is in the name of science," Buttner¹ writes, "that we advocate it. It is also science that will rescue it from the exaggerations of well

meaning but not altogether rational persons. We do not believe that a vegetarian diet is good whatever may be its composition, and we would reserve our right to judge any fad with proper scientific scrutiny. To instinctive feeding, we need to oppose, nowadays, rational feeding."

When advocates of a system of living are willing to submit their claims to the test of scientific experiment, a reasonable ground for discussion is afforded. The debate becomes one that involves facts and records—results that can be duplicated at will, rather than unmeasurable prejudices and counterclaims. It is frequently asserted that a vegetarian regimen may bring about exceptional endurance and capacity for work. Closely coupled with this at times has been the belief that vegetarians live on a somewhat lower metabolic plane than do flesh eaters who, it is asserted, are unduly stimulated by the protein of their food. It is doubtless true that the vegetarian custom leads to habits of abstemiousness in diet from which even beneficial results may accrue to the individual. This is not equivalent, however, to saying that the fundamental features of metabolism are changed in the vegetarian—that he works at the expense of less energy or in a fashion that is mysteriously economical from the standpoint of the exchange of matter in the body.

There are recognized ways of measuring accurately the metabolism of individuals and of securing defensible comparisons of their energy balance.² The measure of the basal gaseous metabolism, which may be considered as the carbon dioxide production and oxygen consumption during complete muscular repose and in the postabsorptive condition, that is, at least twelve hours after the last meal, gives an admirable index of the metabolic activity. Using the resources of the Nutrition Laboratory of the Carnegie Institution of Washington and the Battle Creek Sanitarium, Benedict and Roth³ have made observations on the basal gaseous metabolism of both men and women who had subsisted on a vegetarian diet for a considerable period of time, extending, on the average, over several years. The results indicate that the gaseous metabolic processes of the vegetarians are qualitatively and quantitatively essentially like those of nonvegetarians of similar height and weight with whom they are compared. Thus a comparison of the heat production per twenty-four hours as computed from the gaseous exchange showed that the men vegetarians produced 25.5 calories per kilogram and the nonvegetarian men of like height and weight 26.4 calories. On the commonly used, yet questionable, basis of the heat per square meter of body surface per twenty-four hours, the vegetarians showed 798 calories as compared with 828 calories for the nonvegetarians. With the women the correspond-

2. *Newer Aspects of Metabolism*, editorial, *THE JOURNAL A. M. A.*, April 17, 1915, p. 1326.

1. Buttner, J. L.: *A Fleshless Diet: Vegetarianism as a Rational Dietary*, New York, F. A. Stokes Company, 1910.

3. Benedict, F. G., and Roth, P.: *The Basal Caloric Output of Vegetarians as Compared with that of Non-Vegetarians of Like Weight and Height*, *Proc. Nat. Acad. Sc.*, 1915, i, 100.

ing values per kilogram of body weight were 24.6 calories for the vegetarians and 25.0 calories for the nonvegetarians; and per square meter of body surface 753 calories for the vegetarians compared with 766 calories for the nonvegetarians.

Believing that the relatively large proportion of carbohydrate supposedly eaten in the vegetarian diets might tend to a larger storage of body glycogen, thus giving available carbohydrate material to be drawn on in the endurance and similar tests of muscular efficiency, a computation was made in all cases of the respiratory quotient, that is, the relationship between the carbon dioxid production and oxygen consumption. When the catabolism is exclusively from carbohydrate, this quotient is 1.0; with pure fat it is 0.70. For the twenty-two vegetarians (eleven men and eleven women) the average quotient was found to be 0.83, while the average for the 132 nonvegetarians (seventy-seven men and fifty-five women) was 0.81. The mathematical difference between these average respiratory quotients is too slight to be taken as evidence of a larger glycogen storage.

THE TRANSMISSION OF MALARIA BY DIFFERENT SPECIES OF ANOPHELINEAE

In our efforts to control insect-borne diseases, we should know whether more than one species is capable of acting as an intermediary host and, if so, what ones. It is also of importance to determine the relative susceptibility of the different species. More than a hundred species of Anophelinae are now known, and of this number less than a third have been proved to be transmitters of malaria; the remaining species either have not been studied or evidence of their susceptibility is lacking. Beyond this, it has been shown that Anophelinae vary widely in their susceptibility to infection with the same malarial parasite. The same species may not be capable of acting as transmitter of all three types of human malarial parasite.

It is probable that the same species of Anophelinae may vary in its susceptibility to infection with the malarial parasite in different parts of the world and under different climatic conditions. Every species should, therefore, be tested experimentally to determine its ability to act as a disseminator of malaria. A concrete illustration of the need of such information was shown in the instance cited by Carter¹ in connection with the sanitation of the Canal Zone. He estimated that, beside the saving in time, from \$100,000 to \$250,000 was saved by the knowledge that a certain mosquito (*Anopheles malefactor*), which breeds in the collections of water in hollow stumps, was unable to transmit malaria.

Walker and Barber,² of the Bureau of Science, have endeavored in the Philippines to throw light on

these questions by investigating the ability of certain species of Anophelinae to act as conveyors of malaria. Of the seventeen known species of Anophelinae in the Philippines, only six are reported to be transmitters of malaria, but it is believed that further study will increase this number. Walker and Barber studied five species, making 184 experiments. Of the mosquitoes used, 1,287 lived to be dissected for the presence of oocysts in the midgut. Four of the five species studied were shown to be capable of being infected with malaria. The experiments with the fourth species (*Anopheles sinensis*) were all negative. They were too few in number to permit definite conclusions, but the authors believe that its susceptibility is probably feeble. Of the species studied, the *Anopheles febrifer* was found to be the most susceptible to infection with the parasites of subtertian malaria, and this species is probably also an efficient carrier of tertian and quartan malaria. It has high avidity for human blood and, being both "wild" and domestic, is probably the most important mosquito concerned in the epidemiology of malaria in the Philippines.

Of the other susceptible species, the *Anopheles barbirostris* stood the lowest in its avidity for human blood and, besides, is a relatively "wild" species. For this reason it probably plays only a slight part in the spread of malaria. The other two susceptible species, *Anopheles rossii* and *Anopheles maculatus*, have a lower susceptibility than the febrifer.

Among the factors which determine the importance of a particular species of mosquito in the transmission of malaria in any country are the susceptibility of the species to human malarial infection, its geographic distribution and prevalence, its avidity for human blood, and its domesticity. Of these factors, susceptibility is of fundamental importance, for it is plain that a mosquito which is not susceptible or only slightly susceptible to infection with the malarial parasite will, no matter how prevalent, be of little or no importance in the spread of the disease, while a very susceptible species may, although less prevalent, play a large part. The questions of the avidity of the species for human blood and its domesticity are also of great importance, for on these two factors depends, to a considerable extent, the facility with which the mosquito may bite persons harboring malarial parasites in their blood and those who may become infected after the mosquito has bitten such persons.

It is by studies such as those reported by Walker and Barber that our sanitarians will acquire information on which to conduct intelligently campaigns for the control of malaria. In the extensive studies on malaria now being conducted in the United States by the Public Health Service,³ some provision should be made for investigating the importance of the different

1. Carter, H. R.: Am. Jour. Trop. Dis. and Prev. Med., 1913, i, 43.

2. Walker, E. L., and Barber, M. A.: Malaria in the Philippine Islands, Phil. Jour. Sc., B., Trop. Med., 1914, ix, 381.

3. Annual Report of Surgeon-General, U. S. P. H. S., for 1914, pp. 24 et seq.

species of Anophelinae of this country in the transmission of malaria, in order that exact data on the kind reported in the work above referred to may be available for the Anophelinae of the United States.

MEDICAL EDUCATION IN CHINA

The report of the commission sent by the Rockefeller Foundation to investigate medical conditions and medical education in China has recently been noted in *THE JOURNAL*.¹ The Rockefeller Medical Commission to China, consisting of President Judson of Chicago University, Dr. F. W. Peabody and Mr. Roger S. Greene, made an exhaustive study of the present status of medical education and of the most pressing problems connected with a native sanitary and public health movement in China, with a view to recommending practical aid along these lines. Probably the most effective method of improving public health conditions and raising the general sanitary and social average in China will prove to be through the medium of a native Chinese medical profession, trained in western methods, and possessing the triple advantage of familiarity with local conditions, influence with their people, and scientific efficiency.

The plan is receiving increasing attention among medical leaders in China today, and its validity is unquestionable. So far the leading institutions in medical education have been of two sorts: First and the stronger are those under regular missionary auspices, in many cases representing a union of various societies in the interest of a larger staff and better equipment. Second in numbers, strength and age are those medical schools supported by American university organizations, such as Harvard and Pennsylvania at Shanghai, and Yale at Changsha in central China. A third group from the standpoint of standards, equipment and efficiency would comprise various public and private institutions purporting to give a Western medical education. The situation is that China has a comparatively small number of medical schools in which emphasis is put on scientific standards and values, and that she needs a complete native medical profession to carry a burden of sanitary and public health progress commensurate with the political and economic progress of the republic.

To meet this need, various lines of development have been outlined; but most of them are weak either in provision of adequate funds, in securing support from the Chinese, in their relations with the educational policies of the government, in the practical interest of the Chinese which is necessary for permanence, or in some other essential feature. A scheme for medical education which avoids these defects is outlined by Dr. Yen² of the Yale staff at Changsha, in

an article in another column. This scheme, in brief, is a cooperation between Chinese and Americans whereby the institution is governed by a joint board of trustees, its maintenance and equipment are provided by the Chinese, and its staff and administration as well as a teaching hospital by Yale. The plan originated with the Chinese, and has the unique merits, lacking in many other plans, of receiving the enthusiastic support of the Chinese, who feel that this is their own enterprise, the cordial approval of the provincial and Peking governments, and a promise of development and permanence which is encouraging. The initiation of this Hunan-Yale Medical School marks the opening of a new era in the medical development of China, an era of cooperation on equal terms between Chinese and foreigners, looking ahead to the gradual assumption of complete control by the Chinese as soon as a generation of competent men has been trained. The Hunan-Yale Medical School is of necessity an experiment, as it is a complete innovation, and has no precedent.

THE SANITATION OF SWIMMING POOLS

The instinctive desire for cleanliness, says Lotze, marks the beginnings of culture; at any rate it indicates a fortunate tendency in that direction. Filth is unendurable in the eyes of those civilized peoples alone who prize in the case of their bodies the same degree of purity which they impart to their enterprises and their personal environment. The care of the skin through the installation of public baths is by no means a modern procedure. Ancient Rome abounded in them, and their maintenance became an important problem of the state. The baths of Diocletian accommodated hundreds. Wherever Roman civilization proceeded it was attended by a respect for personal cleanliness. To-day the home of the ordinary citizen affords abundant opportunity to enjoy the advantages of the bath not only as a means of cleansing the body but also as a tonic and the promoter of a healthy skin—"the best undergarment ever invented." For the less opulent among our people the institution of public baths is coming to be looked on almost as a necessity rather than a luxury. Indeed, with many the bath is included with the other recognized factors for maintaining perfect health and vigor, namely, an abundance of food, fresh air, and muscular work or bodily exercise.

At first thought it may seem like an incongruity to speak of the hygienic dangers lurking in an institution so hygienically approved as is the public bath. It requires little consideration on the part of the trained sanitarian, however, to discover the evidences of possible shortcomings. The growing popularity of swimming pools, for example, has led to an increased interest in the sanitary conditions which prevail in them. There is no longer any doubt that they can actually

1. Improvement of Medical Conditions in China, editorial, *THE JOURNAL A. M. A.*, April 3, 1915, p. 1163.

2. Yen, F. C.: An Example of Cooperation with the Chinese in Medical Education, *THE JOURNAL A. M. A.*, this issue, p. 1385.

transmit disease. When, therefore, the use of swimming pools is made compulsory, as it is in the case of pupils of secondary schools in some parts of the country, a serious duty of sanitary supervision and responsibility arises.

The diseases commonly communicable from swimming pools have been classed as (1) intestinal, (2) eye and ear, and (3) venereal.¹ Most important are those which affect the intestinal canal. Typhoid fever and diarrheal conditions have been traced on reasonably reliable evidence to swimming pools such as one finds installed to-day by private individuals, colleges and universities, secondary and elementary schools, gymnasiums, clubs, steamships, and special bathing establishments. The examination of the swimming-pool water for colon bacilli as an index of pollution, therefore, becomes as logical a method of control as it is in the case of drinking water.

The conditions actually prevailing in respect to the sanitary management of a large variety of swimming pools in the city of New York have been investigated by Manheimer² in the bacteriologic laboratories at the College of Physicians and Surgeons of Columbia University. From this report it appears that the collegiate pools in New York are in very good condition, as a result of the careful supervision by the authorities in charge, the knowledge of sanitation possessed by its patrons, and because of the enforcement of the sanitary regulations by swimming teachers. The bacteriologic condition of the water in one collegiate pool closely approximated that of drinking water, which is the standard that has been urged for all swimming pools. Such hygienic perfection is accomplished in part by suitable administration of the plant, including the supervision of the working force, the inspection and ablution of the bathers before they enter the water, and their instruction in pool sanitation. To these agencies for keeping the bacterial count low, other procedures are added. The source of the water should be pure. Frequent refilling and dilution are efficient, though expensive. Refiltration of pool water is another useful and economical scheme; and it is particularly efficient when combined with the most efficient of all agencies, the chemical disinfection of the water.

The pools open to the public with no admission fee and no restriction are attended generally by a fairly good class of people and are elaborately equipped and generously operated. The authorities, however, merely open them and try to keep them clean. Manheimer contends that because of their large and promiscuous attendance, faulty technic and improper organization, they are possible sources for the spread of disease. A reorganization of the plants and the

introduction of all the sanitary procedures already referred to would greatly improve them. Association pools, which secure a higher and cleaner class of patrons than the public pools, because they charge an admission fee, show a varying sanitary condition depending on the attendance, preliminary baths taken by the bathers, the extent of chemical disinfection, etc. The examination of the free floating baths stationed during the summer at docks in New York City as far away from sewer outlets as possible showed a sanitary condition so bad as to warrant their abolition or immediate remodeling.

It is obvious, therefore, that public baths, pools and plunges, wherever they are located, should be under the supervision of competent sanitarians. The investigations of Manheimer have elucidated the factors which contribute to the good and bad features of the swimming pool. Aside from the ideals of construction, equipment, water source and supply and personal hygiene to be aimed at, it should be noted that refiltration is an efficient and economical method of keeping water clear during protracted use. Above all, however, chemical disinfection, as with calcium hypochlorite used in suitable amounts, has actually been shown to be efficient for the disinfection of swimming-pool water. Its application to the water, in conjunction with refiltration, is urged as an effective method of pool sanitation.

Current Comment

PROSPECTIVE MEDICAL STUDENTS AND LOW-GRADE MEDICAL COLLEGES

One of the tables published this week¹ (Table D) shows the states in which the diplomas from certain medical colleges are not given unqualified recognition. The table, which is based on official reports from the various state boards, indicates that in from ten to thirty-three states the diplomas issued by thirty-five medical schools are not recognized, and that in these states the graduates of these thirty-five schools are not admitted to the examinations for licenses to practice medicine. It is highly important, particularly in the interests of prospective medical students, that this information should receive wide publicity. Before selecting a medical school, the student should know whether or not the training furnished and the diploma given by that school will qualify him for examination and for a license to practice medicine in any state he may choose. Such information, that is, the fact that recognition has been withdrawn or withheld from certain medical colleges, has not always been given publicity by state boards and, of course, is not published in the announcements of the colleges affected. Many students, doubtless, have not been aware of the facts until long after they have matriculated, or even, perhaps,

1. Atkin: Proc. Illinois Water Supply Assn., 1911, iii, 73.

2. Manheimer, W. A.: Studies on the Sanitation of Swimming Pools, Jour. Infect. Dis., 1914, xv, 159.

1. See page 1412.

until they have applied for a license to practice. Hundreds of students, in fact, have enrolled in low-grade medical colleges, have spent large sums of money, and have devoted four years to study, or have graduated before they have learned not only that they have not received a training in modern medicine, but also that they have received diplomas which are worthless in a large number of states. This is positively wrong and places an irreparable handicap on these students. The important information regarding the non-recognition of low-grade medical colleges by state boards should be in the hands of every prospective medical student before he chooses his college, so that he may avoid a bad start on his life's work. The intelligent student, if he is fully informed, would certainly not waste his time and money in a low-grade, unrecognized institution, when in the same time and with perhaps even less money he could obtain a training in a thoroughly well-conducted medical school. There is certainly no dearth of well-conducted, thoroughly equipped medical colleges in which the student can get a training that will enable him to render excellent service to the people who will depend on him for medical attention or hygienic instruction.

THE PUBLIC AND LOW-GRADE MEDICAL COLLEGES

The information in Table D is of special importance to the public; it indicates the states that are not adequately protected against untrained doctors. The table shows that the boards of thirty-two states are making some use of the legal power conferred on them to discriminate between medical colleges and to refuse recognition to those which are of low standard or are not properly equipped to furnish their students a satisfactory training in modern medicine. Of the thirty-one state boards, nine¹ will not license the graduate of any medical college unless he had completed at least two years of work in an approved liberal arts college before taking up the study of medicine. There are seven states² which have not given the boards full legal authority to pass on the character or standing of the colleges whose graduates may be admitted to examination, and in nine other states,³ the boards are apparently given ample power, but, so far as the reports indicate, and for various reasons, the boards are not using that power. Arkansas and Florida each have three separate and independent licensing boards, one of which — the regular board — has refused to recognize low-grade colleges under its jurisdiction. We learn of no such action by the other two boards in each of these states. It goes without saying that since the graduates of these low-grade medical colleges cannot secure licenses in thirty-two states, they will flock to those in which they are still eligible. These sixteen states, therefore, are certain to be the dumping-ground for the output of these inferior colleges just so long as

the practice acts permit, or so long as the state licensing boards do not take action against them. The people have the right to expect that the state (on which the national constitution places the responsibility) will grant them proper legislation, and that the licensing board — the only legal body having these matters in charge — will take such action as is necessary to protect them against the ill-trained product of low-grade medical colleges.

THE CAUSE OF TYPHUS FEVER

One of our readers has called attention to a sentence in the editorial discussion on "Typhus in Serbia" in *THE JOURNAL* last week questioning its correctness. The statement reads: "Typhus fever is doubtless of microbic origin, but the infective agent is probably so small that it must be placed in that ever puzzling class, the filterable viruses." While the object of the editorial was not to analyze the experimental work on the etiology of this disease, a consideration of such work is necessitated by the doubt expressed. The criticism directed against this statement appears to be well taken because Ricketts and others¹ have offered evidence to show that the virus in the blood of typhus patients is held back by Berkefeld filters. The statement incidentally does not take into account the possibility that the actual cause of typhus fever has been discovered. If this possibility becomes a certainty the credit for the discovery will be given Plotz,² who reported his results in a preliminary way about a year ago. Plotz cultivated by anaerobic methods a bacillus from the blood of typhus patients, which produced a febrile reaction in guinea pigs similar to that which occurs after injection of typhus blood. He also obtained complement fixation with his bacillus and the serum of typhus patients obtained after crisis. Wilder regards the bacillus observed by Plotz as very likely identical with that seen by Ricketts and himself, as well as by other observers, in the blood of typhus patients. Should this bacillus become accepted as the cause of typhus fever, one reason for its not having been recognized earlier through growth in pure culture is the failure of the preceding investigators to use anaerobic methods of culture. Just at this time there is so much opportunity to study typhus fever that it probably will not be long before the question whether the bacillus observed by Plotz is the cause of typhus will be settled. It would be fortunate indeed if this bacillus is found to be the cause as then we might hope that preventive inoculations could be instituted at once now when some simple method of prevention is needed so sorely. It is reported that several American physicians, who have recently gone to Serbia, have been inoculated with a vaccine prepared from cultures of Plotz's organism and active experimentation is to be carried out with it in that country. We may hope then soon to learn whether the new organism is the cause of typhus.

1. These states are Alabama, Colorado, Iowa, Indiana, Minnesota, New Hampshire, New Jersey, North Dakota and South Dakota.

2. These states are Arizona, District of Columbia, Idaho, Massachusetts, Montana, Tennessee and Wyoming.

3. These states are California, Kansas, Maine, Missouri, Nebraska, Nevada, North Carolina, Utah and Washington.

1. For reference to literature see Russell M. Wilder, *The Bacteriology of Typhus Fever*, *THE JOURNAL*, 1914, lxiii, 937.

2. Plotz: *The Etiology of Typhus Fever* (and of Brill's Disease), Preliminary Communication, *THE JOURNAL*, May 16, 1914, p. 1556.

EDUCATIONAL ADVANCES IN OREGON
AND TENNESSEE

The fact that Tennessee, after repeated attempts, has succeeded in obtaining a new medical practice act is of particular importance to medical education and medical licensure, not only in Tennessee but also in the South and in the country as a whole. With the securing of this legislation, every one of the Southern states has provided for standards of preliminary education for those who are to practice medicine, and all Southern states now require that every candidate for the license to practice medicine must have graduated from a reputable medical college. In fact, this legislation closes what was perhaps the most wide-open door in the country whereby incompetent and untrained doctors could enter the medical profession. No longer, however, may the hordes of graduates of inferior colleges and—worse still—the hordes of those who did not graduate anywhere, flock to Tennessee! Hereafter, they are barred from the entire South, and for easy entry to the profession they must look elsewhere. They cannot go to Oregon, since Oregon also has amended its law requiring graduation from a reputable medical college. There is a chance in Colorado, but that chance is exceedingly slender, since in that state they must pass a severe examination—an examination that cannot be passed after a short course in a cramming school; they must take an examination which has been passed by only two undergraduates in nine years! No, hereafter they will doubtless flock to Massachusetts, a state apparently so complaisant in its learning as to see no need of protective laws against ignorance; they will flock to Massachusetts, the last state which continues to open its arms to those who avowedly have not completed their medical training, no questions, in fact, being asked regarding the applicant's educational qualifications! Possibly even Massachusetts may soon see the need of amending its law so as to send all unprepared candidates back to the colleges and hospitals to complete their training before obtaining the legal right to preside over human lives. Massachusetts, how about it?

OSKALOOSA, CONGRATULATIONS!*

Oskaloosa is in Iowa, and, of more importance, the *Times* is in Oskaloosa. The *Times* is a weekly newspaper exemplifying the new era of American journalism. In its issue for April 16 the editor says that the paper is going to take a "spring tonic," "not that the *Times* is in a bad way, for rather it is healthy and lusty, but because the editor has come to the conclusion that its blood needs purifying." To further elucidate:

"Advertising is the blood of the paper, and the doctor's prescription calls for the adoption of a new policy by which all advertising for patent medicines shall be refused. No more contracts for patent medicine advertising will be entered into by this paper. As rapidly as possible those now carried will be discontinued."

In explaining its reason for rejecting *all* "patent medicine" advertising the paper says:

"The *Times* hasn't time to investigate all medicines that offer their advertising and determine their value. The best way and most effective is to refuse space to them all."

Here, then, we have a country newspaper rejecting many hundreds of dollars of advertising revenue yearly for a principle. Realizing that there is no competent board to pass on the question of what constitutes objectionable and unobjectionable "patent medicines," the paper, rather than be untrue to its readers' interests, rejects all "patent medicine" advertisements. Therein, lay publications suffer a disadvantage of which medical publications are relieved. The medical profession, in the Council on Pharmacy and Chemistry, has a competent body to pass on the question of reputable and disreputable medicinal products advertised to physicians. The difference, however, is that while some honest newspapers are willing to reject all "patent medicine" advertising revenue for principle, many medical journals are unwilling to give up even a part of their "patent medicine"—the term is used advisedly—revenue. The action of the Oskaloosa *Times* is one more unvoiced criticism of medical journalism that the medical profession should take to heart. The Oskaloosa paper concludes its editorial:

"The *Times*' spring tonic will be a little expensive at first, but the *Times* is confident that it will be repaid for the taking by a better feeling and a greater opportunity for service to the people of Mahaska County."

We believe the confidence of the *Times* is well placed. We know that its action will redound to the health of the people of Oskaloosa and vicinity.

UNSKILLED TAMPERING WITH HUMAN
AILMENTS

One who wants his watch repaired sends it, not to a blacksmith but to a skilled watchmaker: to one who knows the position and purpose of each of its delicate and intricate parts. Here the importance of expert service and the ability to render it are recognized. Not so, however, when the delicate life processes of a human being, rendered sensitive by sickness or injury, are in need of repair. Here the man who is careful to send his watch to an expert is likely to patronize the blacksmith when he or one of his family is ill. To recognize promptly and positively many of even the common diseases requires a skilled diagnostician who understands the use of scientific laboratory methods. The successful treatment of diphtheria, malaria and syphilis—as examples—depends on an early and positive recognition of the causative agent, respectively, the Klebs-Loeffler bacillus, the *Plasmodium malariae*, and the *Treponema pallidum*. To be able to do this requires a knowledge of these organisms and skill in the use of the microscope and laboratory methods of diagnosis. The cure of many diseases, such as tuberculosis, cancer, spinal meningitis, etc., depends not only on a positive but especially on an early diagnosis, and this, likewise, requires a thorough

* See Correspondence department, page 1442.

training in modern medicine. Without a training in scientific methods, the diagnosis of these diseases is uncertain, or impossible, since the signs and symptoms easily lead to their being confused with disorders requiring radically different methods of treatment. Without a correct diagnosis any form of treatment is guesswork and unscientific. A training in the branches fundamental to modern scientific medicine is an essential qualification for all who undertake to treat human ailments, no matter what treatment be adopted. This is a fundamental fact that defies contradiction. It is immaterial whether the treatment be a form of massage or tissue manipulation, and given under the name of osteopathy, chiropractic, naprapathy or spondylotherapy; whether it be psychotherapy, given under the name of Christian Science, mental healing, or what not—the fact remains that any legislation relative to the regulation of what is known as the practice of medicine—that is, the healing of the sick—that does not recognize this fundamental fact is not in the interest of the public health or the public good.

THE UNITED STATES SUPREME COURT AND MEDICAL CULTS

In the treatment of human ailments the matter of primary importance to the conscientious practitioner is the diagnosis. What is causing the trouble? On the answer to this question depends the treatment, no matter whether the "doctor" is a physician, an osteopath, a chiropractor, a mental healer, or what not. The diagnosis is the essential, and unless the "doctor" is sufficiently well trained to make a diagnosis, he is not qualified to treat the patient intelligently by any method whatever. Treatment is certainly of great importance, and from the patient's point of view is doubtless most essential. But without a knowledge of the disease, how can intelligent treatment be administered? These fundamental facts are so often ignored in the claims of sectarian cults that the clear cut statements in one of several decisions in regard to these matters by the United States Supreme Court are worth repeating. In a discussion of osteopathy¹ the court said:

An osteopath professes to help certain ailments by scientific manipulation affecting the nerve centers. It is intelligible, therefore, that the state should require of him a scientific training. He, like others, must begin by a diagnosis. It is no answer to say that in many instances the diagnosis is easy—that a man knows it when he has a cold or a toothache. For a general practice science is needed.

At the same time the court distinguished between osteopaths, who act on their own initiative, and nurses and masseurs, who follow a physician's instructions, as follows:

An osteopath undertakes to be something more than a nurse or a masseur, and the difference rests precisely in a claim to greater science, which the state requires him to prove. The same considerations that justify excluding him (under the requirements of the practice act) justify excluding the lower grades (nurses and masseurs) from the law.

1. *Ira W. Collins vs. State of Texas* (U. S.), 32 S. C. Rep. 286, THE JOURNAL A. M. A., Aug. 3, 1912, p. 392.

The court, therefore, decisively pushed aside the masses of argument regarding the "rights" of this, that or the other medical sect, and revealed the real point at issue—the necessity for sufficient fundamental knowledge of the human system to qualify one to make a diagnosis. The court emphasized that in order to make a diagnosis the practitioner of osteopathy, or any other cult, must have the same scientific training as is required of physicians. It is clearly the duty of the state, therefore, to provide an educational qualification which will guarantee that every licensed practitioner shall be competent to make an intelligent diagnosis. Certainly the public has the right to expect that only those who are competent will be given the state's endorsement, conferring on them the right to treat human ailments.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

IDAHO

Personal.—Dr. Charles J. Kinsolving, St. Maries, was seriously injured by the overturning of his automobile, March 20.—It is announced that Dr. Ralph Falk, Boise, secretary of the State Board of Health, has been asked to resign on account of personal differences between him and the governor of the state.

State Board Election.—At the annual meeting of the State Board of Medical Examiners in Lewistown, April 7, the following officers were elected: president, Dr. J. Eugene S. St. Jean, Wallace; vice-president, Dr. George T. Parkinson, Preston, and secretary-treasurer, Dr. Charles A. Dettman, Burke. The board, at its meeting, examined seventeen applicants for admission to practice. The next meeting will be held at Wallace.

ILLINOIS

Personal.—Dr. Dillon G. O'Neil, Elgin, has been appointed assistant physician on the staff of the Anna State Hospital.—Dr. William Dougall, Joliet, who has been critically ill in St. Luke's Hospital, Chicago, is reported to be improving.

New Buildings Denied State Hospital.—The requests of Dr. Henry J. Gahagan, superintendent of the Elgin State Hospital, for about \$115,000 will fall short about \$85,000 as the committee on appropriations has refused to allow the erection of a tuberculosis sanatorium and a special female ward.

Lutheran Hospital at Moline.—Ground was broken March 30 for the foundation of the new Lutheran Hospital, Moline, one wing of which is now to be built to cost \$60,000 and will accommodate sixty-one patients. The building will be three stories and basement in height, and fireproof. Eventually the central building and west wing will be built, the whole institution to cost \$160,000.

Chicago

Reception to Mrs. Ricketts.—A reception in honor of Mrs. Howard Taylor Ricketts was held by the members of the Ricketts Laboratory of the University of Chicago in that institution, April 22.

Regiment Inoculated Against Typhoid.—The work of inoculation of the National Guard of the state against typhoid fever began April 12, when about 200 members of the First Infantry received the first antityphoid inoculation.

Measles Epidemic.—According to Health Commissioner George B. Young, during March there were in the city 2,586 cases of measles, and during the week ending April 10 there

were 1,080 cases, which amounts to an epidemic. One ward had 382 cases and seven wards had more than 100 cases each.

Personal.—Dr. Alice Hamilton sailed for Europe with the peace commission, April 13.—The honorary degree of doctor of laws was conferred on Dr. John B. Murphy by the Catholic University of America, Washington, April 15.—Dr. Aime Paul Heineck announces that he has severed all connection with the Bennett Medical College.

Cooperation in Tuberculosis Fight.—Representatives of Chicago and Cook County met April 15 to discuss the plans for cooperation of all antituberculosis agencies in the county. A hospital admission bureau will direct the work of the cooperating institutions, the Municipal Sanitarium of Chicago and Cook County Tuberculosis Sanatorium, Oak Forest. This bureau is to be conducted by a number of physicians representing both the city and the county, and assignments will be made to the Municipal Sanatorium, Oak Forest Institute and tuberculosis department of the Cook County General Hospital, according to circumstances. This plan was concurred in by the physicians who participated in the conference, and committee was appointed to work out the detail.

Will Entertain Delegates to National Convention.—The Chicago Tuberculosis Institute announces the Chicago program for delegates to the eleventh annual meeting of the National Association for the Study and Prevention of Tuberculosis, who will stop in Chicago, June 8 and 9, on their way to Seattle, Wash. The headquarters will be at the Hotel La Salle and the program announces that on the first day delegates will be provided with automobiles to visit the various tuberculosis establishments about Chicago, such as the Edward Sanatorium, Naperville; the Chicago Fresh Air Hospital, Rogers Park; The Chicago-Winfield Sanatorium, Winfield, Ill.; Ridge Farm, the Preventorium for Children, Deerfield, Ill.; the Tuberculosis Department of the Cook County Hospital, Chicago, and a trip to industrial establishments to observe the supervision of health of the employees. Railway transportation will also be provided for those who wish to visit Cook County Tuberculosis Sanatorium, Oak Forest. In the evening delegates will be entertained at a Good Fellowship dinner by the Chicago Tuberculosis Institute. On the second morning the delegates will be taken by automobiles to the Municipal Tuberculosis Dispensaries, open-air schools and tuberculosis exhibit, thence to the Municipal Tuberculosis Sanatorium where luncheon will be served. After luncheon the sanatorium will be inspected and the delegates will be taken back to Chicago by automobiles and will leave in the evening for Seattle.

KANSAS

State Board Appointments.—The following appointments to membership to the State Board of Health have been made by Governor Capper: Drs. Oliver D. Walker, Salina; William M. Earnest, Washington; Charles H. Lerrigo, Topeka; Charles H. Ewing, Larned; Harry L. Aldrich, Caney; and Clay E. Coburn, Kansas City, and M. O. Lock, attorney, Topeka.

Personal.—Dr. J. E. Edward Graf, Assaria, has been reappointed physician of Saline County.—Dr. Leon Matasarin, Wichita, has returned and resumed practice.—Dr. Otto Kiene, Topeka, has been appointed superintendent of St. Joseph's Hospital, Concordia.

Health School.—The fifth annual school for physicians and health officers was held at Lawrence and Rosedale from April 19 to May 1; the work of the first week being at the State University, Lawrence, and the second at the Hospital of the School of Medicine, Rosedale. Surgeon Mark J. White, U. S. P. H. S., St. Louis, Mo., Dr. John S. Fulton, Baltimore, secretary of the Maryland State Board of Health, and Dr. Albert J. Chesley, Minneapolis, epidemiologist of the Minnesota State Board of Health, gave the course in public health.

MICHIGAN

Mumps at Detroit.—Up to April 10 more than 200 cases of mumps had been reported in the suburb of Highland Park. The spread of the disease was said to be due to the failure of parents to keep children with the disease isolated at home.

Personal.—Dr. George J. Corby, Calumet, has been appointed assistant at the Iroquois Memorial Hospital, Chicago.—Dr. S. Edwin Cruse has been reelected mayor of Iron Mountain.—Dr. Berton G. Watson, Benton Harbor, fractured his right arm near the wrist while cranking his automobile.—Dr. Herman Ostrander has been elected secretary of the Kalamazoo State Hospital Board.

MINNESOTA

Personal.—Dr. James F. Hammond, St. Paul, has volunteered for service with Great Britain in the war zone.—Dr. LeRoy Brown, St. Paul, has been appointed police surgeon, succeeding Dr. Carl A. Ingerson, St. Paul, resigned.

Hospital News.—Under the new retrenchment policy of the management of the Minneapolis City Hospital, it is proposed to close an entire floor of the west wing of the institution.—The new annex to the McIntyre Hospital, Virginia, has been completed, doubling the capacity of the institution.—A new hospital has been commenced at Slayton by Drs. Henry C. Doms and Leon A. Williams, to be known as the Home Hospital.—A house bill has been introduced by Representatives Searles and Laron appropriating \$25,000 to establish a fourth state hospital of the insane and directing a state board of control to acquire a suitable site and to submit plans to the next legislature.—Citizens of Lake City have subscribed more than \$7,200 of the \$10,000 required for the establishment of a local hospital.—Thief River Falls is to have a hospital to cost \$25,000.—A bill providing for the erection of a hospital for Indians on the Fond du Lac reservation has been amended by the Senate, so that the institution will be located in the city of Cloquet. The bill provides an appropriation of \$25,000 for the hospital.—A bill has been introduced in the Senate to appropriate \$25,000 for the establishment of a hospital for the insane somewhere north of the south line of Pine County.

MONTANA

Wants Physician for Health Officer.—The State Board of Health, in resolutions adopted April 2, while commending the present health officer of Helena, requests and urges that a licensed physician be appointed in his stead, giving it as its opinion, that the duties of health officer can be performed properly, efficiently and intelligently only by a physician who is trained in sanitary sciences.

Personal.—Dr. Alexander D. Macdonald, Kalispell, representative from Flathead County in the legislature and speaker of the thirteenth assembly for the last three sessions, was appointed superintendent of the State Tuberculosis Sanatorium, Galen, April 3, succeeding Dr. Thomas D. Tuttle.—Dr. Wimon W. Andrus, Miles City, has been appointed a member of the State Board of Medical Examiners to succeed himself.

Hospital Notes.—Physicians of Glendive are urging the establishment of a municipal hospital in that city, as the Northern Pacific Hospital is able to care only for employees except in cases of absolute emergency.—The committee which has in charge the raising of funds for the construction of an addition to the Custer County Hospital has already obtained promises of nearly \$30,000. The plans call for a building two stories and an attic in height, 70 by 80 feet, of pressed brick, with ten rooms for private patients on the first and the second floors and nine private rooms on the third floor.—The Terry Hospital has been completed and was formally opened March 19. The entire second floor of the building is used for hospital purposes.

NEBRASKA

Tuberculosis Clinic Organized.—The Sioux Tubercular Tent Clinic has been organized at Harrison with a capital stock of \$10,000.

Personal.—Dr. John R. Nilsson, Omaha, who was operated on at Rochester, Minn., for the removal of gallstones recently, is reported to be improving.—The office of Dr. John R. C. Carter, Ainsworth, was destroyed by fire, March 17.

New Teaching Hospital.—The state legislature is reported to have passed a bill appropriating \$150,000 for a new hospital to be erected on the campus of the University of Nebraska College of Medicine, Omaha. This hospital will be under the full control of the medical school as a teaching institution.

NEW HAMPSHIRE

Personal.—Dr. Charles P. Bancroft, Concord, who was removed from office as superintendent of the State Hospital, Concord, by the board of control, was reappointed April 15, as the charges made against him were shown to be unfounded.—The residence of Dr. Edwin M. Parker, Reeds Ferry, was burned April 9.

The New Practice Act.—It is reported that a new medical practice act, just secured in New Hampshire, raises the standard of preliminary education to two years in a registered college of liberal arts, and that this act takes effect for

medical graduates of 1919 and thereafter. It also provides for a single board of medical examiners.

NEW JERSEY

Personal.—Dr. Frederick S. Hammond, Trenton, of the staff of the New Jersey State Hospital, who has been seriously ill with meningitis, is reported to be improving. —Dr. Joseph F. X. Stack has been appointed commissioner of health of Hoboken.

Smallpox at Millville.—D. C. Bowen, chief sanitary inspector of the New Jersey State Board of Health, is investigating the cause of the epidemic at Millville. Two more cases in light form were reported March 30, and the authorities of the state board expect the disease will be stamped out in two or three weeks.

New Medical Practice Act.—New Jersey has a new medical practice act which provides that all applicants for license to practice medicine after July 1, 1919, must have had in addition to a four-year high school education, at least one year of collegiate work, including courses in physics, chemistry, biology and French or German. After July 1, 1920, all candidates must have completed two years of collegiate work, including the courses mentioned. The law also requires that after July 1, 1916, each candidate after graduating from a medical school must have served at least one year as an intern in a hospital approved by the licensing board.

NEW YORK

Whole-Time Health Officer.—By a vote of 130 to 4, the assembly on April 8, passed the Hinman bill which requires that the state health commissioner and the directors of the divisions under him, give their entire time to the duties of their office.

Dr. Ordway Accepts Deanship.—An authentic statement says that Dr. Thomas Ordway of the Harvard Medical School has accepted the deanship of the Albany Medical College. Dr. Ordway was formerly professor of pathology in the medical school of which he now becomes dean.

Office of Coroner Abolished.—Governor Whitman signed the Stoddard bill, abolishing the office of coroner in New York City, on April 14. The terms of the present coroners will expire on Jan. 1, 1918, and the bill will go into effect at that time. The duties of the office are to be transferred to a chief medical examiner to be appointed by the mayor. The examiner will name his assistants who will do the work now performed by the coroners.

Single Head for State Hospitals.—The senate has passed the Sage bill legislating out of office the present state hospital commission, and providing for a single state hospital commissioner at a salary of \$10,000 per year. The commission cannot be abolished because it is a constitutional office, but the bill provides that it shall have power only to visit the state institutions, having no hand in their management or supervision.

Personal.—Dr. Mason R. Pratt, superintendent of the Hospital of the Good Shepherd, Syracuse, recently appointed superintendent of the Hebrew General Hospital, Baltimore, and began service there April 20. —Dr. Henry J. Hunter has been elected president, Dr. Frank B. Conterman, secretary, and Dr. Harry H. Halliwell, chairman of the executive committee of the medical board of Ilion Hospital. —Dr. Charles F. Wiley, Syracuse, has been committed to the Psychopathic Hospital.

Attempt to Amend Public Health Law.—Assemblyman Hinman has introduced five bills into the legislature radically amending the public health law. Three of these amendments have to do with abolishing the duties and functions of the public health council; a fourth reduces the number of sanitary supervisors to ten, cuts the salaries from \$3,000 to \$2,500, and makes the establishment of their districts discretionary instead of mandatory. Similarly the bill makes discretionary the establishment of the divisions of the department, namely, those of child hygiene, public health, nursing, tuberculosis, vital statistics, communicable diseases, administration, health education, sanitary engineering and laboratories and research. The health commissioner is empowered to eliminate or combine any of these divisions. The fifth bill requires the health commissioner to devote all of his time to the work of his office. The passage of these amendments would, it is claimed, overthrow all the constructive work of present public health administration which has been so effective but which has been in operation too short a time to fully demonstrate its possibilities in bettering the health

of the people. Prominent members of the medical profession are voicing a vigorous protest against these reactionary measures.

State Society Meeting.—The one-hundred-and-ninth annual meeting of the Medical Society of the State of New York, to be held in Buffalo, April 26 to 29, does not confine its benefits to physicians, but offers entertainment and instruction to the public as well. Invitations have been extended to the people of Buffalo to visit the exhibition hall in the Sixty-Fifth Regiment Armory, and to attend a course of popular symposiums on matters of common interest to both physicians and laymen. These symposiums are on "Public Health," "Child Saving," "Child Welfare," "Mentality of the Child," "Safety First," "Prevention of Blindness" and "Conservation of Vision." In addition to these lectures, there will be exhibitions of moving pictures illustrating various phases of public health work. The scientific work of the society is comprised in six sections—medicine, surgery, obstetrics and gynecology, pediatrics, eye, ear, nose and throat, and syphilis. The entertainments provided include the inspection of the State Institute for the Study of Malignant Diseases, a reception and military review in honor of Major-General William C. Gorgas, Surgeon-General, U. S. A., automobile trips, and trips to Niagara Falls by train and trolley. A reception will be given Miss Julia C. Lathrop, chief of the Children's Bureau, U. S. Department of Labor, on April 27, in the reception room of the Armory, and the annual banquet will be held at the Hotel Statler on April 28.

New York City

Regulations Against Crowded Cars Successful.—The New York Railway Company, the Third Avenue Company and the surface lines on Staten Island have accepted the regulations against overcrowding on their cars and it is believed that it will be only a question of time when the spectacle of a closed trolley car "jammed to the doors" will be a forgotten barbarity. In the words of the *New York World* "The quiet effectiveness with which this change has been brought about continues to amaze New Yorkers. What the public service commission ought to have done, but failed to do, the department of health has done."

Personal.—Dr. James F. Percy, Galesburg, Ill., read a paper before the New York Academy of Medicine, April 15, on "Technic of Applying Heat in the Treatment of Inoperable Carcinoma of the Uterus," and demonstrated his technic at the General Memorial Hospital on the same afternoon. —Dr. Hermann Grad has been appointed attending surgeon of the Woman's Hospital in the State of New York. —Dr. Daniel B. Brinsmade has been elected a member of the Polhemus Memorial Clinic Corporation in place of Dr. Joseph H. Raymond, deceased, and subsequently he was elected a member of the board of directors of the clinic and its secretary.

Drug Habitues Seek Relief.—The effect of the Boylan antidrug law, which went into effect April 1, and of the federal Harrison law, together with the activities of the police department, by depriving drug users of their accustomed drugs is driving many of them to seek relief in institutions. It is reported that since April 1 there have been from 30 to 40 applicants a day at the Metropolitan Hospital, in addition to those cared for in other institutions. The finance committee of the board of aldermen has approved an appropriation of \$9,000 for the care of "cured" drug victims at the inebriate farm at Warwick. It is proposed to establish a tent colony which will care for 100 convalescents.

PENNSYLVANIA

Philadelphia

To Guard Port Against Typhus.—The state and federal authorities are taking a precaution at this point to prevent the entering of any persons to the United States who have been exposed to typhus fever. Senior Surg. Fairfax Irwin, U. S. P. H. S., and State Quarantine Officer Heller are making an extra inspection of vessels since the contagion appeared in Serbia.

Personal.—Dr. David L. Edsall of Harvard University delivered the annual address of the Pathological Society of Philadelphia, April 22, at the College of Physicians. The subject was the "Bearings of Industry Upon Medicine." —Dr. J. Solis Cohen has presented to the Philadelphia Laryngological Society his extensive library of magazines and a complete set of his reprints, dating from 1874 to his last article. The library will henceforth be known as "The J. Solis Cohen Foundation."

For Doctors Building.—The Philadelphia County Medical Society has taken an option on the "Jayne property" at Nineteenth and Chestnut streets, where it is planning to erect a 12-story office building at an approximate cost of \$1,500,000. The membership of this society has increased to rapidly that it has been found necessary to provide an auditorium that will accommodate 1,500 persons. Offices for physicians and dentists will also be provided for. The president of the County Medical Society, Dr. Edward E. Montgomery, recently appointed a committee on the home for the Philadelphia County Medical Society as follows: Dr. James M. Anders, chairman; Drs. Henry W. Cattell, Joseph Sailer, William D. Robinson, Isidor P. Strittmatter and Levi J. Hammond.

Medical Institutions Notes.—Work has been started on a four-story maternity for the University of Pennsylvania, to be built on the south side of Spruce street opposite Thirty-Sixth street, and to cost \$130,000.—The Polyclinic and Philadelphia general hospitals have accepted women as interns. Dr. Ricka S. Finkler of Russia, a graduate of the University of St. Petersburg, has been appointed an intern at the Polyclinic Hospital. Drs. Marion H. Rea and Maud Kinnaman have been appointed to the Philadelphia General. These women are graduates of the Woman's Medical College of Pennsylvania.—The new dispensary building at Girard and Corinthian avenues for the German Hospital, for the erection of which a contract has been awarded, will be one story high, of steel and concrete, 52 by 84 feet, and will cost \$25,000.

A Greater Chamber of Commerce.—Members of the medical profession are taking a very active part in the movement to create a greater chamber of commerce in this city, a chamber that will unite in one powerful central organization all the business and professional men of the city and the medical committee includes: Drs. William A. Pearson, William M. L. Coplin, Edward E. Montgomery, S. Lewis Ziegler, Jay F. Schamberg, L. Webster Fox, Seneca Egbert, Charles H. Frazier, George E. Pfahler, Francis D. Patterson, Robert N. Downs, Jr., Charles A. E. Codman and James M. Anders, chairman. The plan of organization for the new chamber provides for eight separate bureaus, each of which will be of special interest to the physician: The industrial bureau, an active agency for the study and prevention of occupational diseases; the bureau of legislation to secure the passage of bills at Harrisburg to preserve the health and promote the welfare of citizens; the charity bureau to secure complete and accurate information in regard to the hospitals and other philanthropic agencies in Philadelphia, so that the chamber may assist in financing those worthy of support and prevent the great waste of time and money that now results from duplication of work; and also a civic bureau, to be a powerful factor in creating public opinion in favor of public health measures.

TENNESSEE

New Laboratory for Vanderbilt.—Plans and specifications for the laboratory building to be erected by Vanderbilt University at a cost of \$250,000 have been filed in the Nashville bill of exchange.—Bids have been asked for the construction of a medical section of Vanderbilt University, which is to cost \$350,000.

Addition to Sanatorium.—Contracts amounting to nearly \$40,000 were awarded March 31 by the tuberculosis commission of Nashville and Davidson counties for erection of an addition to the tuberculosis sanatorium. The new building will accommodate sixty patients and will thus double the capacity of the institution.

New Medical Practice Act.—A new medical practice act has been secured in Tennessee which provides that not only must candidates hereafter be graduates from medical colleges, but also that those graduating in 1919 and thereafter, must have had a preliminary education of at least one year of collegiate work in addition to a four-year high school course.

Personal.—Dr. James L. Andrews, Memphis, has been appointed superintendent of the Health Department of Memphis, succeeding Dr. John C. Bell, resigned.—Dr. S. H. Hodge, Knoxville, who has been on duty with the American National Red Cross in Serbia and who has been ill in a hospital in Salonica, is convalescent, has resigned from the Red Cross service and will return to the United States.—Dr. John R. Rathmell, Chattanooga, who has been ill for a long while, is reported to be improving.

Cooperation Between Physicians and Druggists.—At the last meeting of the Memphis and Shelby County Medical Association in Memphis, a resolution was adopted "That the

Memphis and Shelby County Medical Association go on record as being opposed to the long established custom of writing prescriptions on blanks advertising any firm and request all their members not to use such blanks, regulation blanks being obtainable from any druggist." The prescription blank in question bears at its top, the model, "Better Fellowship at Any Price"; below, the heading Memphis Drug Club; a blank for the name and address of the patient, the blank for prescription and at the bottom the register number, date, name and address of the physician and the legend, "This Prescription Cannot be Refilled."

TEXAS

Physician Gains Suit.—In the damage suit of Ed P. Clay against Dr. Bacon Saunders, Fort Worth, in the forty-eighth district court, the judge gave peremptory instructions to the jury to return a verdict in favor of Dr. Saunders as the testimony showed that the defendant had not only used ordinary professional skill as is required by law, but had used extraordinary skill in the case in question.

State Medical Society Meeting.—The annual meeting of the State Medical Association of Texas in Fort Worth, May 4 to 6, will be preceded by a public meeting on May 3, at which Assistant Surgeon-General William Colby Rucker, U. S. P. H. S., will deliver an address on "Bubonic Plague and Its Relation to Public Health." The annual memorial services will be held May 4, under the direction of Dr. Marquis E. Gilmore, Fort Worth, the eulogy on the deceased members being pronounced by Dr. Charles M. Rosser, Dallas.

Quarantine Orders Issued.—The governor has issued a proclamation relating to foot and mouth disease which became effective April 15, modifying previous orders. The modification permits the shipment of cattle and other live stock into Texas from New Mexico, Arizona and Colorado, and permits under restrictions the shipment of horses, mules, jacks and jennets from Oklahoma to Texas and lifts the embargo on the shipment of hay, straw and fodder, providing the shipments from New Mexico, Arizona and Colorado shall first have been disinfected.

Personal.—Dr. Thomas V. Fryar, Dallas, has been appointed chief surgeon of the Texas National Guard, succeeding Lieut.-Col. Alvis B. Kennedy, Bonham, retired.—An ambulance company has been organized at Fort Worth in command of Major John J. O'Reilly.—Lieut. Edgar W. Loomis, Dallas, has been assigned to duty with Battery A, in that city.—Dr. J. W. Falvey, Long View, fractured his right arm, April 3, while cranking his motor car.—Dr. Beverly T. Young, San Antonio, has been appointed superintendent of the Southwestern State Insane Hospital, in that city, vice Dr. Frank S. White, and assumed his duties April 3.

WISCONSIN

Personal.—Dr. George H. Williamson, Neenah, has been appointed local surgeon for the Northwestern System.—Dr. Charles E. Lauder, Viroqua, is convalescent after an attack of ptomain poisoning.—Dr. Frederick C. Werner, Watertown, has been appointed deputy revenue collector under the Harrison anti-narcotic law.—Dr. Robert L. Williams, Milwaukee, has resigned as a member of the staff of the Emergency Hospital to become first assistant in the State Tuberculosis Sanatorium, Wales.—Dr. John R. Currens has been elected mayor of Two Rivers.—Dr. Albert J. Pullen has been unanimously reelected president of the village of North Fond du Lac.

Discussion of Quarantine and Fumigation Methods.—At a recent meeting of the Milwaukee County Medical Society Health Commissioner George C. Ruhland decried the present method of formaldehyd fumigation of houses after infectious diseases, which he said was an obsolete procedure and unnecessary. This precipitated a discussion of present state quarantine regulations, during which Dr. Patrick H. McGovern declared that present quarantine methods in infectious diseases work a great hardship on poor families, where the bread-winner is kept from work or compelled to quarter himself elsewhere during the quarantine, at an expense which he cannot afford. He advocated room quarantine, with freedom for other members of the family. This position was supported by other members. Dr. Leopold Schiller, however, dissented. He said this plan would work among intelligent and well-to-do people with plenty of house room, but would be impossible to enforce among many working people living under poor housing conditions, and among those who refused to send patients to the hospitals the entire families would have to be quarantined.

GENERAL

Willard Gibbs Medal Awarded.—The Willard Gibbs Medal was awarded April 16, by the Chicago Section of the American Chemical Society, to Arthur A. Noyes, director of the Research Laboratory of the National Institute of Technology. The presentation address was made by Prof. Julius Steiglitz of the University of Chicago and Dr. Noyes spoke on the work to which he has devoted the last twenty years of his life in the development of a new system of qualitative chemical analysis including nearly all of the metallic elements.

For Study of Animal Diseases.—The Rockefeller Foundation has announced that it will begin work soon on the construction of a plant near Princeton, N. J., the cost of which will be about \$1,000,000, for the study of animal diseases. The foundation has purchased 480 acres east of Lake Carnegie on which will be erected a completely equipped laboratory for the study of bacteriology in its relation to animal diseases. A bill passed the legislature recently giving to the State Board of Health, the power to grant to regularly incorporated colleges, universities and philanthropic institutions in New Jersey, permission to make experiments on animals under certain specified restrictions.

Medical Meetings at the Panama-Pacific Exposition.—The various societies, listed to hold their regular medical conventions and congresses in connection with the exposition, are as follows: Pacific Coast Oto-Ophthalmological Society, sessions June 14, 15, 16; American Society of Tropical Medicine, sessions June 14, 15, 16; American Association Medical Milk Commissions, sessions June 17, 18, 19; Pan-American Medical Congress, sessions June 17, 18, 19; American Climatological and Clinical Association, sessions June 18, 19; American College of Surgeons, session June 21; Medical Society of the State of California, session June 21; American Proctologic Society, sessions June 21, 22; American Therapeutic Society, sessions June 21, 22; American Hospital Association, sessions June 21, 22, 23, 24, 25; AMERICAN MEDICAL ASSOCIATION, June 21, 22, 23, 24, 25, 26; American School Hygiene Association, June 25, 26; American Academy of Medicine, June 25, 26, 27, 28.

Warning.—Dr. Walter F. Rochelle, Jackson, Tenn., calls the attention of THE JOURNAL to the fact that a subscription swindler is operating in that district offering subscriptions to current magazines with medical books as premiums. The physicians pay cash in advance and obtain a beautifully embossed green receipt, but the books and magazines are never received. This particular subscription swindle has been previously described in THE JOURNAL.

We have also warned against certain subscription swindlers in Pennsylvania, who have now extended their work to Ohio, and who solicit subscriptions to current periodicals, including medical journals, and claim they are working for scholarships in various universities and colleges. Among the names reported to us are: George B. Watson, E. B. Huntington and F. L. Daley. Reference should be made to the editorial "Is the Physician an Easy Mark?" published in THE JOURNAL for April 10, 1915, p. 1247.

Bequests and Donations.—The following bequests and donations have recently been announced:

Hartford (Conn.) Hospital, \$1,000, the income of which is to be awarded annually as a prize to the member of the graduating class of the Training School for Nurses who attains the highest standing; \$1,000, the income of which is to be used to supply delicacies for patients of the Hartford Hospital; \$500 for the construction and care of recreation facilities of the Training School for Nurses; Connecticut Children's Aid Society \$1,000 for the Virginia T. Smith Home, Newington; Charter Oak Private Hospital, \$1,000, to be invested for the benefit of patients; Connecticut Medical Society, \$1,000, the income of which is to be used for payment of dues for members unable to pay them; Connecticut Institute for the Blind, \$1,000; St. Francis' Hospital and the Babies' Hospital, Hartford, each \$500, by the will of Dr. Oliver C. Smith, Hartford.

St. Luke's Hospital and House of Rest for Consumptives, New York City, each \$7,500; Association for Improving the Condition of the Poor, Hospital for the Ruptured and Crippled, New York City, and Mary Hitchcock Hospital, Hanover, N. H., each \$5,000, and Edgewater Crèche, Fort Lee, N. J., \$1,000, by the will of Miss Anna E. Smith, New York, City.

William T. Bull fund for surgical research, Columbia University, New York City, \$4,000, from an anonymous donor.

Johns Hopkins' University, \$50,000 in the shares of a Maryland corporation, subject to the obligation to pay to the giver the income, during the donor's life, from an anonymous donor.

University of Pennsylvania Hospital, \$1,000 for the maintenance, housing and enlargement of the Social Service Branch of the Out-Patient Department, by the will of Matheus D. Colton.

Medical College of South Carolina, Charleston, \$1,000, by the will of Mrs. Salina Huger.

Michigan State Board of Health, \$1,000, toward the antituberculosis fund, donated by Dr. John H. Kellogg, Battle Creek.

Associated Jewish Charities of Chicago, \$3,000; Michael Reese Hospital, Chicago, \$1,000, by the will of Mrs. Julius Rosenthal.

Addison Gilbert Hospital, Gloucester, Mass., \$115,000, by the will of Rev. Jeremiah J. Healy.

Eastern Maine General Hospital, Bangor, \$80,000, by the will of Hiram P. Oliver, Bangor.

Cambridge, (Mass.) Hospital, \$3,000, by the will of James J. Myers.

Malden (Mass.) Hospital, \$2,500, by the will of Catherine Brown, Malden.

New York Polyclinic Medical School and Hospital, \$50,000, for the endowment fund, by the will of Mrs. Anna Palmer Draper, and a donation of \$10,000 from a trustee of the institution.

Hudson City Hospital, Hudson, N. Y., \$25,000; Long Island College Hospital, Brooklyn, \$75,000; House of St. Giles the Cripple, New York, \$30,000, and Providence Hospital, Washington, D. C., \$15,000, by the will of Mrs. Katherine Spencer Leavitt.

FOREIGN

Plague in Havana.—Under date of April 10 two cases of bubonic plague, with one death, are reported from Havana to the United States Public Health Service. The official bacteriologist of the Cuban government has been placed in charge of the situation.

Lectures Property of the Lecturer.—The court of appeals at Rome, Italy, has recently decided a case in a manner which harmonizes with a recent decision along the same lines in this country. It stated that notes or stenographic reports made of oral lectures cannot be reproduced and sold, not even among the limited public of the students, without the consent of the lecturer.

Monument to Lombroso.—The monument to be erected to Cesare Lombroso at Verona is the work of the sculptor Bistolfi. According to the *Policlinico*, it was to have been unveiled at the International Pellagra Congress scheduled for next October. As the congress has been postponed until 1916, the committee in charge of the monument has postponed the completion of the memorial until October, 1916. The funds for the monument were obtained by subscriptions from scientists the world around. Prof. L. Bianchi of Verona is at the head of the committee in charge.

Epidemics in Serbia.—The *Policlinico* of March 28 quotes from an article by Dr. J. Batut in a Nish paper to the effect that on the date of March 4 there were 12,000 soldiers down with epidemic diseases, including 4,157 with typhus. At the beginning of the war Serbia had 550 physicians and 65 have died since, including 43 from typhus. Fully 75 per cent. have died of all the medical men who have contracted epidemic disease there. The leader of the Holland Red Cross, who has just returned from Serbia, states that twenty-three physicians from other countries have also succumbed in Serbia to epidemic disease.

Roentgen's Seventieth Birthday.—On March 27, 1915, Prof. W. K. Roentgen's seventieth birthday was celebrated quietly by his friends, instead of the world-wide tribute that had been planned before the war broke out. His great discovery was made in 1895, while he was professor of physics at the University of Würzburg. He noticed that a fluorescent substance became luminous in the dark when it happened to be near a vacuum Hittorf tube wrapped in opaque black paper. After he had published his announcements in regard to the mysterious ray which penetrates substances proportionally to their atomic weight, he left the further research on the rays to others, and research workers of all nations have contributed to the physical, technical and medical progress in this line. Honors have been heaped on him, but, as an exchange remarks, "he disdained to exploit his discovery for his own pecuniary benefit." He has no children and his wife at present is on a sick bed. Since 1900 he has made his home at Munich, where he leads the quiet life of a professor and scientist. Unfortunately the medical profession cannot claim him.

Typhus in Serbia.—Dr. M. P. Lane of New Orleans, a Red Cross physician sent with a contingent of six doctors and twelve nurses to Serbia since the beginning of the war, who arrived in New York April 11, reports that all but four of the doctors and nurses have contracted typhus fever, Dr. Ernest P. Magruder of Washington, head of the contingent having died of the disease. Dr. Lane himself was a victim, and together with two nurses, who also contracted the disease, he was ordered home. Dr. Lane says that they found the country in the grip of recurrent fever with a high fatality and following that came typhus. Deaths were so numerous that in order to dispose of the bodies cremation was resorted to. In one day during the second week in February 450 deaths were reported from typhus in the city of Nish alone. —George Macaulay Trevelyan, an English writer lecturing in Boston, says that through the efforts of the American and English physicians, typhus in Serbia is being checked. He has recently come from that country. Many of the

physicians who have gone to fight the disease have been attacked by it and a number of foreign physicians and nurses have died. The Serbians are grateful to the United States for their efforts to alleviate the situation. Miss E. Simmonds, a nurse from New York, who has been in the typhus stricken region, cables that help is urgently needed, especially physicians and nurses with hospital isolation equipment and disinfectors for clothing. Among the other supplies urgently needed are male catheters, test glasses, rubber gloves of assorted sizes, stethoscopes, artery forceps, scalpels, surgical saws, chloroform masks, physicians' gowns, thermometers, urinals, bedpans, sputum cups, syringes for antitoxin injections, needles, rubber rings, rubber sheeting and tooth forceps. All supplies should be sent to the American Red Cross, Bush Terminal, Brooklyn, N. Y., marked for Serbia.

WAR NOTES

Higher Pay for Surgeons.—The British war office announces that it has decided to promote all lieutenants in the Medical Corps to the rank of captain, with corresponding increase in pay, allowance and pension.

Hungarians Render Thanks.—The president of the Hungarian Red Cross has received official acknowledgment of, and warm thanks for, a recent contribution of \$5,000, which has been applied to the needs of the American Red Cross Hospital in Budapest, Hungary.

Typhus in Montenegro.—An appeal has been made to the American Red Cross by the Montenegrin government for aid in coping with the typhus epidemic in that country. There is said to be a great dearth of doctors and medicine, and the governor begs the American Red Cross to send a mission with adequate supplies to Cettingje.

Ambulance Relief Corps for France.—The American Ambulance Hospital, Paris, has cabled its approval of the offer of Dartmouth College to place an American relief corps in the north of France. The plan is to affiliate the Dartmouth Ambulance Corps with the American Ambulance Hospital, Paris. Two men will be sent with each ambulance.

Contributions to War Relief Fund.—Among the larger contributions to the European war relief fund to the American Red Cross is a check for \$1,135 from the Temporary Panama-Pacific Exposition Building Commission of Nebraska. The commission decided to abandon the plans to erect a Nebraska building at the exposition and voted to devote the money in its treasury to European relief work.

Bath Trains.—The Austro-Hungarian government has provided a train for bathing and sterilizing facilities, and three more are planned. The *Münchener medizinische Wochenschrift* states that the train has two cars with thirty bath tubs each, two tank cars to supply the water, two locomotives to draw the train and supply the hot water, one car for undressing, two cars for dressing, four freight cars with clean linen, etc., a sleeping car for the personnel of the train and two or three cars for the disinfection of the clothing. The arrangements permit 1,200 men in the course of ten hours to take a shower bath and have all their clothing thoroughly sterilized.

Will Fight Typhus in Serbia.—Following Dr. Richard P. Strong of Harvard University, director of the American Sanitary Commission, who sailed for South Europe March 25, the majority of the commission started their journey on April 4 on the Italian Mail Steamer *Duca d'Aosta* for Naples. The commission has been selected by, and is under the direction of, the American Red Cross and has for its main purpose the checking of the plague of typhus fever, which has had firm grasp in Serbia and Austria and which threatened to spread through the European war area. The commission also expects to find much cholera. The American Red Cross and Rockefeller Foundation have each contributed \$25,000 toward the initial expenses of the enterprise, and the Serbian Relief Commission is cooperating in the raising of additional funds. More than \$30,000 worth of sanitary supplies have been shipped to Dr. Strong at Saloniki, Greece. In these shipments are about 54 tons of sulphur, about \$5,000 worth of cholera bacterin, large quantities of alcohol, kerosene, soap, mercuric chlorid, potassium permanganate, formaldehyd, mercurial ointment, many spray pumps, dutch oven and kettle for boiling cloths.

More Aid for Belgium.—On the American Line Steamer *St. Louis* six American Red Cross surgeons and twenty-four trained nurses sailed from New York April 18 for La Panné, Belgium, to be attached to the Belgian Red Cross

for six months' service under Surgeon-General Dr. Depage, who is director of Red Cross work. These two units will be stationed at Hospital L'Océan, La Panne. The medical men attached to the units are: First unit—Director, Dr. Albert Rotild Goodman, New York City, formerly chief surgeon of the National Railways of Mexico; first assistant, Dr. William H. Morriss, Baltimore, and second assistant, Dr. John D. Spelman, Cincinnati, Lieut., M. C., Ohio N. G. Second unit—Director, Dr. Robert W. Hinds, Buffalo, N. Y., who has been on duty since the outbreak of the war at the Women's War Relief Hospital, Paignton, England; first assistant, Dr. William T. Fitzsimons, New York City, also a member of the staff of the hospital at Paignton, and second assistant, Dr. Earl V. Morrow, Marshfield, Ore.—Dr. James E. Daniel, Greenville, S. C., sailed for England on the *St. Louis* April 18 for duty as second assistant surgeon in the Women's War Relief Hospital, Paignton, England.

Aid for Belgian Physicians.—The report of the treasurer of the committee of American physicians for the aid of the Belgian profession, for the week ending April 17, 1915, lists the following contributions:

Fort Wayne Medical Society, Fort Wayne, Ind.....	\$ 25.00
Ramsey County Medical Society, St. Paul, Minn.....	25.00
The New Castle Physicians Club, New Castle, Pa.....	10.00
The Harrison Co. Medical Society, Gulfport, Miss.....	25.00
The Cumberland Co. Medical Society, Portland, Me.....	25.00
The Waterbury Medical Association, Waterbury, Conn.....	13.00
Dr. William T. Hamilton, Philadelphia, Pa.....	5.00
Dr. Charles Alfred Dukes, Oakland, Cal.....	5.00
Dr. P. St. L. Moncure, Norfolk, Va.....	5.00
Dr. R. T. Stratton, Oakland, Cal.....	5.00
Dr. R. J. E. Scott, New York, N. Y.....	5.00
Dr. W. C. Cahall, Germantown, Pa.....	2.75
Dr. Richard Dewey, Wauwatosa, Wis.....	10.00
Dr. E. H. Ruediger, Manila, P. I.....	10.00
Dr. Lucretius H. Ross, Bennington, Vt.....	10.00
Mr. A. W. Burnham, Pittsburgh, Pa.....	5.00

Receipts for week ending April 17.....\$ 185.75
Previously reported receipts.....6,138.75

Total receipts.....\$ 6,324.50

Disbursements for week ending April 17:

80 standard boxes of food @ \$2.30.....\$ 184.00
Previously reported disbursements:
1,625 standard boxes of food @ \$2.20.....\$3,575.00
1,114 standard boxes of food @ 2.30.....2,562.20

Total disbursements.....\$ 6,321.20

Balance\$ 3.30

F. F. SIMPSON, M.D., Treasurer,
5 Jenkins Arcade Bldg., Pittsburgh, Pa.

Red Cross Quarterly Statement.—The quarterly statement of the American Red Cross gives the summary of its work from Aug. 1, 1914, to April 8, 1915. During this time the personnel sent to Europe consisted of 63 surgeons, 217 nurses and 12 members of a sanitary commission, a total of 292. This personnel is in charge of hospitals as follows: Two English units at the American Women's Hospital, Paignton, England; two French units at the hospital at Pau, France, and one French unit at the Alliance Hospital, Yvetot, France; two Russian units at the hospital at Kief, Russia; two German units at the hospitals at Gleichwitz and Kossel; two Austro-Hungarian units in hospitals at Vienna and Budapest; three Serbian units in hospitals at Belgrade; two Belgian units under the orders of Dr. Depage of the Belgian Red Cross. Three more surgeons and eight nurses are to be sent to the field hospital in France under the British Red Cross on May 1. Four more nurses have been requested for the units in Germany. The hospital at Yvetot, France, has asked for two additional surgeons and seven nurses.—Of the six surgeons and twelve nurses of the Serbian units Nos. 2 and 3, five surgeons and nine nurses have been ill with typhus fever, two cases having terminated fatally.—Dr. Ryan and one or two of the nurses of Serbian unit No. 1 have also been ill with the disease.—The funds received by the American Red Cross during this time were \$1,415,032, with disbursement of \$1,243,189, the chief items of which were funds transmitted for the aid of the work abroad, supplies purchased, salaries of surgeons and nurses and maintenance of the personnel. Funds have been transmitted to aid in the maintenance of the work of the American Ambulance, Paris; the American Women's Hospital at Paignton, the American Red Cross Hospital at Munich, the hospitals at Gleichwitz and Kossel, Germany, Vienna and Budapest; the Alliance Hospital, Yvetot, France; hospital at Kief, Russia; the American Relief Clearing House, Paris; the Prisoners' Bureau of the International Committee of Geneva, Belgian Relief in Holland, the Red Cross of the Netherlands, the British, French and American hospitals in Turkey, English hospital at Smyrna, hospital and relief work Beirut, Jewish relief work in Palestine, refugees' relief

in Tabriz, Prussia; Austrian and German prisoners in Siberia and the British Red Cross Intelligence Department. The American Red Cross asks for further generous contributions to maintain their humanitarian service.

CANADA

Alberta Offers Hospital.—The senate of the University of Alberta is offering the Canadian Militia Department a general hospital of 250 beds for overseas service.

The McGill Hospital Work.—On April 8 the McGill General Hospital officers mess entertained Col. E. W. Wilson and the divisional staff at dinner at the new headquarters in Montreal. Lieut. Col. H. L. Birkett presided.—The members of the nursing staff of the hospital, seventy-three in number, have finished their military training at the Quebec City Hospital and are awaiting mobilization orders.

Banquet to Toronto Physicians.—On April 8 a banquet was given in honor of Lieut. Col. P. Walter H. McKeown and Major John A. Amyot, both of whom are on the staff of the University of Toronto Base Hospital, at which about 150 of their friends were present. Dr. Dugald S. MacDougall presided and Dr. Gideon Silverhorn on behalf of those present presented the guests of honor with gold wrist watches.

Personal.—Dr. George S. Strathy, Toronto, left April 15 with the Clearing Hospital of the second Canadian Overseas Contingent.—Captain John J. Ower, Montreal, is bacteriologist at No. 2 Canadian Stationary Hospital at Le Touquet, France.—Dr. Charles E. Doherty, superintendent of the Hospital for the Insane at New Westminster, B. C., who went to England with the first Canadian Contingent, has been appointed chief administrative officer of the Canadian Medical Service.—Dr. John R. M. Collie, Pictou, N. S., is medical officer of H. M. S. *Superb*.—Dr. Robert A. Bowie of Brockville, Ont., who went to England in December is to be attached to one of the hospitals in France.—Dr. Herbert E. Clutterbuck, Toronto, who was doing graduate work in England when the war broke out, and who joined the British army, has been appointed chief surgeon of No. 13 Base Hospital, Boulogne.—Dr. James P. Rankin, Stratford, Ont., has been nominated by the Liberals to contest the election for the House of Commons, in the riding of North Perth.—Dr. John F. Uren, Toronto, who recently underwent operation for appendicitis, has returned fully recovered.—Maj. Frank S. Patch, Montreal, has been appointed acting assistant director of medical services of the Montreal Military Division.

PARIS LETTER

PARIS, April 1, 1915.

The War

THE WAR AND PUBLIC HYGIENE

During the last session of the Conseil supérieur d'hygiène publique de France, M. Brisac, director of public hygiene under the interior department, reviewed the general condition of the public health since the beginning of hostilities, which appears, on the whole, to be satisfactory. In particular he explained to the council the arrangements made by the minister of the interior for the safeguarding of hygiene in the regions where operations of war are going on. These arrangements pertain, on the one hand, to the sanitation of the battlefields and, on the other, to the reconstruction under the best hygienic conditions possible of the buildings which have been destroyed and the towns which have been devastated. The minister of the interior has planned or organized various institutions to meet present necessities. Thus an institution for the reception and education of those who have been blinded through the war is today an accomplished fact. Schools for cripples are being organized and efforts are being made to solve, as soon as possible, the problem of those who contract tuberculosis in the war.

THE AMERICAN HOSPITAL AT NEUILLY

The newspaper *Le Temps* has just published a very eulogistic article on the American hospital at Neuilly. After describing the remarkable organization of this establishment, which may be considered "a model military hospital," the author writes: "Surprise will no doubt be felt that I do not name any of the generous organizers of this institution or of their scientific collaborators. This is in accordance with their own earnest request. They wish the enterprise to remain impersonal; it is sufficient that it is American. It maintains the traditions of the American ambulance service founded in Paris during the war of 1870."

AMPUTATION OF AN IMPORTANT PORTION OF THE BRAIN

Dr. A. Guépin, surgeon of the Péan hospital, made a report before the Académie des Sciences, March 22, on the case of a soldier who had a penetrating wound in the occipital region from which Dr. Guépin was obliged last February to extract fragments which had been driven into the left cerebral hemisphere and had caused a voluminous abscess. Twice Guépin was obliged by new abscesses to amputate a portion of brain which made a hernia outside the wound. The wounded man thus lost at least a third of his left hemisphere, yet he presented no marked trouble of motility, sensibility or even of ideation, as might have been expected from the importance of the cerebral regions destroyed.

HONOR TO THE COURAGEOUS CONDUCT OF A PHYSICIAN IN CIVIL LIFE

It would be impossible to give here the long list of military physicians who have been mentioned in army orders of the day because of distinguished actions. The government has also instituted "civil citations" for making known to the country the courageous and devoted deeds of civilians. Among these (*THE JOURNAL*, Nov. 28, 1914, p. 1967) was Dr. Langlet, mayor of Reims. More recently the government has mentioned the noble conduct of Dr. Wurtz, physician at Compiègne, department of the Oise, because he "was the sole physician remaining in Compiègne during the German occupation, never ceasing to give the most devoted care to non-military patients and to wounded French and German soldiers, and has rendered most important services."

RAILWAY BATHS

Nature has just published an interesting article on the "railway baths" in the Russian army. During the war in Manchuria, the Russian soldiers suffered physically and morally from the suppression of the practice of steam baths, which, as is well known, are generally used in Russia. Immediately after the Russo-Japanese war, therefore, the Russian government formed a commission of physicians and engineers to solve this problem. During the first three months since the opening of hostilities, it was possible to put into service about thirty trains, which are literally bathing establishments on wheels. Each train is composed of twenty-two cars, of which the two immediately behind the locomotive serve as reservoirs for the steam produced by a supplementary boiler installed on the locomotive. Pipes lead the steam into the following cars. The first car is a dressing room. The men undress there and while they are bathing, their clothing is being cleaned, disinfected and dried in a car for that purpose. Three cars, each of which can accommodate fifty men, come next. Here, in a little alcove, the soldiers take their steam bath followed by a cold douche according to the national custom. They then pass into two cars provided with beds on which they have a right to rest for an hour. Next they pass into two dining cars, where they are given a copious meal of soup, meat and tea. In the last car, they resume possession of their uniforms and other clothing. The other cars of the train are used as kitchens and lodgings for the rather numerous staff, consisting of one commandant, two officers, two doctors, forty nurses, laundresses, cooks, etc. Each train costs about 250,000 francs (\$50,000).

MEASURES AGAINST ALCOHOLISM

The chamber of deputies has passed, by 472 votes against 95, the law limiting the number of licenses for sale of alcoholic drinks. By this new law, the antialcohol associations will have the right to become civil parties in actions brought under it.

The Société de thérapeutique de Paris at its last session unanimously passed resolutions approving any measure for limiting the number of licenses and declaring (1) that the privilege of *bouilleurs de cru* (those who manufacture alcoholic drinks from their own crops) should be suppressed; (2) that every holder of a license for the sale of alcoholic drinks should be prohibited from carrying on concurrently any other business, such as the sale of groceries, tobacco or coal; (3) that a high supplementary tax should be placed on establishments which are open in the evening and also on amusement places, etc., where drink is sold; (4) that holders of licenses should be divided in two classes, (a) those who sell only drinks called hygienic, such as wine, beer and cider, which do not titrate more than the 23 degrees permitted by the Académie de médecine, and (b) those who sell drinks that titrate higher—these should be made to pay a much higher license; (5) that the law with regard to closing once a week

and to night work be strictly applied to places which sell drinks; (6) that infractions of the law against drunkenness and alcoholism be energetically repressed by officers of the law, who may be summoned to do so by the members of the antialcohol societies.

Personal

The Académie de médecine has just received word of the death of two of its correspondents, Drs. Marquez of Hyères and of Dr. Combalat of Marseilles.

Dr. Omer Marquez was born in 1822 at Neuf-Brissac and was physician at Colmar when the war of 1870 broke out. After the annexation he withdrew first to Belfort, then to Hyères.

Dr. Combalat was surgeon of the hospitals of Marseilles for thirty-four years and professor of clinical surgery at the Ecole de plein exercice de médecine et de pharmacie de Marseille for eighteen years.

BERLIN LETTER

BERLIN, March 23, 1915.

Personal

Prof. M. Bernhardt, neurologist, of the Berlin university, died at the age of 70. Almost his whole life was spent in Berlin. In Berlin he studied and took the examination. From here he was called to Königsberg in 1867 through Leyden as assistant at the medical clinic. Two years later he became assistant to Professor Westphal at the nerve clinic of the Berlin Charité. In 1872 he became a member of the faculty and in 1882 was appointed professor extraordinary. His principal works were "Diseases of the Peripheral Nerves" which appeared as part of Nothnagel's collection (special pathology and therapy). A second textbook was his "Compendium of Electrodiagnosis and Electrotherapy." Of his numerous neurologic treatises, we may mention especially the contribution to the "Symptomatology and Diagnosis of Brain Tumors."

Fühner, professor extraordinary of pharmacology at Freiburg, has been appointed as successor of Professor Ellinger, (who is now working at the University of Frankfurt) as director of the pharmacologic institute at Königsberg.

Privat-Docent Dr. Jussuf Ibrahim of Munich has been appointed professor extraordinary for diseases of children at Würzburg. Ibrahim was born in Cairo. His father is the Professor Ibrahim Pasha who was for four years director of the medical college at Cairo. Ibrahim has already attended the school and university at Munich.

Privy Councilor Lentz, director of the imperial health office, has been appointed as the reporting councilor in the medical department of the ministry of the interior, as a successor of Privy Councilor Abel, whose transfer to the Institute of Hygiene at Jena I have already reported.

Meeting of the German Association for Infant Welfare

March 12, there occurred in Berlin a meeting of the German Association for the Protection of Infants which, in spite of the war, was numerously attended. The first address was delivered by the former cabinet councilor of the empress, von Behr-Pinnow, the president of the association, who has performed great service in the founding of the Empress Augusta Victoria-House for the campaign against infant mortality. The speaker, in his address, on securing the perpetuation of the nation, recommended an active campaign among the people by means of legislation and government in which the importance of families for the entire people should be regarded and families with any children should be preferred. As legislative measures, he regards the following as necessary: a housing law, a colonization movement, and national and communal preference for large families. Also in the Krankenkassen legislation, account should be taken of the size of the families so that the amount of the sick benefit shall increase with the number of children. In addition, there should be motherhood insurance, a general introduction of protective measures for mothers and infants, and imperial laws with reference to midwives, infants' homes and similar necessary conditions, in order to oppose the decline of the birth rate. To meet the cost of all these measures, he proposes a tax on bachelors and a heavier taxation on childless married persons and a taxation of intestate estates.

Dr. Rott, head physician of the Empress Augusta Victoria-House, spoke on the campaign against infant mortality. The infant mortality in the year 1914 shows an increase in a number of the large cities as compared with previous years

that must be referred to the influence of the war to some extent through the sudden deterioration of economic conditions with all their disadvantages for the care and raising of children. The public charitable stations have been kept up, on the whole, while closed institutions were used to some extent as hospitals, and therefore were prevented from caring for infants.

Privy Councilor Spielhagen gave a thorough exposition of the imperial assistance in the puerperium. A comprehensive provision for care during the lying-in period has been called into existence, supported by imperial funds for the wives of soldiers and by the funds of the Krankenkassen for all women who are insured. The well-known hygienic and municipal councilor of the city of Charlottenburg, Gottstein, spoke with reference to the ordinary activity of the Krankenkassen for the care of infants. He discussed the cooperation of the Krankenkassen and of the communes as it has been developed under the influence of the war, and also its status in time of peace.

Fortunately, the official statistics just published show an increase of the birth rate for the second quarter of 1914 in comparison with previous years, but only as a result of the diminution of the death rate. There were 292,213 living births, as compared with 290,206 in the second quarter of 1913, and 290,321 in the second quarter of 1912. The increase, compared with the previous year, amounts to 2,007, or 0.2 per cent. There were 154,046 deaths, as compared with 154,931 in 1913, and 158,165 in 1912; that is at present 885, or 0.6 per cent. fewer. The excess of births over deaths amounts, according to this, to 138,167, as compared with 135,275 in 1913 and 132,156 in 1912, so that there has been an increase in the excess of births amounting to 2,892, or 2.1 per cent. The cities contribute 49,824 to this excess of births (in 1913, 50,085), and the country 88,349 (85,180). The increase is found exclusively in the open country. In the national police district of Berlin, compared with the year 1913, the births were reduced from 14,839 to 14,018. The deaths rose from 9,687 to 10,261, so that the excess of births sank from 4,972 to 3,757. Per thousand inhabitants there were on the average 27.73 live births as compared with 27.91 in 1913, and 14.62 deaths as compared with 14.91. The numerical relation of the live births has declined a trifle in spite of the increase of the absolute number, but the excess of births has risen as a result of the fall in the death rate from 13.00 to 13.11. In the cities, the excess of births amounts to only 9.80 (in 1913, 10.04); in the country, 16.19 (15.76). The reduction in mortality is, however, to be referred exclusively to the diminished infant death rate, for only 37,394 children died in the first year of life, as compared with 40,823 in the year 1913. The number of marriages has fortunately risen from 92,885 to 94,426, an increase of 1,541, or 1.7 per cent. The increase is proportionately greater in the city (48,944 as compared with 47,797) than in the country (45,944 as compared with 45,088).

Philanthropic Care of the Soldiers by the Insurance Societies of the Nation and of the City of Berlin

The insurance societies have developed a comprehensive activity for the various purposes of philanthropic care in the war. Altogether, up to the end of 1914, \$1,439,025 (5,756,100 marks) had been expended for the purposes of military philanthropy. Especial contributions have been made to East Prussia and Alsace-Lorraine. In the sanatoriums, convalescent homes and hospitals, national insurance institutions and trade unions have received the wounded and nurses in large number. According to the situation, Dec. 31, 1914, the number of available beds in the tuberculosis sanatoriums was about 2,500, in the convalescent homes and hospitals, about 4,500.

The Virchow-Langenbeck Building

In the new building of the Berlin Medical Society and the German Surgical Society (Virchow-Langenbeck House) which is to be opened April 1, there is installed already the library of the Berlin Medical Society. It is the largest medical society library of the metropolis. It consists, according to the latest information, of not less than 113,163 numbers, which are distributed in the following groups: 12,958 volumes of journals, 5,958 books, 6,682 dissertations and 3,226 reprints. In addition to this, there is the legacy of the Virchow library with 12,689 and the Lassar library with 1,793 volumes and 149 bound maps with 5,000 volumes, altogether 48,501 pieces. Further, with the society are associated the libraries of some of the medical societies of this city with 20,757 volumes and the library of the German Surgical Society with 44,105 volumes.

Association News

THE SAN FRANCISCO SESSION

Preliminary Announcements of Social Events

A GOLF TOURNAMENT PROPOSED

At a recent meeting of physicians, a number of Fellows of the American Medical Association, who are golf enthusiasts, considered the formation of a golf club, to play annually at the time and place of the annual session of the American Medical Association. Members of the British Medical Association have formed such a club, and arrange similar games at the meetings of that organization; these contests have been a feature on the social program for a number of years. At the convention referred to above, a temporary organization was effected and the following tentative arrangements are announced:

The first day of play, beginning at 9 o'clock and continuing all day, will be on Monday, June 21, the day preceding the opening of the Scientific Assembly of the American Medical Association. Details of play, prizes offered, and conditions of handicaps will be forwarded in due season to those Fellows who indicate their interest in the movement by writing to the acting secretary-treasurer of the temporary organization. Two or three of the courses near San Francisco will be available. A dinner will be held at one of the golf clubs in San Francisco on the evening of Monday, June 21, when a permanent organization will be effected by the adoption of rules and by-laws and the election of officers. Those interested in such a golf club will please communicate with the acting secretary-treasurer. The temporary executive committee having in charge the arrangements for the coming meeting are: Wendell C. Phillips, Chairman, 40 West Forty-Seventh Street, New York; H. C. Moffitt, 240 Stockton Street, San Francisco; Will Walter, Secretary-Treasurer, 122 South Michigan Avenue, Chicago.

CANAL ZONE PHYSICIANS' DINNER

Dr. H. T. Summersgill announces that physicians who have been or are members of the Medical Association of the Isthmian Canal Zone are invited to join in a subscription dinner at the University Club, Powell and California streets, San Francisco, 7:15 p. m., Thursday, June 24. Those planning to attend should address Dr. Summersgill, University of California Hospital, San Francisco. Reservations must be made on or before June 19.

Marriages

WALTER EDWARD WHALEN, M.D., Ogden, Utah, to Mrs. Amelia Jane Tigert Cooper of New York City, in St. Louis, April 8.

HOWARD SPENCER BRASTED, M.D., New York City, to Miss Gladys Viola Ronald, at her country home, Ridgewood, N. J., April 5.

ELBERT MELROY HESS, M.D., Rohrsburg, Pa., to Miss Nellie Maude Keller of Fowlersville, Pa., at Bloomsburg, Pa., April 6.

EDWARD WHITNEY BODMAN, M.D., Chicago and Winnetka, Ill., to Miss Julia Lord Barry of Montclair, N. J., April 19.

BRAINARD FRANCIS CONLEY, M.D., Malden, Mass., to Miss Florence D. Byrnes of New York City, in Boston, April 4.

WALTER KLINGEMAN LONG, M.D., to Mrs. Ida M. Mitchell, both of Hampton, Ia., at Des Moines, Ia., April 6.

RALPH ELLIS LEIDY, M.D., Boyerton, Pa., to Miss Albertina Relinger of Philadelphia, at Boyerton, April 3.

WALTER CLARK HAUPT, M.D., New York City, to Miss Mary Alden Morgan of Chicago, April 20.

JOHN CHARLES GALLAGHER, M.D., to Miss Ella Marie Franey, both of Shenandoah, Pa., April 6.

RUSSELL OWEN WHARTON, M.D., St. Louis, to Miss Florence May Martin of Chicago, April 7.

FRANK DONALDSON THOMAS, M.D., to Miss Frances Picr, both of Dorranceton, Pa., April 5.

Deaths

Marshall Langton Price, M.D. University of Maryland, Baltimore, 1902; in 1910 secretary and in 1911 vice-chairman of the Section on Preventive Medicine and Public Health of the American Medical Association; a member of the American Public Health Association, medical officer of the Tuberculosis Commission of Maryland from 1903 to 1905, secretary of the Maryland State Board of Health from 1907 to 1913, member of the Maryland-District of Columbia Sewerage Commission in 1912, originator of the first law for the state control of tuberculosis now in effect in many states of the Union and known as the "Maryland System," who moved from Baltimore in 1914 on account of ill health to Boise, Idaho; died at sea on board the American Line Steamer *St. Paul* April 16, presumably from tuberculosis, and was buried at sea the next day, aged 36.

William Orris Mann, M.D. Boston University School of Medicine, 1892; a Fellow of the American Medical Association; from 1892 to 1897 superintendent of the State Hospital for the Insane, Westboro, Mass., and the Minnesota State Hospital for the Insane, Fergus Falls; superintendent of the Massachusetts Homeopathic Hospital, Boston, for fifteen years, and for several years in charge of the John C. Haynes Memorial Hospital for Contagious Diseases, Allston, Boston; who arranged the endowment and was the head of the Robert Dorson Evans Memorial Hospital, Boston, and in charge of the plan for the new maternity of the Massachusetts Homeopathic Hospital; died in the Massachusetts Homeopathic Hospital, April 9, from bronchopneumonia, two weeks after a surgical operation, aged 45.

James S. Irvin, M.D. University of Virginia, Charlottesville, 1893; of Danville, Va.; a Fellow of the American Medical Association and a member of the Southern Surgical and Gynecological Association; a member of the Tri-State Medical Society of the Carolinas and Virginia, and Association of Railway Surgeons; formerly president of the South Piedmont Medical Society and Danville Academy of Medicine; surgeon to the Danville General Hospital; assistant surgeon to the Southern, and Danville and Western railways; died in the General Hospital, Danville, April 10, from heart disease, aged 47.

Samuel Herbert Collins, M.D. Miami Medical College, Cincinnati, 1876; formerly president of the Lawrenceburg (Ind.) Board of Health; surgeon of the fire department and for several terms a member of the city council; inspector of the National Board of Health at Memphis, Vicksburg and Ship Island and United States port officer at New Orleans during the yellow fever epidemic of 1879; died at his home in Lawrenceburg, April 4, aged 63.

Louis Waldstein, M.D. University of Heidelberg, Germany, 1878; formerly pathologist to the German Hospital, New York City; physician to the outdoor department of Roosevelt Hospital; a member of many learned societies; well known as a pathologist and writer; who of late years has been devoting his attention to research work in London, England; died in that city; April 12, aged 61.

Leavitt S. Griswold, M.D. Detroit Medical College, 1879; a Fellow of the American Medical Association; for thirty-four years a practitioner of Big Rapids, Mich., and once mayor of the city; attending physician to Mercy Hospital, Big Rapids, and a member of the International Association of Railway Surgeons; died at his home in Big Rapids, April 4, from heart disease, aged 61.

Donnel Hughes, M.D. University of Pennsylvania, Philadelphia, 1879; a Fellow of the American Medical Association and American Association of Obstetricians and Gynecologists and a member of the Philadelphia Pediatric Society; well known as a gynecologist of Philadelphia; died at his home in that city, April 8, from pneumonia, aged 57.

Charles Ellis Ross, M.D. University of Maryland, Baltimore, 1889; a Fellow of the American Medical Association; for fifteen years a member of the medical staff of the Morganton (N. C.) State Hospital and a member of the Board of Health of Burke County; died in Grace Hospital, Morganton, April 1, from pneumonia, aged 52.

Adolph Ludwig Waechter, M.D. College of Physicians and Surgeons in the City of New York, 1899; a Fellow of the American Medical Association; for several years in charge of the Orthopedic Surgery Dispensary of the German Hospital, New York City; died at his home in New York, April 11, from pneumonia, aged 38.

George W. Harman, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1888; for seventeen years a practitioner of Missouri, and since that time a resident of Sentinel Butte, N. Dak.; died at the home of his niece, near Squaw Gap, north of Trotter, N. Dak., March 15, from pneumonia, aged 63.

William Andrew Oliver, M.D. University of Buffalo, N. Y., 1884; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of New York; for many years a practitioner of Penn Yan, N. Y.; died in the Canandaigua (N. Y.) Hospital, April 6, aged 57.

John Austin Minish, M.D. Kentucky School of Medicine, Louisville, 1900; formerly a member of the Kentucky State Medical Association and a practitioner of Poplar Plains and Georgetown, Ky.; died at the home of his father in Gratz, Ky., March 31, after an operation for intestinal obstruction, aged 38.

Benjamin T. Burton, M.D. Willamette University, Portland, Ore., 1880; of San Francisco; aged 55; died in a hotel in Martinez, Cal., March 29, from the effects of poison, believed to have been self-administered with suicidal intent, while despondent on account of the loss of the use of his arm.

Ellery May Wing, M.D. Medical School of Maine, Brunswick, 1879; a Fellow of the American Medical Association; and censor of the Maine Medical Association; director of Somerset Hospital, Skowhegan, Me.; died at his home in North Anson, Me., April 3, from nephritis, aged 58.

George Coleman Abell, M.D. Hospital College of Medicine, Louisville, 1890; a Fellow of the American Medical Association and well known as a surgeon in the Southwest; died at his home in the Abell Sanitarium, Texarkana, Tex., April 11, from cerebrospinal meningitis, aged 54.

Alfred H. Garnett, M.D. Washington University, Baltimore, 1872; for nearly thirty years a practitioner of Colorado Springs, Colo., and chief surgeon of the Colorado Midland Railway, but for the last four years a resident of Florida; died in Jacksonville, Fla., March 27, aged 66.

Francis Manton Holly, M.D. Yale University, New Haven, Conn., 1855; surgeon in the Army during and for several years after the Civil War; founder and first president of the Greenwich (Conn.) Medical Society; died at his home in Greenwich, April 8, from pneumonia, aged 82.

Martha E. Bucknell, M.D. New England Female Medical College, Boston, 1872; for many years a practitioner of San Francisco, and said to have been the first woman to practice medicine in California; died at the home of her daughter in Los Angeles, April 5, aged 93.

William D. Patton, M.D. University Medical College, Kansas City Mo., 1901; a Fellow of the American Medical Association; formerly city physician of Amarillo and physician of Potter County, Tex.; died at his home in Amarillo, April 5, from septicemia, aged 45.

Willis Henri Philleo, M.D. New York University, New York City, 1888; a Fellow of the American Medical Association; for twenty-seven years a practitioner of the Bedford section of Brooklyn; died at his home, April 11, from acute gastritis, aged 51.

Henry C. Hollingsworth, M.D. Rush Medical College, 1864; for many years a druggist and physician of Carthage, Mo., and a member of the local school board; died at the home of his son in Pierce City, Mo., April 5, from pneumonia, aged 75.

James Guyon Clark, M.D. College of Physicians and Surgeons in the City of New York, 1845; of West New Brighton, Staten Island, N. Y.; who retired from practice in 1876; died at his home, April 9, from pulmonary edema, aged 90.

Martin M. Saucerman, M.D. Rush Medical College, 1881; a member of the Illinois State Medical Society; and a practitioner of Rock Grove, Ill., for many years; died at his home in Monro, Wis., March 31, from bronchopneumonia, aged 71.

Clarence Heathcote Wall, M.D. College of Physicians and Surgeons, Chicago, 1904; aged 38; an ambulance physician of Chicago; died at his home in that city, April 15, from septicemia, due to an infected wound from a hypodermic needle.

George Benedict Hickok, M.D. College of Physicians and Surgeons in the City of New York, 1869; formerly a practitioner of New York City, but since 1902 a resident of Roselle Park, N. J.; died at his home in that place, April 9.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

ARTICLES REFUSED RECOGNITION

Reports of the Council on Pharmacy and Chemistry

Below appear abstracts of the Council's action on articles refused recognition which were not deemed of sufficient importance to require a lengthy report.

Veracolate

"Veracolate (plain)," "Veracolate with Pancreatin and Pepsin" and "Veracolate with Iron, Quinine and Strychnine" are proprietary tablets marketed by the Marcy Company, Boston.

"Veracolate (plain)."—For this the following non-quantitative formula is given:

"A compound containing the bile acids, sodium glycocholate, sodium taurocholate with cascara sagrada and phenolphthalein."

The dose is three tablets. Examination in the Chemical Laboratory of the American Medical Association of a specimen of "Veracolate (plain)" indicated that there was about 20 mg. ($\frac{1}{3}$ grain) of phenolphthalein to each tablet. One dose, therefore (three tablets), would contain 1 grain of phenolphthalein—an average dose.

"Veracolate with Pepsin and Pancreatin."—The following "formula" is given for this mixture:

"Veracolate	1 $\frac{1}{4}$ grain
Pure Pancreatin	1 grain
Pepsin aseptic (1: 3,000)	$\frac{1}{2}$ grain
Oil peppermint	$\frac{1}{10}$ min."

(Note the presence of two mutually incompatible digestive ferments.)

"Veracolate with Iron, Quinine and Strychnine."—This is stated to have the following "formula":

"Veracolate	1 $\frac{1}{8}$ grain
Reduced Iron	1 grain
Quinine Sulphate	$\frac{3}{8}$ grain
Strychnine Sulphate	$\frac{1}{100}$ grain"

It will be noticed that these mixtures increase in complexity until a combination of seven diverse ingredients, a veritable shotgun mixture, is evolved. In none of the "formulas" are the proportions of the purgative drugs in Veracolate stated. In the second "formula," the digestants might as well be omitted, for the pancreatin is destroyed by peptic digestion and hence cannot pass the stomach while the pepsin is useless without hydrochloric acid, and, at any rate, of no value in the intestine. If one is indicated, the other is not. Yet this unscientific and complex combination of purgatives, mutually incompatible digestive ferments, and oil of peppermint is called:

"A scientific Blending of Digestive Ferments, Cholagogues and Carminatives."

"... for all forms of indigestion and dyspepsia."

And the third, an equally irrational and complex combination, is termed "The Ideal Cholagogic Tonic"!

Extravagant and Misleading Claims.—True to type, the claims are magnified in accordance with the number of ingredients. For instance, of "Veracolate (plain)," we are told:

"Veracolate is a true cholagogue and biliary disinfectant as it directly stimulates the liver cells producing an increased flow of limpid bile. Although not a purgative, it moves the bowels and is definite and dependable in its action."

"The action of Veracolate is to bring about a profuse flow of healthy bile which prevents bile stasis. As the flow of bile is stimulated so antiseptic action ensues, calculi softened and the concretion and mucous eliminated. Mucosal swelling is diminished and the infection which is usually present is antagonized. Relief is in plain evidence. As a result of the treatment the skin, eyes and urine become normal in appearance in a short time, the appetite and digestion improve and soreness in the region of the gall-bladder is entirely relieved."

Similarly, it is said of "Veracolate with Pancreatin and Pepsin" that:

"It causes a natural flow of bile which checks fermentation, prevents the absorption of toxins and causes the food elements to be emulsified and thus rendered easy of assimilation. All this conduces to a natural movement of the bowels. Digestion is at once improved and the epigastric pain, nervous symptoms and headache disappear."

"Veracolate with Iron, Quinine and Strychnine" is said to be indicated in:

"Hepatic Torpor accompanied by Anemia, Chlorosis, Debility, Neurasthenia and Neuroses."

And the physician is asked to believe that it will:

"... give gratifying results in all nervous, anemic, and 'run down' conditions in which the liver function is usually subnormal."

The objections to "Veracolate (plain)" are that it is semi-secret in composition, unscientific in combination and exploited under unwarranted claims. The same criticisms hold with reference to "Veracolate with Pancreatin and Pepsin" and "Veracolate with Iron, Quinine and Strychnine."

These products are discreditable to the medical and pharmaceutical profession alike and their use is against the public good.

Taurocol

The Paul Plessner Company, Detroit, places on the market Taurocol Tablets and Taurocol Compound Tablets. The company makes a pretense of giving the formula—minus any quantities—thus:

"Taurocol is a combination of bile salts, extracts of cascara sagrada, phenolphthalein and aromatics."

The "formula" given for Taurocol Compound Tablets is:

"Taurocol (Bile Salts).....	Gramme .1296
Pepsin 1-3000.....	" .0324
Pancreatic Ext.....	" .0324
Extract Nux Vomica (1/8 gr.).....	" .0081
Aromatics	Q. S."

A comparison of these two "formulas" with those furnished for Veracolate and Veracolate with Pancreatin and Pepsin (see preceding report) shows that they are nearly the same.

The claims made for the Taurocol preparations are essentially those made for Veracolate preparations, as instance the following, which appears on a physician's sample of Taurocol:

"For Hepatic Insufficiency, Intestinal Putrefaction, Habitual Constipation."

Likewise the following, found on a Taurocol circular, duplicates claims made for Veracolate:

"... Directly stimulates the liver cells, producing an abundant flow of bile rich in cholates, solvent of cholesterol and a biliary antiseptic."

Taurocol is objectionable for the reasons that apply to Veracolate, and Taurocol Compound Tablets are subject to the objections that apply to Veracolate with Pepsin and Pancreatin.

THE CONVERSE TREATMENT

Another Ohio "Cure" for Epilepsy

The "Converse Treatment" for epilepsy is sold by the Converse Treatment Company of Columbus, Ohio, which is said to have for its officers Herbert E. Sanderson, president; Nathan Dawson, vice-president, and Frank J. Dawson, secretary and treasurer. As is the case with most mail-order medical concerns none of the individuals controlling the business seem to be physicians; Sanderson is a "patent medicine" maker, Nathan Dawson is said to be a lawyer, while Frank J. Dawson is apparently in the fire-insurance business. The "medical referee" of the company is given as Edgar J. Martin, M.D.

In those free and easy days when "patent medicine" makers could let their imagination run untrammelled by any considerations for truthfulness this product was known as the "Converse Cure" and was put out as "the only positive cure known, adopted and recommended by the leading physicians of the country." The epileptic was told:

"From the time of Hippocrates until the Wonderful Cure discovered by the Converse Institute, this fearful disease has been treated by the medical profession in vain."

The usual warnings against all other "cures for fits," was part of the advertising claptrap and competitors' products were condemned under the statement that they contained "zinc, silver or bromid, all of which but tend to aggravate the trouble in the long run." In those days the Converse nostrum emanated from Mount Vernon, Ohio, and, apparently was

under the direct control of Mrs. Converse, who, it was claimed, "discovered" the "cure." Even after the name of the concern was changed from the "Converse Treatment Institute" to the "Converse Treatment Company" and the concern moved from Mt. Vernon to Columbus, Ohio, Martha E. Converse was, for some time, secretary and treasurer of the company. Letters written by the concern in 1910 were signed "Mrs. M. E. Converse."

When the company is written to it notifies the prospective victim that the "treatment" is put up in "packages of six bottles for \$5.00." In addition there are two side-line nostrums, "Tonicine Tablets" for "restoring nerve vitality" and "enriching the blood," and "Sanderson's SixHerbs," a laxative pill.

According to the advertising matter, the Converse Treatment is "used in hospitals, sanitariums and by leading physicians." On the interesting question, Who are the leading physicians that use this nostrum, the Converse Treatment Company is silent. Some of their circulars give alleged testimonials from physicians but the names and addresses of these physicians are not given.

In 1912 THE JOURNAL published the result of an analysis of the Converse Treatment made by Prof. E. F. Ladd, the aggressive Pure Food Commissioner of North Dakota. Professor Ladd's report showed that the essential drugs in the Converse Treatment, as in practically all other treatments for epilepsy, were the bromids. More recently, in connection with the investigation of a number of "epilepsy cures," the laboratory of the American Medical Association has analyzed the "Celebrated Converse Treatment." The laboratory report follows:

CHEMISTS' REPORT¹

Original bottles of "Converse Treatment," manufactured by the Converse Treatment Co., Columbus, Ohio, were submitted to the Chemical Laboratory for examination. Each bottle contained 165 c.c. (5½ fluidounces) of a brown liquid, having suspended extractive matter present, and with a strong odor of cinnamon. The specific gravity of the liquid at 15.6 C. was 1.1426. Qualitative tests demonstrated the presence of ammonium, calcium, sodium, potassium, chlorid and bromid. Saccharine also seemed to be present. From spectroscopic tests, lithium was not present in quantities greater than minute traces. Qualitative determinations yielded the following:

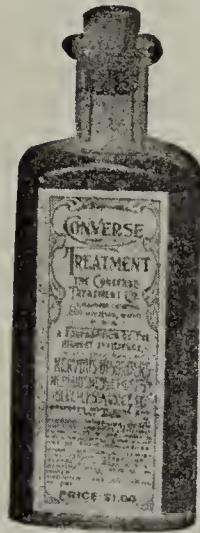
Ammonia (NH ₃) (by weight).....	1.13 per cent.
Calcium (Ca++) (by weight).....	0.88 per cent.
Potassium (K+) (by weight).....	3.74 per cent.
Sodium (Na+) (by weight).....	0.01 per cent.
Bromid (Br-) (by weight).....	13.93 per cent.
Chlorid (Cl-) (by weight).....	00.65 per cent.

Essentially each 100 c.c. of the solution contains about 7.3 gm. ammonium bromid, 5 gm. calcium bromid and 8.7 gm. potassium bromid. Calculating from the bromid determination, each dose 1 teaspoonful (1 fluidram) contains the equivalent of 14.5 grains of potassium bromid, or each daily dose (4 teaspoonfuls) corresponds to 58.0 gr. potassium bromid.

As might have been expected from the investigation of various nostrums of the same type, the "Converse Treatment" is but one more of the bromid mixtures. This, too, in spite of the fact that the exploiters of the stuff have in the past stated that epilepsy cures containing bromids "tend to aggravate the trouble in the long run."

The statement that the Converse Treatment will cure epilepsy is as false as the other statement that the nostrum is used "by leading physicians." The stuff has all the limitations and dangers of a bromid mixture. It will never cure a case of epilepsy, but, indiscriminately used by those who must be ignorant of the fact that it contains bromids, may easily result in adding to the epileptic victim's already serious condition the dangers of bromism.

1. This is a condensed report of the chemists' findings. The details of analysis will appear in the Reports of the Chemical Laboratory of the American Medical Association for 1915.



Correspondence

Oskaloosa to the Fore

To the Editor:—I am enclosing herewith marked copy of the *Oskaloosa Times*, a weekly newspaper published in Oskaloosa, Ia. I have marked several articles which will denote the trend of public opinion in Oskaloosa. Five years ago the *Times* led the fight which resulted in the repeal of a tuberculin milk ordinance in this city on an attempt to enforce it. It would not be hard to guess on which side of such a question you would find the *Times* today.

So much for the progress of public health sentiment in Oskaloosa in five years due in a large measure to the educating influence no doubt of a municipal laboratory in charge of a competent bacteriologist who acts as full-time health officer. This was established following a disastrous typhoid epidemic in 1911. All of the three newspapers of the city carry these "Public Health Departments," thus bringing the campaign of education to all parts of the county. Incidentally the record of infectious disease in Oskaloosa has shown a decrease of practically two-thirds.

I don't think the medical profession generally appreciate just how much nerve it takes on the part of a country newspaper to throw out hundreds of dollars worth of profitable advertising simply for the public good. Many a medical journal could take a leaf from the *Times* note-book to the advantage of the profession.

J. G. ROBERTS, M.D., Oskaloosa, Ia.

[NOTE.—See Current Comment on this subject, page 1430, this issue.]

Position for Patients During Fluoroscopy

To the Editor:—In fluoroscopy of abdominal viscera rendered opaque by being filled with bismuth or barium mixtures, commonly the patient is viewed while facing the examiner. By this procedure, in obese patients or individuals in whom fluid is present in the peritoneal sac, the shadows cast on the fluorescent screen, even when the source of the rays is a Coolidge tube, are often poorly delimited.

I have found, from the examination of a considerable number of patients, that sharply outlined images of bismuth or barium filled abdominal viscera are obtained by having the subject face the tube, with his back to the fluorescent screen. This position brings nearer to the screen the stomach, colon, gall-bladder, duodenum and the kidneys. It permits of palpation during the examination practically as readily as does the ordinary anteroposterior position. It has appeared to me that frequently the duodenum was better delimited by the postero-anterior position than it was by the anteroposterior. Incisurae have sometimes been more readily distinguished, and irregularities in gastric outline better appreciated.

On account of the added distance of the opaque viscera from the tube, the images in this new position are larger than when the anteroposterior view is taken. In certain instances the spine is apt to confuse the interpretation, but with a little experience, and particularly if the Coolidge tube be used, this factor can be eliminated.

It is the routine at the Augustana Hospital to examine all patients fluoroscopically in both the anteroposterior and postero-anterior positions. We believe that not infrequently added facts of value can be obtained by the latter procedure and by the examination in the two positions.

FRANK SMITHIES, M.D., Chicago.

The Sine Qua Non.—Health is more important than education. In fact, it can scarcely be differentiated from life itself. . . . That the preservation of health should always stand first in individual and social policy is universally admitted. That neither individuals nor the public are generally realizing health values in our complex industrial democracy is only too painfully evident.—Louis W. Rapeer, "Medical Supervision of Schools," *American Education*.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

THE HARRISON LAW

TREATMENT OF SEVERE CASES

To the Editor:—I notice that since March in Chicago ten persons have died from the withdrawal of morphin. Doubtless other cities will show similar results.

It must, it seems to me, be true that we have at least a limited number of patients long addicted to the use of morphin, sufferers from painful, chronic and incurable disease, broken in health and advancing age, their condition made worse no doubt by the improper use of drugs, in whom the entire withdrawal of the drug in any way would hasten death. And if entirely broken of the habit, their sufferings at times would be so great that it would seem almost impossible to refuse them a limited amount. Under the law, what can we do in these desperate cases?

J. S. W.

ANSWER.—The Harrison law does not restrict the right of the physician to prescribe or dispense morphin as he may see fit either to persons addicted to its use or to others. It only requires that a record of such transactions be made, either by the doctor in case he dispenses or by the druggist in case the doctor issues a prescription.

As an actual fact, the Harrison law will be a great boon to those physicians who attempt to cure the habitué. Heretofore it was practically impossible to manage such cases in general practice, because there was no way of controlling the patient, since the drug was always available. We repeat that this law will make it easy for physicians to do what it was utterly impossible for them to do before: successfully treat the drug habitué.

A MODIFICATION SUGGESTED

To the Editor:—I wish to suggest a modification of the Harrison Antinarcotic Act which I believe would not impair its efficiency in preventing the illegitimate use of such drugs, but which would lighten very much the clerical burdens imposed on those physicians who carry and dispense many of their remedies for acute troubles.

There are a large number of preparations put up by our manufacturing drug firms which contain enough morphin, opium, etc., to bring them under the scope of the law, but which at the same time contain such amounts of other active drugs that it would not be possible for a "dope fiend" to use them to the necessary extent without being made sick by them. Many very useful formulas, such as the various rhinitis, coryza and "brown mixture" tablets, for example, are in this class. Now it is an absolutely unnecessary hardship that the infinite detail involved in our daily work should be further increased by being compelled to make full and accurate records of the dispensing of these remedies.

I would suggest that each of the manufacturing drug firms submit to the proper government officials a list of their principal preparations which contain opium, etc., and that such of these preparations as in the judgment of the officials could not be used as "dope" be excluded from the provisions of the act so far as requiring a record of their being dispensed by physicians.

It would probably be well to retain the present regulation for ordering such preparations, and then if it were found that any physicians were ordering abnormal quantities of them the matter could be investigated.

If THE JOURNAL could induce the government to see the reasonableness of such a ruling, it would confer a great benefit on thousands of the profession.

J. S.

ANSWER.—The suggestion of our correspondent that the government officials responsible for the enforcement of the Harrison law make up a list of pharmaceutical preparations which would be exempt from the provisions of the law is hardly feasible. No officer is given the power under the law to take such action.

EUGENIC LEGISLATION

To the Editor:—1. What countries require a medical and laboratory examination of men and women previous to the issuing of a marriage certificate, and what countries require the sterilization of criminals?

2. (a) What states require a medical and laboratory examination of men and women previous to the issuing of a marriage certificate, and (b) what states require the sterilization of criminals?

3. What has been the success of these laws, and how closely have the laws been adhered to?

H. W. J.

ANSWER.—1. We find no reference to any foreign country which requires either a medical or a laboratory examination of men and women previous to the issuing of a marriage certificate, or which requires the sterilization of criminals.

2. (a) At present there is no state which requires women to submit to such examination prior to the issuing of a

marriage certificate, and only one state requires this of men. There are, however, several states which require of both men and women, prior to the issuing of a marriage license, a physician's certificate that neither party is infected with a transmissible disease, such as tuberculosis or any one of the venereal diseases. But these laws contain no provision in the way of requiring any kind of a specific examination. This is left entirely to the judgment of the physician. Colorado, North Dakota and Oklahoma have laws of this kind. The North Dakota law applies to men only. Wisconsin is the only state which provides specifically for a medical and laboratory examination prior to the issuing of a marriage license, and, as has been said, this measure applies only to men. At the present session of the various legislatures, several bills have been submitted to amend the existing marriage laws, to require these examinations of both men and women. Among these states are Wisconsin and Indiana. The Indiana bill was recently defeated. In Nebraska a bill was introduced modeled after the Wisconsin measure, that is, applying only to men. This, too, was defeated.

2. (b) Twelve states provide for the sterilization of either criminals or the feeble-minded. These states are California, Connecticut, Iowa, Indiana, Kansas, Michigan, Nevada, North Dakota, New York, New Jersey, Washington and Wisconsin. The Washington law, which is a purely criminal statute, was upheld by their supreme court in the case of *State v. Feilen*, — Wash. —; 126 Pac. 75, while the New Jersey law, as far as it applies to epileptics, was declared unconstitutional in the case of *Smith v. Board* — N. J. —; 88 Atl. 963, and the constitutionality of the Iowa law is now on appeal to the United States Supreme Court. See the case of *Davis v. Berry*, 216 Fed. 413.

3. None of these measures have been in operation long enough to justify an opinion one way or the other as to their effect. Opinion is somewhat divided as to the results of the Wisconsin marriage law. It is maintained by some that it is a salutary measure, inasmuch as it compels caution on the part of those who are about to marry, while others urge that what might seem to be caution, as evidenced by the decrease in marriages, is nothing more or less than proof that the law is disregarded by either the common law form of marriage or by marriages outside the state, or by means of perjury on the part of both the man and woman and the physician. But this decrease in the number of marriages is only nominal, and hence no very definite conclusion can be drawn from it. The same things may be said of the sterilization laws, that is, that they have not been long enough in force to warrant definite conclusions. It has been asserted that the California measure is a success. This was likewise true of Indiana, until that measure was placed in abeyance by order of former Governor Marshall. The success of any of these laws may be questioned, however, as no efficient and thorough follow-up system has been shown to have been adopted. Moreover, it would require more than two or three years to determine the true success of sterilization. What may seem an apparent benefit to the patient in the first few years after the operation may be contraindicated by untoward conditions thereafter.

DISSEMINATION OF SCARLET FEVER

To the Editor:—In the Therapeutics Department (THE JOURNAL, March 27, 1915, p. 1073) the statement is made that the contagion of scarlet fever is through the buccal and nasal secretions and not from the desquamating skin. If this be true, the custom of lifting quarantine at the termination of desquamation is based on erroneous ideas. If so, why has the practice been so successful in stamping out local epidemics? Why quarantine at all more than against typhoid, tuberculosis or any other disease whose source of contagion is definitely known? Would not the proper care of secretions of the mouth and nose be sufficient to eliminate contagion?

GEORGE R. TUBBS, M.D., West Point, Ind.

ANSWER.—While it is not demonstrated experimentally that there never is any chance of contagion from the scales of a scarlet fever patient, the experience of recent years is that the disease is conveyed principally by the secretions of the throat, nose and ears. Of course it stands to reason that, such being the case, cutaneous scales of themselves harmless readily may become contaminated by discharge from the throat, nose and ears. The termination of quarantine should be determined by the condition of the patient's nasopharynx and ears. If the patient, after the customary period of quarantine, shows no abnormal conditions in the throat, nose or ears, the quarantine can be raised; but if inflammation of any of these parts persists, quarantine should be continued

until normal conditions are restored. It is accepted generally that a person who has passed through an attack of scarlet fever remains a source of danger to the susceptible so long as the tonsils, throat, nose or ears are not fully restored to the normal state. In most cases this takes place by the time scaling is finished, but sometimes it takes longer.

SPASMOPHILIC AND EXUDATIVE DIATHESIS

To the Editor:—Will you please give me definitions of the terms "spasmophilic" and "exudative diathesis"?

W. SLAVE, Ph.D., Chicago.

ANSWER.—The terms "spasmophilic" and "exudative" are not synonymous, but refer to two widely divergent conditions characterized about as follows:

The term "spasmophilic diathesis" (spasmophilia, tetany) is a condition of infants and young children characterized by a hyperexcitability of the central nervous system. This manifests itself in heightened reactions to mechanical and electrical stimulation, and by a tendency to laryngismus stridulus, carpopedal spasm and convulsions. The mechanical hyperexcitability is readily determined by tapping the branches of the facial nerves over the cheek. If positive, there is a twitching of the muscles supplied. This is known as Chvostek's sign. The electrical hyperexcitability is tested for with the galvanic current. The so-called Erb's phenomenon is a cathodal opening current contraction with less than a 5-milliamper current. Trousseau's sign is elicited by constricting the arm; the fingers then take on the obstetric position, the hand is flexed at the wrist; in other words, the same position that is obtained in the more severe cases in which the carpopedal spasm appears without this pressure. The condition spasmophilia is usually associated with rachitis.

The following is a list of recent articles on this subject:

- Gebhardt, H.: Electrical Demonstration of Spasmophilia in Cases of So-Called Initial Convulsions in Children, *Monatschr. f. Kinderh.*, xiii, No. 6.
Reye, H.: Spasmophilia, *Arch. Pediat.*, September, 1914.
Freudenberg, E., and Klocman, L.: Spasmophilia, *Jahrb. f. Kinderh.*, June, 1914.
Aschenheim, E.: Connection Between Rachitis and Spasmophilia, *Jahrb. f. Kinderh.*, April, 1914.
Sedgwick, J. P.: Spasmophilia with Special Reference to Familial Reaction and Repeated Absences: Report of Sixteen Cases, *Am. Jour. Dis. Child.*, February, 1914.
Rowe, O. W.: Spasmophilic Diathesis, *Wisconsin Med. Jour.*, December, 1913.
Iwamura, K.: Spasmophilia in Japan, *Ztschr. f. Kinderh.*, ix, No. 2.
Thorspecken, O.: Spasmophilia in Children, *Med. Klin.*, June 29, 1913; *abstr.*, THE JOURNAL, Aug. 9, 1913, p. 442.
Freudenberg, E., and Klocman, L.: The Spasmophilia Problem, *Jahrb. f. Kinderh.*, July, 1913.
Rosenstern, I.: Congenital Debility and Spasmophilic Diathesis, *Ztschr. f. Kinderh.*, viii, No. 2.

The term "exudative diathesis" is one that was introduced by Czerny some years ago to define more properly that large group of infants that shows a tendency to exudation of the skin in the form of eczema, lichen urticatus, urticaria, cradlecap, and a tendency to repeated catarrhal infections of the upper respiratory tract. The underlying difficulty he ascribes to an error in the metabolism of the fat. He divides the cases into the fat and the lean, the one class gaining excessively in weight, the other showing practically no gain or a loss in weight.

Below is a suggestive list of articles on this subject:

- Czerny, A.: *Monatschr. f. Kinderh.*, 1905, iv, 1.
Czerny, A.: *Monatschr. f. Kinderh.*, 1907, vi, 1.
Lifschütz, A. K.: Eosinophilia and the Exudative Diathesis, *Monatschr. f. Kinderh.*, xii, No. 10.
Aschenheim, E.: Eosinophilia Not a Symptom of the Exudative Diathesis, *Ztschr. f. Kinderh.*, x, Nos. 5 and 6.
Putzig, H.: Eosinophilia a Symptom of the Exudative Diathesis, *Ztschr. f. Kinderh.*, x, Nos. 5 and 6.
Putzig, H.: Eosinophilia in Infants a Symptom of the Exudative Diathesis, *Ztschr. f. Kinderh.*, ix, No. 6.
Rachmilewitsch, E.: The Skin Reactions in the Exudative Diathesis, *Jahrb. f. Kinderh.*, February, 1913.
Beck, C.: Manifestations of the Exudative Diathesis in the Mucosa of the Urogenital Apparatus, Forty Cases, *Monatschr. f. Kinderh.*, xi, No. 10.
Benfey, A.: Eosinophilia in the Exudative Diathesis, *Monatschr. f. Kinderh.*, xi, No. 9.
Aschenheim, E.: Significance of Eosinophilia with the Exudative Diathesis, *Monatschr. f. Kinderh.*, xi, No. 6.
Schkarin, A.: Eczema as an Expression of the Exudative Diathesis in Infants, *Jahrb. f. Kinderh.*, August, 1913.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Regular, Little Rock, May 11-12. Sec., Dr. W. S. Stewart, Citizens Bank Bldg., Pine Bluff. Homeopathic: Little Rock, May 11. Sec., Dr. Scott C. Runnels, 900 Scott St., Little Rock. Eclectic: Little Rock, May 13. Sec., Dr. C. E. Laws, 712 Garrison Ave., Fort Smith.

GEORGIA: Atlanta and Augusta, June 2-4. Sec., Dr. C. T. Nolan, Marietta.

ILLINOIS: Chicago, May 13-15. Sec., Dr. C. St. Clair Drake, Springfield, Ill.

LOUISIANA: Homeopathic, New Orleans, May 3. Pres., Dr. C. R. Mayer, 919 St. Charles St., New Orleans.

LOUISIANA: New Orleans, June 3-5. Sec., Dr. E. L. Lockett, 716 Machea Bldg., New Orleans.

MASSACHUSETTS: Boston, May 11-13. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

MICHIGAN: Detroit, May 27-29. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

NEVADA: Carson City, May 3. Sec., Dr. S. L. Lee, Carson City.

NEW YORK: Albany, Buffalo, New York and Syracuse, May 25-28. Mr. Harlan H. Horner, Chief, Examination Division, State Education Bldg., Albany.

TENNESSEE: Knoxville, Memphis and Nashville, May 3. Sec., Dr. A. B. DeLoach, 426 Scimitar Bldg., Memphis.

Maryland December Report

Dr. J. McP. Scott, secretary of the State Board of Medical Examiners of Maryland, reports the written examination held at Baltimore, Dec. 8, 1914. The total number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 37, of whom 26 passed and 9 failed. Two candidates were licensed as the result of a special examination. Nine candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Baltimore Medical College.....	(1913)		80
College of P. and S., Baltimore... (1912)	78; (1914) 75, 77, 78,		84, 87
Johns Hopkins University..... (1913)	84, 89; (1914) 75, 80		75, 80
Maryland Medical College..... (1912)			76, 79
University of Maryland.... (1914)	75, 77, 80, 82, 82, 83, 83, 86,		86, 86
Jefferson Medical College..... (1914)			90
University of Pennsylvania..... (1900)	86; (1913)		84
FAILED		Number Examined	
Howard University	(1914)	1	
Bennett Medical College.....	(1914)	1	
University of Louisville.....	(1912)	1	
College of Phys. and Surgs., Baltimore.....	(1914)	1*	
Maryland Medical College..... (1912, 2)	(1913, 2)	4	
Medical College of Virginia.....	(1914)	1	

LICENSED BY SPECIAL EXAMINATION

College of P. and S., in the City of N. Y..... (1895)	(1903)	2
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* Did not complete examination.

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Baltimore Medical College.....	(1906)		Penna.
College of Phys. and Surgs., Baltimore.....	(1909)		W. Virginia
Johns Hopkins University.....	(1904)		Penna.
Maryland Medical College.....	(1905)		W. Virginia
University of Maryland.....	(1914)		N. Carolina
Woman's Medical College of Baltimore.....	(1897)		W. Virginia
Jefferson Medical College.....	(1910)		Penna.
University of Toronto.....	(1904)		Penna.
McGill University	(1902)		Louisiana

Pregnancy and the Italian Earthquake.—Pestalozza has reported his experiences with forty and Resnevic with twenty-four women in advanced pregnancy brought to the maternities at Rome from the earthquake district. A number had been buried under the ruins for hours but they were delivered at normal term with no signs of injury of the child, not even in one case in which the pubis had been fractured, with considerable displacement of the fragments. Only two of the women were delivered prematurely in the maternity, the fetus in both having evidently succumbed to acute asphyxia while the mother lay in a swoon for hours under the ruins. All the other women are doing well, Nature evidently being able to carry the fetus safely through such a catastrophe.—*Clinica Ostetrica*, 1915, xvii, 50.

Book Notices

A LABORATORY MANUAL OF QUALITATIVE CHEMICAL ANALYSIS FOR STUDENTS OF MEDICINE, DENTISTRY AND PHARMACY. By A. R. Bliss, Jr., Ph.G., Ph.C., M.A., Professor of Chemistry, Birmingham Medical College. Cloth. Price, \$2 net. Pp. 244. Philadelphia: W. B. Saunders Company, 1914.

Professor Bliss' Manual of Qualitative Chemical Analysis is neatly bound, well printed, and altogether very satisfactory as a "book." But as a "qualitative analysis" it is a disappointment—a disappointment because the subject-matter is not presented in the light of modern chemistry and contains many inaccuracies. In fact, this book cannot be termed a contribution to the study of chemistry, but rather a desire to label one's own name on a collection of well-known and, in some instances, archaic methods of qualitative tests. Incorporation of the tables of the U. S. P. preparations containing the elements discussed in Professor Bliss' book cannot be considered an important addition.

Medical students in qualitative analysis should be familiar with certain theories, such as the law of mass action applied to ionization, etc., in order to appreciate its value and service in the correct method of analysis. Professor Bliss gives only a few paragraphs to this subject, and these are poorly constructed and contain gross errors. As instance of a lack of applied theory, such misstatements as the following appear in the methods: "Ammonium hydroxide produces manganous hydroxide, except in the presence of ammonium salts, because of the formation of a double salt, for example $(\text{NH}_4)_2\text{Mn}(\text{SO}_4)_2$ " (page 100). Of course the precipitation of manganous hydroxide is hindered, not because of the double salt formation, but because the large concentration of ammonium ion represses the concentration of the hydroxyl ion; hence,

$[\text{Mn}^{++}] \times [\text{OH}]^2$ is less than $K_{\text{Ion product constant for Mn(OH)}_2}$

A similar misstatement appears about magnesium (page 142). Also, on page 102, a serious error occurs: "Ammonium hydroxide produces a white precipitate of zinc hydroxide, soluble in excess of the precipitant forming ammonium zincate $(\text{NH}_4)_2\text{ZnO}_2$." This is obviously not true because (1) if free ammonia is present the positive complex zinc ammonium ion $[\text{Zn}(\text{NH}_3)_4^{++}]$ is produced, and (2) the salt of a weak base and weak acid such as ammonium zincate would be decomposed in solution. Here is a gem of non-description: "The official sulphurous acid is a colorless liquid having a sulphurous odor and an acid sulphurous taste" (p. 166). The "workability" of some of the schemes of analysis is quite questionable. Summed up, this book is hardly a scientific treatise.

CANCER, ITS CAUSE AND TREATMENT. By L. Duncan Bulkley, A.M., M.D., Senior Physician the New York Skin and Cancer Hospital. Cloth. Price, \$1.50. Pp. 230. New York: Paul B. Hoeber, 1915.

This monograph has apparently the single purpose of emphasizing the influence of a meat or high protein diet in the causation of cancer. The author has no experimental evidence to appeal to, but aims to show that cancer is not a contagious disease, not caused by a micro-organism, and that while there is some reason to believe in the influence of "embryonic rests," they are of themselves insufficient to explain its origin. The fact that cancer is increasing in civilized communities is paralleled by the fact of the increasing luxury and consumption of protein food. While these aspects of the disease are interestingly set forth, the author does not appear to have been able to bring any decisive proof of a causative relation. He therefore advocates a vegetarian diet and a regulation of the bowels with a view to the prevention of auto-intoxication. There is, however, very little detail as to the medicinal treatment. He employs thyroid extract. A number of cases of breast tumors which have disappeared under this method of treatment are reported. In none of them is the diagnosis verified by microscopic examination; hence, these cases present only presumptive evidence of the value of the treatment. In a number of

the cases which Dr. Bulkley has placed under medical treatment it has been deemed advisable, for one reason or another, to resort to surgical measures. He also reports some cases of recurrent carcinoma. In these cases Roentgen-ray treatment was added to the dietetic and medicinal, so that it can hardly be said that the improvement was proved to be due to those measures. In none of these cases has a final result been reached. The cases are reported as still under observation. It would appear, from a careful examination of the statements of the author, that the influence of the protein diet in the causation of cancer is not proved and that his records of treatment show very little evidence of the efficacy of diet in the treatment of this disease.

THE CHEMICAL EXAMINATION OF WATER, SEWAGE, FOODS AND OTHER SUBSTANCES. By J. E. Purvis, M.A., University Lecturer in Chemistry and Physics as Applied to Hygiene and Public Health, and T. R. Hodgson, M.A., Public Analyst for the County Boroughs of Blackpool and Wallasey. Cloth. Price, \$2.75 net. Pp. 228. New York: G. P. Putnam's Sons, 1914.

This book deals almost exclusively with methods and does not discuss interpretations of results or relative health values. There are some deviations from the best American practice, as the retention in water and sewage analyses of the somewhat old-fashioned method of recording by parts per hundred thousand instead of parts per million. The bacterial examination of sewage is dealt with very briefly, but that of water is not touched on. We notice on page 81 the sweeping statement that "no healthy, properly fed cow will produce milk containing as little as 3 per cent. fat." On page 139 an attempt is made to describe the microscopic appearance of the commercial starches. Figures would be better as an aid to differentiation. Considering the book as a whole, its chief value seems to lie in bringing together in compact and clear form a number of familiar and well-tested methods employed in public health laboratories. It should prove a useful supplement to the larger books that deal more extensively with special features.

FLIES IN RELATION TO DISEASE. Bloodsucking Flies. By Edward Hindle, B.A., Ph.D., Assistant to the Quick Professor of Biology, Cambridge. Cloth. Price, \$3.75. Pp. 398, with 88 illustrations. New York: G. P. Putnam's Sons, 1914.

The past two decades will long be famous in medical history for epoch-making discoveries of the relations of insects to disease. From the discovery of the malarial parasite by Laveran in 1881, and the demonstration of its life cycle fourteen years later by Ross; from the earliest direct association of flies with disease in the same year by Finlay, and the proof of their causation of yellow fever by Reed, Lazear, Carroll and Agramonte in 1899 to the present time, there has been an ever-increasing volume of literature, till it has far exceeded the limitations of the average physician. The impetus which the discoveries by Ross and the American commission of 1899 have given, not only to clinical and pathologic studies, but to parasitologic and entomologic studies as well, has been tremendous. More has been learned about the habits and structure of filariae, plasmodia and trypanosomes, about mosquitoes, tsetse flies and the various other infecting "bugs" within these years, than in all the preceding. Thirty years ago, for instance, scarcely a hundred species of mosquitoes were known throughout the world; now their numbers have been increased manifold, and their catalog is still far from complete. Physicians and perhaps entomologists and parasitologists will welcome any trustworthy inventory of our present knowledge, any summary that will enable them to keep even moderate pace with the many discoveries of recent years. Hindle's book is such a summary, and it may be commended from both the entomologic and the medical points of view. The author's main object has been "to collocate the most important observations concerning the part taken by biting flies in the transmission of disease, including notes on the classification of the flies concerned, and descriptions of the infections transmitted, but no attempt has been made to give any account of the clinical symptoms of the various diseases, whether of man or animals." The book includes a summary

of the structure, habits and classification of biting and allied flies—mosquitoes, stable flies, tsetse flies, horse flies and moth flies; of the various transmitted parasites and their life cycles, modes of infection, etc., together with brief histories of the discoveries and the distribution of both diseases and insects. The larger part of the work is devoted to mosquitoes, malaria and yellow fever, but other flies, sleeping sickness, dengue, elephantiasis, surra, pappataci fever, etc., are treated more or less at length, though only a brief note is given of *verruca peruviana*. Those portions dealing with the classification and structure of the biting flies is largely a compilation from standard authorities, but the work has been carefully done, with fewer errors than might be anticipated. The physician, however, must not expect by the aid of this book alone to become quickly an expert in the recognition of these insect pests. The subject is too abstruse for that. With the aid of a few samples, which the physician may obtain from various sources, and of some additional literature on the subject, he may, with a little exertion, become so far acquainted with the chief kinds of parasitic insects that his services to the community in which he lives will be greatly enhanced. It is desirable that every general practitioner of medicine should be able to distinguish the chief disease-bearing insects of the region in which he lives, and to know something of their habits also. Certainly the national authorities can render no greater service than by aiding him in acquiring that acquaintance.

THE INDIVIDUAL DELINQUENT. A Text-Book of Diagnosis and Prognosis for All Concerned in Understanding Offenders. By William Healy, A.B., M.D., Director of the Psychopathic Institute, Juvenile Court, Chicago. Cloth. Price, \$5 net. Pp. 830. Boston: Little, Brown & Co., 1915.

We have innumerable surveys of criminology, different theories of criminal law and many statistics leading to general explanations, all concerning chiefly external and anthropometric details. The introduction of psychologic tests for the estimation of the mental potential has revolutionized the methods applied to the study of the individual delinquent. The work of Dr. Healy is perhaps the first successful study of the individual leading to a clear understanding and scientific treatment. The author is not inclined to put delinquents as such in the list of abnormal individuals. He points out methods of procedure for the adequate study of a delinquent, and lays especial stress on the psychologic method. The concrete studies, with expositions of groups and types, deserve special attention.

"Anthropology, the science of man," says Dr. Healy, must be ever growing with the growth of human knowledge, and cannot be held by the limitations of set opinions." Facts ascertained by the study of the individual readily overthrow the set theories of anthropologic conceptions. The point of view of the author is "to ascertain from the actualities of life the basic factors of disordered social conduct." He would like to term much of his study "characterology." "As students of character, we are dealing with motives, with the driving forces of human conduct, and since conduct is directly a production of mental life, we occasionally become involved in individual and differential psychology." To repeat, the dynamic center of the whole problem of delinquency and crime (the terms "delinquency" and "crime" are always used by the author synonymously) will ever be the individual offender.

Dr. Healy chooses the intimate study of young offenders for the reason that such a study would establish a better understanding of the types of older offenders. "Man is but a child with but a little larger growth, and genetic fundamentals are the logical forebears of etiology and diagnosis in later years." Another motive for research into the beginnings and causative factors is the opportunity for the establishment of scientific laws of predictability on which all sorts of treatment could be rationally planned. The work of Dr. Healy is divided into two books, the first one containing chapters on the individual, the mental basis of delinquency, working methods, statistics, and treatment; the second, cases, types and causative factors. The whole field

of abnormal mental reactions is thoroughly gone over and the large number of his cases illustrating these are a marvel of conciseness, completeness and lucidity of detail. Appended to the two books is a most complete bibliography and an article on the organization of the Juvenile Psychopathic Hospital. This book has opened a way for every earnest student of this subject to follow.

GNORRHEA AND ITS COMPLICATIONS IN THE MALE AND FEMALE. By David Watson, M.B., C.M., Lecturer on Venereal Diseases to the University of Glasgow. Cloth. Price, \$3.75 net. Pp. 375, with 84 illustrations. New York: Paul B. Hoeber, 1915.

In spite of the fact that the gonococcus occupies a position of the "very first rank as a cause of ill health and disability," the subject of gonorrhea in its entirety is seldom given due consideration. In this book every phase of the subject, from bacteriology to urethroscopy, and from the simplest to the most complicated infections in the male or female, has been carefully and instructively compiled. With the authors on the continent, it is interesting to read, the preference in the treatment of gonorrhea is the grand "lavation" method. Important references are incorporated in the work and are balanced by the author's own opinions and observations. For a "latest" book, there is unpardonable brevity in the discussion of vaccine and serum therapy, so that no definite conclusion can be formed as to its value.

Medicolegal

Privileged Communication Under Amended Statute

(*Armstrong vs. Topeka Railway Co. (Kan.)*, 144 Pac. R. 847)

The Supreme Court of Kansas reverses a judgment obtained by the plaintiff, a physician, for damages resulting from personal injuries which he alleged he sustained through the negligent operation of one of the defendant's street cars, the case being remanded for a new trial. This the court does because of what it deems was error in the rejection of the defendant's offers to show by physicians who were present when another physician made his examination of the plaintiff, and by other physicians, the history of the accident to the plaintiff as they had received it from him. The court holds that, under the facts of the case, the plaintiff, who was attended by a number of physicians, waived his right to have his communications to them respecting the manner and circumstances of his injury regarded as privileged, and, further, that since he waived his privilege it no longer exists and will not be a factor in subsequent proceedings in the case.

Section 323 of the Code of Civil Procedure of Kansas of 1901, relating to privileged communications to physicians and surgeons with reference to physical disease, was amended in 1909 to include communications respecting physical defects and injuries, and the time, manner, and circumstances under which ailments were incurred. The time, manner and circumstances of a street car accident are not confidential facts. There is no secrecy, or intimacy, or privacy about them, and nothing a legislature can do can change their actual character. It may be assumed, however, that the legislature may arbitrarily classify them with confidential matters with which they may be associated. The court will not assume that the legislature added the time, manner and circumstances of personal injuries to the exemptions contained in the old law for the purpose of fostering any damage suit industry, or for the purpose of gratifying the desires of members of the medical profession to keep their relations with patients free from the probe of judicial inquiry. On the other hand, it will be assumed that the amendment was made in the same spirit in which the original statute was conceived; that is, for the protection of genuinely confidential matters.

A physician may testify to confidential communications with the consent of his patient. The giving of testimony by the patient without objection is by statute made the equivalent of consent that the physician may testify to the same subject-matter, whether the patient be willing in fact or not. Besides

this statutory consent, consent may be express, as, for example, by contract. Consent may also be implied. It is implied from failure to make objection when the physician is called on to testify, assuming that the patient has opportunity to make objection.

The court is of the opinion that the statute does not contemplate that waiver follows from the mere fact that the patient himself testifies to his physical condition and to the manner and circumstances of his injury. In doing so he need not disclose confidential communications to his physician, and, if he do not, the communications are still privileged. Cases may also arise in which breaking the seal of confidence as to a single physician will not waive the privilege as to others.

Unfavorable Results from Efforts to Save Foot

(*Miller vs. Toles (Mich.)*, 150 N. W. R. 118)

The Supreme Court of Michigan holds that a verdict was properly directed in favor of the defendant, a surgeon sued for alleged malpractice. The court says that the plaintiff was injured as the result of a fall from a scaffold on Aug. 24, 1909, his ankle being badly sprained and perhaps otherwise injured. He was treated by four different physicians, one after the other, until Nov. 19, 1910, when the ankle had assumed such a condition that the attending physician suggested that the case was one which demanded surgical rather than medical treatment, and the defendant was called in consultation. As a result of the consultation, it was determined by the defendant to attempt to save the foot and ankle by the use of what was called the "Murphy Treatment," consisting in the injection of a solution the nature of which was not disclosed by the record. The first injection was administered November 20, the second December 3, and the third Dec. 30, 1910. At the time the first injection was administered, the plaintiff's temperature was about 102, indicating, probably, that the diseased condition of the ankle was causing a serious constitutional disturbance. As a result of the injections, the high temperature subsided. After each injection, however, the plaintiff suffered severe pain, which lasted from one to three days, requiring the administration of opiates for its relief. No marked improvement followed the use of the injection, and, on Feb. 14, 1911, it was determined to undertake an exploratory operation, which was performed. There was no expert testimony as to the condition in which the bones of the ankle were found, but the plaintiff testified that he was assured by the defendant that they were all right and that a complete cure would follow. However, the ankle did not improve, but continued to grow markedly worse, until, on Aug. 7, 1912, the plaintiff's condition became so alarming, his temperature having risen to about 104, that it was obvious an amputation must be resorted to or he would certainly die. The foot was therefore, on that date, cut off. The court thinks it obvious from an examination of the record that at the time the defendant was called the ankle was in an extremely serious condition. It was in such a condition as, in the opinion of his attending physician, demanded amputation. Under these circumstances the defendant tried a remedy which appeared to have been known and approved by the profession, though perhaps not generally, and which in some instances of diseased joints had achieved remarkable results. Inasmuch as the only alternative at that time was immediate amputation, it would be a strange application of the law which would hold the defendant responsible for its failure. In treating a broken or diseased limb, the implied contract between the surgeon and patient is not to restore it to its natural condition, but to use that degree of diligence and skill which is ordinarily possessed by the average of the members of the profession in similar localities, giving due consideration to the state of the art at the time. The court does not agree with the contention of the plaintiff that, having laid before the jury the facts surrounding the injury, the subsequent treatment, and the ultimate loss of the limb, the jury, in absence of testimony of an expert character tending to show malpractice, should be permitted to draw inferences of negligent conduct on the part of the defendant.

Miscellany

Fighting Rocky Mountain Spotted Fever

The work for 1915 of eradicating the spotted fever tick from infested regions in Montana has been begun by the Public Health Service and the Montana State Board of Entomology. Dr. L. D. Fricks, who conducted investigations and aided in devising means for ridding the state of the tick in the Bitter Root Valley, has arrived in Montana and will make his headquarters at Victor for the summer. The plan of the Public Health Service and the state authorities is to continue to wage war on the tick, and as a means to this end the various measures that have been found to be effective, hand picking of domestic animals, dipping, sheep grazing and the destruction of small rodents, will all be employed. Before the weather warms sufficiently to permit dipping, hand picking will be advised for all stock owners. Sheep grazing was found in 1914 to be the most effective and economical means of getting rid of the ticks, practically 85 per cent. of the ticks picked up by the sheep dying in the wool. The fat in the wool seems to be the destructive agent. Dr. Fricks believes that the extensive grazing of sheep on the west side of the valley, the area now almost exclusively infested, would soon eradicate the ticks and consequently the fever. Sheep have been extensively grazed on the east side for years, and this he believes accounts for the freedom of that area from the fever ticks. It has been found that only about 1 in 100 ticks is infected, and this accounts for the fact that many persons bitten by ticks do not develop the disease. As a precaution it is advised that persons living in the infested territory should search their bodies frequently for the ticks, and that parents should exercise the strictest diligence with their children to keep them free from ticks. The government investigators strip and examine themselves and their clothing every two hours while working in tick territory. It is found that it takes a tick about two hours to become attached to the body and leave the infection. It is advised that tick bites be cauterized with pure phenol (carbolic acid) on a wooden toothpick. The immature ticks attach themselves to gophers, ground squirrels and other small rodents, but the mature ticks attach themselves to the large domestic animals. Poisoned grain will be furnished to kill the small wild animals which harbor ticks.

Maggot Trap for Fly Prevention

In view of the imminence of summer and the approaching fly season, a bulletin of the U. S. Department of Agriculture on the construction of a maggot trap for fly prevention is of interest. Flies breed very largely in manure, and this is the most frequent source of flies about habitations. It has been found that the fly at about the end of the larval stage, when the insects are about to enter the pupa or chrysalis stage, have a pronounced tendency to migrate, and

this migrating stage is taken advantage of to trap the immature flies. To do this the manure is placed in a receptacle with a lattice work bottom, beneath which is placed a concrete basin connected by a drain pipe with a small concrete cistern. The bottom of the basin is covered with water, into which the maggots, as they migrate, fall and are drowned. At frequent intervals the water is drained off into the cistern and is again pumped over the manure so that none of its contents are wasted. The expense of this sort of trap is said to be no greater than that of various other methods of screening houses and stables, manure bins, etc., to eliminate the fly nuisance. It has been estimated from experiments that in warm weather the trap will get rid of 99 per cent. of the flies in the manure.

Fee-Splitting

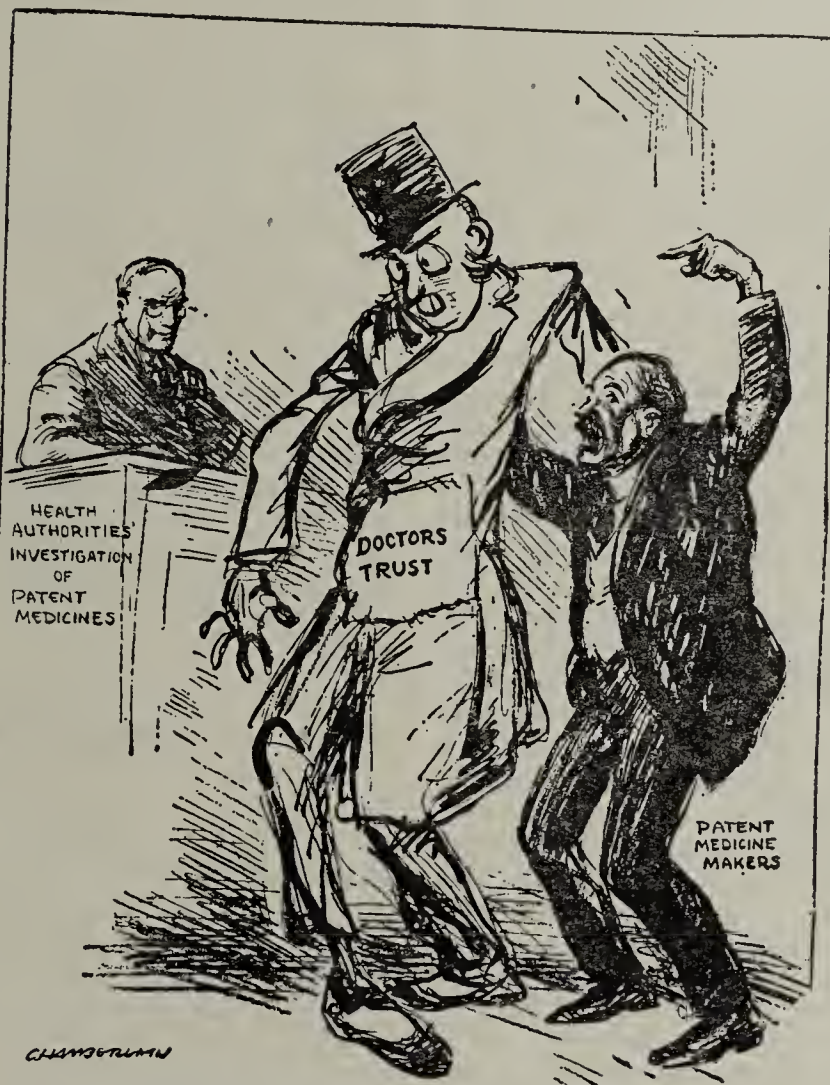
What is fee-splitting? It is the buying and selling of patients. The public knows little of this naughtiness.

Even if you explain, they see little wrong. Fee-splitting is the custom at times of the merchant, the shop-keeper, the clergyman, the lawyer, the farmer and the mechanic. Obviously, it means a commission, a bonus, or a "rake-off" for the good will, the good word, or the friendly act of a fellow-craftsman. But fee-splitting in ordinary business is a mild offense, or no offense at all, and differs from medico-surgical fee-splitting in this—that in ordinary business the customer is not necessarily made to suffer, because there is commonly a recognized fixed charge for commodities and for service. The customer knows this and counts on the inevitable profit for the middleman. If a farmer can produce eggs for 15 cents a dozen, and if the customer pays the grocer 30 cents a dozen, there is no secret connivance anywhere in the transaction. Thirty cents is the market price, and the customer knows that the 15 cents profit is somewhere properly divided between the farmer and the intervening grocer. The same rule is recognized as proper and

true of other commodities. The public, knowing the market prices, expect they must allow for reasonable profits, and must pay more than the cost of production. Medicosurgical fee-splitting is another matter and occupies a bad eminence peculiarly its own. It is graft; it is blackmail by the general practitioner; it is bribery by the guilty surgeon. Through such transactions the unscrupulous surgeon buys his patient from the unscrupulous family doctor as surely as he buys flour from the grocer, *Fiat justitia, ruat coelum*. Again, let us scan our ethics, and let the crusade advance.—James G. Mumford, *Clifton Med. Bull.*

Parental Superstition

Parental superstition is not more foolish, more common, or more remarkable than any other kind, but it has worse effects. It does not matter to A if B does or does not walk under a ladder, or waves saline sacrifice to an unknown deity after spilling salt, but it makes a great



THROWING THE SAME OLD SCARE.
From Puck—(by permission).

difference to the health and happiness of children if they are prevented from obtaining suitable treatment because their parents choose to believe one or other impossible superstition. Medical men come across many of these absurd and injurious beliefs, all of which are backed up by clinical evidence of the post hoc propter hoc sort, which have to be carefully dealt with, or faith in the medical adviser is lost and another client gained for the patent medicine men. Quite well educated people believe that the bacillus of tetanus will only willingly make its home in a cut between two of the digits, and that its special seat of election is between the thumb and the first finger. We are often told that to stop an otorrhea will bring on "fits." This is probably because it is held that there is danger in plugging the ear. Impetigo contagiosa is constantly put down to eating unripe fruit, and there is a very prevalent idea that children will outgrow their defects in their seventh year. The existence of the "comforter" still goes on with its toll of infant lives, and will probably continue. We give too much credit to Nature. We think that because a woman is a mother she is fit to be one. We never made a greater mistake. It is hard to convince the average female adult of this when she has arrived at what she considers the age of discretion. We must catch her young. At school she must be taught to know, at any rate, that she does not know everything. Once that is realized she may be willing to learn, and if she is, we will find that the terrible figures of infantile mortality will come down with a run.—*Medical Press and Circular*.

Americans in Turkey

According to a recent bulletin of the American Board of Foreign Missions, Americans are carrying on schools, hospitals, farms and industrial plants in twenty-four Turkish cities. They maintain 450 schools of various grades and seven colleges, with numerous doctors and nurses in the nine hospitals conducted by the board. Dr. Alden R. Hoover of the International Hospital at Talas, Cesarea, who is now in America on furlough, is a believer in Turkey's future. He says that Turkey, geographically, commercially and agriculturally, is a rich country, but is undeveloped and bankrupt because its people have been kept ignorant, untrained and servile, and the deplorable sanitary and hygienic conditions existing are a consequence of this, resulting in a terrible waste of human life. He says the ravages of epidemic and endemic diseases are a constant menace to western countries through emigration, and there is a wonderful opportunity for modern medicine to regenerate the country. He sums up the specific needs as follows: Securing sanitary cities and villages; preventing ever-recurring epidemics of cholera, typhoid, typhus, etc.; lessening the high infant mortality; providing educated midwives and nurses; organizing child welfare to lessen the ravages of infectious diseases; stimulating domestic and personal hygiene and helping in the solution of the social evil.

Medical Reporters

A few minutes before being called upon to speak at a medical congress not long ago, I was approached by a reporter who asked for an account of my paper. My remonstrance that he could soon hear what was to be said to the assembly evoked the reply that he hadn't time for that and, besides, he wouldn't be able to understand if he had. Immediately after the meeting another reporter came up and asked me to explain the papers that had been read, and particularly what was meant by the terms "tissue," "cell," and "heart-beat," confessing frankly that he hadn't understood a word of what had been said. Clearly there is no reason to find fault with either of these men for their ignorance. They may have been quite competent in their regular work. They certainly had the virtues of frankness and of knowing their own limitations. It would be unreasonable to blame a reporter of sporting or police news for a lack of knowledge of radio-activity or experimental embryology, but what should we say of otherwise resourceful newspapers that send such men to report scientific news for a knowledge-

craving and credulous public? That such subjects can be sensibly and accurately reported in the daily press is proved by the splendid record of the *London Times*, as shown, for instance, in its admirable reports of the last international medical congress. These reports have almost the accuracy that one would expect to find in official proceedings of the meetings. It is clear that the meetings were reported by experts, not only possessed of requisite knowledge, but also highly skilled in the art of writing. Here is an example worthy of emulation, and a splendid opportunity for some of our best papers to serve the public interest.—Ross G. Harrison, *Science*, Oct. 23, 1914.

Epidemic Outbreaks in Russian Factories.—In March and April, 1914, peculiar epidemics broke out in Russian factories, chiefly among the women rubber workers in factories for making goloshes. The trouble was characterized by sudden development, with headache, giddiness, lassitude, loss of consciousness and collapse. Nausea, vomiting and convulsions were also observed. In one factory about fifty women were affected on the same morning. On another day 102 women were thus affected and the floor was strewn with writhing, unconscious women. Some men who rushed in to help were also overcome. These women worked in large rooms, putting together the goloshes, the adhesive material used being gutta percha and resins dissolved in benzine. Two theories were advanced as to the causation of the epidemic, one being a chronic benzine poisoning among employees whose health had been depressed, many of such cases culminating at one time. The other theory was that it was due to dissatisfaction with working conditions, auto-suggestion resulting in hysterical manifestations. The benzine poisoning theory was discounted when similar epidemics occurred in factories not using benzine, one occurring in a tobacco factory, and others in chocolate, wool, clothing and other factories. Professor Harbitz believes that the epidemics were largely determined by psychic factors, among employees affected by faulty sanitation and chronic ill health. In some cases the benzine may possibly have contributed.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, SAN FRANCISCO, JUNE 21-25.

- Am. Assn. Gen.-Urin. Surgs., White Sulphur Springs, W. Va., May 18-20.
- American Association of Immunologists, Washington, May 10.
- American Dermatological Association, New York, May 13-15.
- American Gastro-Enterological Association, Baltimore, May 10-11.
- Amer. Gynecological Society, White Sulphur Springs, W. Va., May 18-20.
- American Laryngological Association, Niagara Falls, June 1-3.
- American Medico-Psychological Assn., Fortress Monroe, Va., May 11-14.
- American Neurological Association, New York City, May 6-8.
- American Orthopedic Association, Detroit, May 6-8.
- American Otolological Society, Niagara Falls, June 3-4.
- American Pediatric Society, Lakewood, N. J., May 25-27.
- American Psychopathological Association, New York, May 5.
- American Surgical Association, Rochester, Minn., June 9-11.
- Arkansas Medical Society, Little Rock, May 3-6.
- Association of American Physicians, Washington, May 11-12.
- Conf. of State and Prov. Boards of North America, Washington, May 14.
- Connecticut State Medical Society, Hartford, May 19-20.
- Florida Medical Association, De Land, May 12-14.
- Illinois State Medical Society, Springfield, May 19-20.
- Iowa State Medical Society, Waterloo, May 12-14.
- Kansas Medical Society, Kansas City, May 5-6.
- Maine Medical Association, Poland Springs, June 9-10.
- Maryland Medical and Chir. Faculty, Baltimore, April 27-29.
- Massachusetts Medical Society, Boston, June 8-9.
- Mississippi State Med. Association, Hattiesburg, May 11.
- Missouri State Medical Association, St. Joseph, May 10-12.
- Nat'l Assn. for the Study of Epilepsy, Old Point Comfort, Va., May 10.
- Nebraska State Medical Association, Hastings, May 18-20.
- New Hampshire Medical Society, Concord, May 19.
- New York State Medical Society, Buffalo, April 27-29.
- North Dakota State Medical Association, Bismarck, May 12-13.
- Ohio State Medical Association, Cincinnati, May 4-6.
- Oklahoma State Medical Association, Bartlesville, May 11-13.
- Rhode Island Medical Society, Providence, June 3.
- Texas State Medical Association, Ft. Worth, May 4-6.
- West Virginia State Medical Association, Huntington, May 12-14.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

April, CXLIX, No. 4, pp. 469-624

- 1 *Histogenesis of Cancer of Stomach. W. C. MacCarty, Rochester, Minn.
- 2 Perforated Gastric and Duodenal Ulcer. G. G. Ross, Philadelphia.
- 3 *Case of Paroxysmal Tachycardia. W. L. Niles, New York.
- 4 *Effects of Exercise on Normal and Pathologic Heart. C. S. Williamson, Chicago.
- 5 *Dilatation of Arch of Aorta in Chronic Nephritis with Hypertension. W. H. Smith and A. R. Kilgore, Boston.
- 6 *Acrodermatitis Chronica Atrophicans. F. Wise and E. J. Snyder, New York.
- 7 *Sequence of Pathologic Changes in Acute Appendicitis and Appendicular Peritonitis. E. M. Stanton, Schenectady, N. Y.
- 8 Tuberculosis of Vulva. Report of Case. K. Bulkley, New York.
- 9 *Operation of Cranial Decompression. W. Sharpe, New York.
- 10 Fracture of Base of Skull with Escape of Cerebrospinal Fluid from Ear. Effect of Atropin and Epinephrin on Secretion. J. W. Moore, Louisville, Ky.

1. **Histogenesis of Cancer of Stomach.**—The histogenesis of cancer in the stomach, MacCarty says, bears an analogy to that in the breast, prostate and skin, with the one exception and the germinative stratum or focus has not been demonstrated, a condition which differs from primary epithelial hyperplasia in the organs just mentioned. In the production of these apparent stages of epithelial hyperplasia whatever the irritant or irritants are, be they extrinsic or intrinsic, there is an apparent attempt on the part of nature to reproduce the epithelial lining of the glands. In this attempt there is failure to completely differentiate the cells with the coincidental picture of secondary hyperplasia the cells of which differ from cancer cells only in position. From these facts it is clearly to be seen that the gastric cancer cell arises from intraglandular hyperplastic cells of the mucosa, and represents a malignant end-stage of a process of hyperplasia of normal cells.

3. **Paroxysmal Tachycardia.**—A case of paroxysmal tachycardia with the ventricular form of the venous pulse is reported by Niles. Strophanthin was administered many times during the attacks and they always ceased following it, usually in about one hour. On several occasions transitory fibrillation of the auricle terminated attacks. Finally, under the combined effect of digitalis and strophanthin permanent auricular fibrillation was induced and no more paroxysms have occurred. The case illustrates the close relation between paroxysmal tachycardia, auricular fibrillation, and auricular flutter. Strophanthin, in repeated doses if necessary, is recommended for prolonged attacks of paroxysmal tachycardia.

4. **Effects of Exercise on Heart.**—The teleroentgen method, Williamson states, offers a highly accurate and perfectly objective method of determining the size of the heart, eliminating completely any possible error due to varying heights of the diaphragm. The results of his experiments show that: (a) The normal heart responds to any exercise within its power by a diminution in size; (b) About one-half of the pathologic hearts, which are in good compensation, respond to exercise within their power, with a diminution in size; (c) Approximately one-half of the pathologic hearts, with manifest, but low-grade broken compensation, respond in the same manner by some degree of diminution in size. In only the most exceptional instances, if ever, are the differences in size due to acute dilatation, sufficient to be determined by even the most refined and subtle percussion. The Roentgen-ray examination of the heart, before and after appropriate exercise, is capable of rendering valuable assistance in the estimation of the functional efficiency of the heart.

5. **Dilatation of Arch of Aorta.**—The point of interest brought out by the cases cited by Smith and Kilgore is the frequency of dilatation of the arch under the age of 50 years in non-syphilitic conditions, especially in chronic nephritis

with hypertension. In such cases there were no aortas below the upper limit of normal diameter (6 cm.); three aortas at the upper limit of normal, and eleven aortas definitely dilated. This dilatation may be quite marked—especially in the younger patients—in seven, or 50 per cent., of the cases the diameter measured from 7 to 9 cm., or 1 to 3 cm., above normal.

6. **Acrodermatitis Chronica Atrophicans.**—Acrodermatitis chronica atrophicans is described by Wise and Snyder as being a distinct clinical variety of diffuse, progressive, atrophying dermatitis, possessing certain characteristic and more or less constant features by means of which it may be differentiated from similar cutaneous pictures. These features are: (1) The presence of early inflammatory and infiltrating lesions, preceding or occurring together with atrophic changes; (2) The first evidences of the malady appearing usually on the hands and feet and progressing centripetally toward the trunk in an exceedingly slow and insidious manner; (3) The occurrence of the ulnar band or its analogue on the calf of the leg; (4) The relatively "immune area" below Poupart's ligament; (5) The anetoderma, most pronounced around the knees and elbows.

7. **Pathologic Changes in Appendicitis.**—During the course of his study Stanton has examined microscopically 539 appendices removed during or within ten days following an acute attack, and has studied the gross pathology as found at operation in more than 1,500 cases of appendicitis. In every instance the pathologic data has been classified especially with reference to the duration of the symptoms previous to the time of the observation of the pathologic conditions. As regards the appendicitis itself, the time was figured from the first onset of symptoms, while as regards the more extensive peritoneal involvements it was found necessary to determine not only the time of the beginning of the attack but also approximately the time of occurrence of any exacerbations of peritoneal symptoms.

Stanton emphasizes the following points: Acute appendicitis is even during the first day of the attack a diffuse inflammatory process involving all coats of the appendix. The destructive process in the appendix reaches its height on the second and third days of the disease. From the third day on the subsequent changes occurring in the appendix itself have chiefly to do with the repair of the damage done during the earlier periods of the attack. The diffuse inflammatory process involving the walls of the appendix is of such character that even without gross evidences of perforation the protection of the general peritoneal cavity from infection depends on the maintenance of the integrity of the fibrinous periappendicular adhesions rather than on the bacterial impermeability of the walls of the appendix itself.

Stanton's observations lead him to agree with Deaver, Moynihan, Ochsner and others when they state that clinical perforation would almost never occur if the general practitioner and the laity would appreciate the fact that in appendicitis "perforation spells purgation" and withhold cathartics during the early stages of suspected cases. If in cases of diffuse peritonitis the peritoneal surfaces are put at rest by withholding food and cathartics by mouth the sequence of subsequent changes occurring in the involved area represents a definite and essentially uniform process tending to the resolution of the lesion or the formation of definitely circumscribed abscesses. After the first thirty-six to forty-eight hours of a diffuse peritoneal infection the lesions encountered are of such a character as to be essentially undrainable and not well suited to surgical interference, a condition which continues until the period of localized abscess formation.

9. **Operation for Cranial Decompression.**—The operation of cranial decompression, Sharpe says, is one that should be used much more frequently than it is at present; especially is this true in the conditions of brain tumor, fracture of the skull, brain abscess and selected cases of spastic paralysis due to an intracranial hemorrhage at birth. The subtemporal method of cranial decompression is the ideal route; besides

being less difficult technically, it exposes an area of the brain most frequently involved. This permanent decompression opening does not weaken the skull, in that the thick overlying temporal muscles protect it most adequately, so that herniae cerebri are not be feared. The operative mortality is low. Patients with intracranial conditions should not be permitted to become blind or to reach the dangerous stage of medullary compression without a subtemporal decompression being performed early.

American Journal of Public Health, Boston

March, V, No. 3, pp. 183-279

- 11 Negro Health Problem in Southern Cities. W. F. Brunner, Savannah, Ga.
- 12 Negro Health Problem in Rural Communities. A. G. Fort, Atlanta, Ga.
- 13 Negro Health Problem. L. C. Allen, Hoschton, Ga.
- 14 Negro as Problem in Public Health Charity. L. Lee, Savannah, Ga.
- 15 Practical Remedial Measures for Improvement of Hygienic Conditions of Negroes in South. M. L. Graves, Galveston, Tex.
- 16 Syphilis Among Insane Negroes. S. S. Hindman, Milledgeville, Ga.
- 17 Relation of Public Health Nursing to Public Health Campaign. E. P. Crandall.
- 18 Federal Meat Inspection Service and Sanitation of Packing Houses Under Its Supervision. G. H. Shaw, Washington, D. C.
- 19 Modification of Ponder's Stain for Diphtheria. J. J. Kinyoun, Washington, D. C.

Annals of Surgery, Philadelphia

April, LXI, No. 4, pp. 385-512

- 20 Operative Treatment of Carcinoma of Esophagus. F. Torek, New York.
- 21 *Gastric and Duodenal Ulcer. C. H. Peck, New York.
- 22 Retroperitoneal Perforation of Duodenal Ulcer. Report of Case. G. Petren, Sweden.
- 23 *Occlusion of Pylorus. C. L. Gibson and F. Beekman, New York.
- 24 *Appendicular Obliteration. D. B. Pfeiffer, Philadelphia.
- 25 Major Procedure First in Two-Stage Operation for Relief of Cancer of Rectum. R. C. Coffey, Portland, Ore.
- 26 Painful Subcutaneous Tubercle. H. R. Owen, Philadelphia.
- 27 Typhoid Spine. Report of Four Cases. J. B. Carnett, Philadelphia.

21. **Gastric and Duodenal Ulcer.**—Peck reviews 120 cases of non-malignant ulcer of the stomach and duodenum. Of the 88 duodenal ulcers 71 were of the chronic indurated type and 17 were acute perforations. Of the 30 gastric ulcers, 17 were chronic non-perforative, and 13 acute perforations. In the duodenal group 83 per cent. were males, and in the gastric group 70 per cent. All of the 17 acute perforated duodenal ulcers occurred in males, the ages ranging from 23 to 52. Of the 13 acute perforated gastric ulcers, 9 were males and 4 females, the ages ranging from 23 to 49.

The 71 cases of chronic duodenal ulcer were verified by operation, and a posterior gastro-enterostomy was performed. In 44 the site of the ulcer was anterior, generally close to the pylorus; 19 were posterior, 2 multiple, 1 in the second portion of the duodenum, and in 5 the exact site was not stated. In addition to the gastro-enterostomy, when possible, especially in the ulcers situated on the anterior surface of the duodenum, the area was infolded by Lembert sutures, thus causing some degree of pyloric occlusion. In only one of the group was the von Eiselsberg unilateral exclusion performed about a year after the gastro-enterostomy. Three years later the patient was still having pain and occasional intestinal hemorrhages.

Hematemesis occurred in 13 patients; intestinal hemorrhage was also present in 10. Intestinal hemorrhage occurred in 11 additional cases—21 in all. In 30 patients it was definitely stated that no hemorrhage occurred, and in the remainder the history failed to state. Pain of a characteristic type, occurring from two to four hours after meals, relieved by food or alkalis, was noted in 24 patients. In 26 additional patients, pain while present, was irregular in occurrence. Vomiting at some time during the illness occurred in about half of the patients. Records of gastric analysis in 40 of the patients showed free hydrochloric acid below 40 in 20, between 40 and 60 in 13 and above 60 in 7. The total acidity corresponded fairly well to the percentage of free acid, six of the patients showing a total acidity above 90. In no case was absence of free hydrochloric acid noted. Of the seventy-

one patients, sixty-five recovered and six died—a mortality of 8.4 per cent.

In the 19 cases of chronic gastric ulcer, gastro-enterostomy was performed in 12; partial gastrectomy in 3; excision of the ulcer without gastro-enterostomy in 2; cauterization with gastro-enterostomy in 1, and exploratory celiotomy in 1 patient. There were 3 deaths and a fourth patient returned to the hospital shortly after discharge with pneumonia, from which he died. Hematemesis had occurred in 10 patients; was absent in 7, and not mentioned in 3. Pain was a constant symptom, generally made worse by the ingestion of food; relieved by vomiting. Gastric analysis in 12 patients showed free HCl 40 or below, in 8 patients; 60 in 2 patients, and absent in 2 patients.

Of the 17 patients with acute perforated duodenal ulcer, 2 died before leaving the hospital, 1 of pneumonia on the seventeenth day after operation, and 1 after a secondary operation for subphrenic abscess twenty-two days after primary operation. Two others died shortly after leaving the hospital, 1 of pulmonary tuberculosis lighted up by the illness and operation, and 1 a few days after discharge, of hemorrhage from an ulcer situated on the inferior wall against the head of the pancreas.

In 4 patients simple closure of the ulcer without gastro-enterostomy was employed with 1 death; in 1, drainage of a large localized abscess, without suture; in 12, posterior gastro-enterostomy was done in addition to closure of the perforation, with 11 recoveries and 1 death (pneumonia on the seventeenth day). Of the 13 cases of perforated gastric ulcer, 7 patients recovered. Six patients died, all of peritonitis, 1 having pneumonia, 1 subphrenic abscess and pleurisy and 1 delirium tremens, in addition to the peritonitis. Four of the 6 were late operations from one to five days after perforation, with peritonitis already well developed. The other 2 were operated on twelve and thirteen hours, respectively, after perforation. Both had extensive leakage and peritonitis. Gastro-enterostomy was not performed in any of the fatal cases, but was done in addition to closure of the ulcer by suture in 5 of the 7 patients who recovered.

23. **Occlusion of Pylorus.**—For the border-line cases, when occlusion would seem to be indicated more as a matter of expediency than acute necessity, Gibson and Beekman recommend unreservedly the less severe measure, as constriction or infolding with sutures. Of the former method, they believe at present that the application of a free flap of fascia, when it can be applied, promises the best result. If, however, the adhesions around the pylorus are such that it would be inadvisable to separate them, they recommend that the constriction be produced by one of the methods of infolding with peritoneal sutures. The more radical procedures, such as the Eiselsberg unilateral exclusion, they would reserve for the severer lesions which call unquestionably for certainty of results. They feel, however, that even in these cases this particular operation will seldom be indicated, for, as general principle, these severer lesions would probably be better treated by resection, which in severity but little exceeds the unilateral exclusion. These recommendations are based on experimental studies on dogs.

24. **Appendicular Obliteration.**—It is pointed out by Pfeiffer after an analysis of 100 consecutive cases that appendicular sclerosis and its terminal stage, appendicular obliteration, differ pathologically and clinically from chronic active appendicitis. Three types of symptoms are to be considered: (a) Reflex, due to irritation of the nervous mechanism of the appendix; (b) Local, due to mesenteric and peritoneal contractions and inflammatory bands or adhesions affecting the appendix, cecum, ileum or ascending colon; (c) Consecutive symptoms, general and local, consequent on disturbed function of the ileocecal region. Simple appendectomy avails for reflex symptoms, but in local and consecutive symptoms only in so far as the operation permanently frees symptom-producing contractions, sclerosis or adhesions. The determination of these latter conditions and the appropriate treatment therefore awaits further observations and experience.

Cleveland Medical Journal

March, XIV, No. 3, pp. 177-252

- 28 Brain in Primitive Man. D. Black, Cleveland.
29 *Frequency of Duct-Like Spaces in Thymus; Formation and Fate of Hassall's Corpuscles. D. Marine, Cleveland.
30 Cytology of Cerebrospinal Fluid; Report of Six Hundred Cell Counts. O. P. Bigelow, Cleveland.
31 Inlay Bone Graft. W. G. Stern, Cleveland.
32 Precipitation of Serum Albumin and Glutin by Alkaloidal Reagents. P. J. Hanzlik, Cleveland.

29. **Frequency of Duct-Like Spaces in Thymus.**—Normal Hassall's corpuscles represent the atrophic and hyalinized remains of the embryologic thymic epithelial tubules and cords. Marine found that the frequency of atypical development of Hassall's corpuscles varies in different species of animals. In dogs duct-like epithelial lined spaces were present in 58 of 275 cases, or about 21 per cent. while in man they were present in one of 126 autopsies. In the sheep and chick the series is too small for percentage consideration. Starting with the embryonic epithelial tubules and cords, there is a considerable range of possible morphologic changes. Thus the solid cords may differentiate into tubules before the involutionary process starts, or the involutionary process may start before tubular formation takes place. In the latter case, which even in dogs is about 80 per cent. of all cases, typical Hassall's corpuscles are formed, while in the former, varying degrees of atypical Hassall's corpuscles are formed, depending on the extent of the tubular differentiation before involution begins.

Illinois Medical Journal, Chicago

March, XXVII, No. 3, pp. 177-256

- 33 After-Treatment of Laparotomy. C. E. Humiston, Chicago.
34 Traumatic Hernia, and Its Relation to Workmen's Compensation Act. R. R. Duff, Chicago.
35 Foot Ailments. F. S. Lower, Chicago.
36 Extra-Uterine Pregnancy. A. Hall, Mt. Vernon.
37 Important Anatomic and Physiologic Factors in Subarachnoid Medication. H. E. Santee, Chicago.
38 Technic for Preparation of Salvarsanized or Neosalvarsanized Serum and Its Intraspinal Administration. W. T. Mefford, Chicago.
39 Intraspinal Administration of Neosalvarsan, Using Patient's Own Spinal Fluid as Vehicle, Technic and Demonstration. G. W. Hall, Chicago.
40 Intracranial Treatment of Paretic Dementia. R. C. Hamill, Chicago.
41 Experience with Abderhalden Serodiagnosis in Pregnancy, Carcinoma and Nervous Diseases. J. F. Biehn, Chicago.
42 Injuries of Head. H. C. Mitchell, Carbondale.
43 Hyperflexion of Spine with Multiple Spinous Process Fractures Without Accompanying Lesions. O. F. Scott, Argo.
44 Treatment of Hypothyroidism. H. G. Hardt, Chicago.
45 Two Cases of Immediate Transplantation of Bone in Compound Comminuted Fractures of Tibia and Fibula; Broken Fragments were used for Transplants. F. Byrnes, Chicago.
46 Fistula in Ano. F. B. McCarty, Chicago.

Journal of Medical Research, Boston

March, XXXII, No. 1, pp. 1-200

- 47 *Arteritis Syphilitica Obliterans. S. T. Darling and H. C. Clark, Ancon, C. Z.
48 Fatty Degeneration of Intima of Arteries. O. Klotz, Pittsburgh.
49 Lipase Studies: I. On Ester—Splitting Faculty of Normal Tissues. C. Quinan.
50 *Id. II. Experimental Chloroform Necrosis of Liver. C. Quinan.
51 Experimental Production of Lesions, Erosions, and Acute Ulcers in Duodenal Mucosa of Dogs by Repeated Injections of Epinephrin. G. A. Friedman, New York.
52 *Studies in Anaphylaxis. XIII. Activation of Antibody by Cell. R. Weil, New York.
53 Studies on Basal Metabolism in Obesity and Pituitary Disease. J. H. Means, Boston.
54 *Incidence and Inheritability of Spontaneous Cancer in Mice. M. Slye, Chicago.

47. **Arteritis Syphilitica Obliterans.**—A pathologic report of six cases of complete occlusion of large arteries, aorta, carotid and subclavian in which syphilis was the causative factor is made by Darling and Clark. In four of the six cases there were very positive evidences of lesions definitely related to the occluded vessels. They occurred chiefly among the negroes in the third, fourth and fifth decades of life. The occlusion was due to an exaggeration of the intimal thickening seen in luetic aortitis, and all the cases were associated with luetic mesortitis, sometimes with aneurysm, and

sclerosis of the myocardium and endocardium, conditions generally accepted as being of luetic origin. Three of the cases gave a positive Wassermann, one a positive history of treatment of syphilis, one a negative Wassermann, and one occurred before the test was in use.

From these observations it is seen: (a) That the left common carotid artery is the one most frequently occluded and this occurred not only when the carotid arose from the aorta directly, as it commonly does, but also when it arose from the innominate artery. Any other of the large arteries, even the abdominal aorta, may be the seat of occlusion. (b) The point of occlusion is most frequently located at the origin of the great vessel from the aorta. (c) While aneurysm is a frequent though by no means constant association in this condition, the occlusion of the vessel is not in any way due to the aneurysm being well separated from it, but to the luetic aortitis which underlies both conditions. (d) The conditions will be found to occur chiefly in persons suffering from syphilis.

50. **Experimental Chloroform Necrosis of Liver.**—Chloroform induces central necrosis of the liver in guinea pigs. The loss of the lipolytic ferment, per gram of the liver, after prolonged intoxication, may amount to nearly 38 per cent. Loss of the lipolytic ferment precedes the morphologic change that is known as necrosis. It is suggested by Quinan that chloroform disturbs the lipase balance of the tissues because: (a) In chloroform poisoning the liver substance shows an extensive loss of lipolytic activity per gram of substance. (b) The figures for the lipolytic activity of both the kidney and muscle tissues show, at the same time, a corresponding increase. Chloroform intoxication does not affect the autolytic activity of the liver cells.

52. **Activation of Antibody by Cell.**—When a guinea pig is passively sensitized by the action of an alien immune serum (rabbit versus horse serum), Weil says that two separate and distinct processes take place. First, the body cells appropriate and anchor the immune body, abstracting it from the circulatory blood. Second, the body cells produce an alteration, or activation, of the anchored antibody. This activation consists, 1, in a very much increased avidity of the antibody for antigen, and 2, in the acquired property of inducing a physiologic cellular response (such as muscular contraction in the case of the uterus) when the intracellular antibody is brought into contact with antigen. These changes occupy the so-called "latent period of passive sensitization." During this latent period the anchored antibody can, indeed, react with antigen, but the reaction induces no muscular contraction. When the cells have activated the anchored antibody, the latent period is concluded, and a muscular contraction characterizes the reaction of uterine antibody with antigen.

Cellular activation of antibody is therefore the basis of the anaphylactic reaction. Moreover, the increased avidity of cellular antibody constitutes a most important factor in the processes of immunity. Exactly the same conditions obtained in active anaphylaxis. The anchored antibody differs from circulating antibody in the possession of an increased avidity for antigen; moreover, it has the property of inducing a cellular response on uniting with antigen, a feature which is entirely lacking in the circulating antibody. Thus, the cell lends peculiar, and essential, characteristics to its antibody in active, as in passive anaphylaxis.

54. **Inheritability of Cancer in Mice.**—Slye believes that cancer is not transmitted as such, but rather as a tendency to occur from a given provocation, probably in the form of overirritation. The elimination as far as possible of all forms of overirritation to the tissues of an individual of high cancer ancestry should go far to eliminate the provocation of cancer; and the eugenic control of matings so that cancer shall at least not be potential in both sides of the hybrid cross ought to eventuate in a considerable decrease in the frequency of human cancer. An individual with poor normal growth has slow tumor growth. An individual whose growth processes are used in reproduction shows slow

tumor growth. An individual of good growth power whose normal growth processes are not being used shows rapid growth of neoplasms.

The clinical behavior of cancers in the laboratory is opposed to the theory of infection. Infection takes the weak individuals. Cancer selects the strong ones. Reduction of feeding and consequent lowering of resistance increases liability to infections; it lowers the cancer frequency. Vigorous growth processes are necessary for tumor growth. They militate against infections. A very slight infection will kill a pregnant female. Tumor growth is retarded by pregnancy. The results of Slye's experiments show cancer to be hereditary in the strict sense. The infections common among mice are no more liable to occur in one family than in any other if the individuals are separated from one another; whereas cancer crops out in cancer strains no matter where the mice are kept.

The infections common in Slye's laboratory spread not only through the cage, but to adjoining cages. The most careful and long continued experiments have failed to show a single case of transmission of cancer by contact in the same cage or in adjoining cages. If an infected mouse dies in a cage and is partly eaten before it is removed, every mouse in the cage is liable to be swept off by the same infection. Over and over again, the cancers of mice have been eaten by their mates or by mice placed with them as controls. Slye has never had a case of cancer in such mates as such controls. Portions of the cancer and of the viscera of dead cancerous mice have been systematically fed to control cages without a case of cancer in such controls. Cancer is a disease of middle and advanced age when the normal growth processes are confined to regeneration and reproduction. Infections are diseases of early life, when growth processes are largely accretions in quantity and in complexity.

Whether or not cancer shall eventually prove to be an infection, it has one profound difference from any infection known to man. It follows the laws of heredity with an inevitableness which makes it a character that can be manipulated. It can be bred into and out of strains at will. It can be put into a strain in which it has never existed before and it can be drawn out in extracted lines which can produce nothing else, and which in turn will carry cancer into any line with which they are hybridized; or it can be bred out of a line one side of which originally carried 100 per cent. of cancer.

Journal of Outdoor Life, New York

April, XII, No. 4, pp. 116-147

- 55 How To Escape Tuberculosis. E. O. Otis, Boston.
- 56 Negro Health Problem in Southern Cities. W. F. Brunner, Savannah, Ga.
- 57 Negro Antituberculosis Work in Atlanta. R. Lowe, Atlanta, Ga.
- 58 Education of Negro on Tuberculosis. W. A. Harris, Savannah, Ga.
- 59 Great Need of Hospital Facilities for Negroes with Tuberculosis. M. F. Sloan, Towson, Md.

Lancet-Clinic, Cincinnati

March 27, CXIII, No. 13, pp. 343-370

- 60 Syphilis of Joints. R. B. Cofield, Cincinnati.
 - 61 Diagnosis and Management of Extrasystolic Type of Cardiac Irregularities. M. A. Mortensen, Battle Creek, Mich.
 - 62 Salvarsanized Serum in Treatment of Locomotor Ataxia, Paresis and Cerebrospinal Syphilis. W. Litterer, Nashville, Tenn.
 - 63 Microdissection Studies on Physical Properties of Protoplasm. R. Chambers, Jr., Cincinnati.
 - 64 Hospital Service in Turko-Balkan War. T. H. Wenning, Cincinnati.
- April 3, No. 14, pp. 371-396
- 65 Certain Aspects of Life Underwriting. F. B. Mead, Fort Wayne, Ind.
 - 66 Double Papillo-Edema—Optic Neuritis. R. Sattler, Cincinnati.
 - 67 Emotional Factor in Psychoneuroses. L. Miller, Toledo.
 - 68 Weak Foot; With Especial Reference to Treatment. W. B. Owen, Louisville, Ky.

Missouri State Medical Association Journal, St. Louis

April, XII, No. 4, pp. 145-196

- 69 *Intravenous and Intramuscular Administration of Diphtheria Antitoxin. B. S. Veeder, St. Louis.
- 70 Schick Reaction in Handling of Diphtheria Epidemics. E. E. Moody and M. C. Woodruff, St. Louis.

71 Chronic Gastritis. J. W. Ousley, Kansas City.

72 *Method of Surgical Treatment for Floating Kidney. W. Bartlett, St. Louis.

73 Treatment of Pneumonias. E. A. Dulin, Nevada.

74 Lodge Practice. J. W. Bolton, Warrensburg.

75 *Simple and Accurate Method for Estimation of Sugar in Blood. E. B. Knerr, Kansas City.

69. **Intravenous and Intramuscular Administration of Diphtheria Antitoxin.**—The following rules or regulations have been adopted at the St. Louis Children's Hospital for the administration of diphtheria antitoxin. They embody the practical applications of the ideas presented by Veeder as well as the results of clinical experience. All patients with clinical diphtheria receive antitoxin on admission regardless of whether or not a culture has been taken. In mild and moderately severe cases from 3,000 to 5,000 units are given intramuscularly. In all severe or septic cases, and in all cases with a laryngeal involvement, 5,000 units are given intravenously. All cases seen late (fourth day) are given the antitoxin intravenously if the membrane is at all extensive. Individuals exposed to diphtheria are given an intradermic diphtheria toxin test (Schick test). In case the toxin reaction is positive in twenty-four hours, 1,000 units of antitoxin are given subcutaneously in older children, and 500 units in children under 2 years.

72. **Surgical Treatment for Floating Kidney.**—The operative technic proposed by Bartlett is as follows: Make an incision which equally divides the angle formed by the last rib and erector spinae muscles; this should expose the fatty capsule. The fatty capsule is carefully stripped from the abdominal wall behind and the kidney lifted with it out of the abdominal cavity. An incision is made along the convexity of the organ, dividing fatty capsule and tunica propria. Both these structures adherent together are completely stripped back and inverted (in rare instances the tunica propria is adherent and must be left behind). This rather thick-walled bag is drawn by a few catgut sutures into a ball below the kidney pedicle and anchored with the same catgut strand to the interior of the abdominal muscles at a point just below the inferior angle of the laparotomy wound. Seventeen cases have been operated on by this method.

75. **Method for Estimation of Sugar in Blood.**—The method devised by Knerr requires no apparatus beyond a few test tubes, a centimeter pipet graduated to tenths c.c., a beaker, a centrifuge or funnel and filter paper; a 2 per cent. potassium oxalate solution, a 10 per cent. potassium carbonate solution, a 1 per cent. glucose solution, and some distilled water. Procedure: Two-tenths c.c. blood obtained by finger prick or otherwise is taken up in the 1 c.c. pipet (graduated to tenths) and transferred to a small test tube (1 by 10 cm. in size) in which had been placed previously about a half c.c. of the 2 per cent. potassium oxalate solution to prevent coagulation of the blood and lake it. The reagent and blood are carefully drawn in and out the pipet by suction to thoroughly mix them.

After mingling the blood and oxalate solution the pipet should be washed with a drop or two of water at a time and the washings added to the blood solution in the test tube until the volume reaches exactly the 1 c.c. mark. The picric acid reagent is now added to the 2.5 c.c. mark, a few drops at a time, and with shaking after each addition. The tube with its contents is centrifuged a minute or two, or if a centrifuge is not at hand the contents is filtered and exactly 1 c.c. of the clear yellow liquid is drawn up in the 1 c.c. pipet and transferred with washings of the pipet to a larger test tube (1.5 by 20 cm. is convenient) and evaporated by careful boiling to a few drops. To this concentrated liquid about a half c.c. of the 10 per cent. potassium carbonate solution is added and the liquid again evaporated by boiling to a few drops. If there is any sugar present this second boiling turns the liquid to a dark red or brown, depending on the amount of sugar. The tube is now stood against the table top and a centimeter scale placed alongside to mark the 10 cm. depth, and the solution diluted to this mark.

An exactly similar procedure is now performed on the 1 per cent. glucose solution taking 0.2 c.c. of this solution as

0.2 c.c. of blood had been employed. An empty tube also of the same dimensions as the other two is placed alongside of them held in the left hand. The three parallel tubes are now held with their curved bottoms immersed to a depth of a centimeter or two in clear water in a beaker in a good light. On looking down the tubes the empty tube will appear colorless, the one containing the blood solution will be faintly yellow, while the one containing the glucose will be of a much deeper yellow. The contents of the glucose tube is carefully poured into the empty one until the tint on looking down into the tubes exactly matches that of the blood tube. The depth in the third tube measured by the centimeter scale placed against its side will at once give the percentage of sugar, as each centimeter in depth represents $\frac{1}{10}$ per cent. sugar, the 1 per cent. glucose having been diluted to a depth of 10 cm. in the glucose tube.

Modern Hospital, St. Louis

April, IV, No. 4, pp. 227-294

- 76 Galloway Memorial Hospital of Nashville, Tenn. A. E. Clement and H. E. Hannaford, Cincinnati.
- 77 Dietary Routine in Massachusetts General Hospital. R. S. Eckman, Boston.
- 78 First Tax Payers' County Hospital. C. A. Boice and E. Finley, Washington, Iowa.
- 79 Fireless Cookers as Adjunct in Hospital Kitchen. F. A. Seely, Chicago.
- 80 Hurley Hospital—New Municipal Institution, Flint, Mich. A. M. Schill, Flint, Mich.
- 81 General Government of State Hospital. H. M. Hurd, Baltimore.
- 82 Insurance for Hospital—Varieties and Limitations. A. A. Johnson, New York.
- 83 Feeding Hospital—Various Kinds of Institutions. L. Graves, Cleveland.
- 84 Hospital Roentgen Ray Laboratory—Its Scope and Limitations. I. S. Hirsch, New York.

New Jersey Medical Society Journal, Orange

April, XII, No. 4, pp. 157-208

- 85 Efficiency in Practice of Medicine. E. J. G. Beardsley, Philadelphia.
- 86 Heredity as Influenced by Developmental Periods of Life. F. M. Crandall, New York.
- 87 Surgical Treatment of Gastric Duodenal Ulcer. L. Franklin, Jersey City.
- 88 Genito-Urinary Diagnosis. S. R. Woodruff, Bayonne.
- 89 Comparative Value of Systolic Pressure and Cardiovascular Load and Significance of Cardiovascular Load in Pneumonia and Chronic Myocarditis. S. A. Brown, New York.
- 90 Some Causes of Malocclusion of Permanent Teeth. R. A. Albray, Newark.

Oklahoma State Medical Association Journal, Muskogee

April, VII, No. 11, pp. 347-383

- 91 Congenital Atresia of Vagina; Report of Three Cases. H. P. Wilson, Wynnewood.
- 92 Uterine Fibroids. M. M. DeArman, Mangum.
- 93 Dementia Praecox. A. L. Stocks, Muskogee.
- 94 Uterine Carcinoma—Plea for Early Diagnosis. G. A. Wall, Tulsa.
- 95 Relation of Internist to Surgeon. H. M. Williams, Wellston.
- 96 New Method of Treating Accidental Wounds. J. A. Bowling, Alva.
- 97 Sciatica; Report of Unusual Case. R. L. Hull, Oklahoma City.
- 98 Decapitation; Report of Case and Technic of Operation. C. Doler, Stuart.

Ophthalmic Record, Chicago

March, XXIV, No. 3, pp. 109-162

- 99 Congenital Cataract. C. F. Clark, Columbus, O.
- 100 Report of Unusually Large Mucocele of Frontal and Ethmoidal Cells. Operation and Cure. W. C. Posey, Philadelphia.
- 101 Technic of Iridectomy, and Its Performance as Preliminary to Cataract Extraction. P. Smith, Birmingham, England.
- 102 Coffee Amblyopia and Its Relations to General Intoxication from Roasted Coffee Products. C. A. Wood, Chicago.
- 103 Case of Mixed Irregular Astigmatism Following Injury. R. S. Lamb, Washington, D. C.
- 104 Hydrophthalmos Following Trauma. Report of Case. H. H. McGuire, Winchester, Va.
- 105 Tonguing the Eye for Foreign Bodies—Cause; Pneumococcus Ulceration of Cornea—Effect. H. V. Würdemann, Seattle, Wash.
- 106 Electrolisis in Treatment of Trachoma and Its Sequelae. E. J. George, Chicago.
- 107 Case of Complete Bilateral Iridemia in Child whose Father Has Bilateral Coloboma of Iris. A. C. Lewis, Memphis, Tenn.
- 108 Green Elevating Eye Speculum. A. S. Green and L. D. Green, San Francisco.
- 109 Report of Unusual Accident which Caused Loss of Eye. C. W. Kollock, Charleston, S. C.

Tennessee State Medical Association Journal, Nashville

March, VII, No. 2, pp. 443-478

- 110 Treatment of Surgical Tuberculosis. W. A. Bryan, Nashville.
- 111 *Acute Bacillary Ileocolitis. P. F. Barbour, Louisville, Ky.
- 112 Cholecystgastrostomy—Duodenal Ulcer—Uterine Fibroids and Pyloric Obstruction. R. A. Barr, Nashville.
- 113 Why Present Legislature Should Give Tennessee Better Medical Laws. D. L. Flanary, Dyersburg.
- 114 Prevention of Typhoid. N. C. Ellis, Friendsville.

111. **Acute Bacillary Ileocolitis.**—Having for many years tried bismuth in its various compounds, combined with salol or other antiseptic, Barbour abandoned the use of these agents and now administers purgatives to a child that is having a stool every hour. That stool, however, is not fecal; it is simply a lump of mucus more or less blood stained from the sigmoid and does not represent real fecal movement from the upper bowel. Whenever true feces appear in the stool, there will be some improvement in the condition of the child. A prescription which has proved helpful to him is as follows:

	gm. or	c.c.	
Olei ricini.....	4 or	8	3 i-3 ii
Pulvis acaciae	q. s.		
Syrupi rhei aromatici	30		3 i
Misturae cretae.....	q. s. ad	60	3 ii

M. Sig.: One teaspoonful every two hours until the stools are fecal, when it is given less frequently.

Mercuric chlorid in 1/128 of a grain or biniodid in the same dose will be given in alternative doses as long as there is blood in the stool, or fever. When convalescence is well established, bismuth with some of the organic tannic acid compounds is continued until the stools are firm. The food should be barley water, alternating with soups or jelly or buttermilk. As convalescence is advancing, skimmed milk may be added in small quantities to the barley water tentatively. It may be increased with tolerance; at the same time zwieback or Holland rusk gives some variety and zest to the broths. Fat should be withheld for some time, as the digestion of fats is notoriously bad after any severe diarrheal disorder.

Washington Medical Annals

March, XIV, No. 2, pp. 57-129

- 115 Present Conditions in Surgery. E. A. Balloch, Washington, D. C.
- 116 Cutaneous Sporotrichosis. C. A. Simpson, Washington, D. C.
- 117 Case of Syringomyelia. T. A. Williams, Washington, D. C.
- 118 Subconjunctival Injections of Salvarsanized Serum in Treatment of Ocular Diseases Due to Syphilis. R. S. Lamb, Washington, D. C.
- 119 Plea for Cancer Clinic. S. R. Karpeles, Washington, D. C.
- 120 Two Cases of Frontal Sinusitis and Killian Operation. C. W. Richardson, Washington, D. C.
- 121 Cancer of Skin. H. H. Hazen, Washington, D. C.
- 122 Case of Pituitary Disease Showing Both Acromegaly and Adiposis. T. A. Williams, Washington, D. C.

Wisconsin Medical Journal, Milwaukee

March, XIII, No. 10, pp. 383-420

- 123 Instruction in Sex Physiology and Hygiene. J. P. McMahon, Milwaukee.
- 124 Infections of Nose, Throat and Accessory Sinuses. Their Importance to General Practitioner. F. Pfister, Milwaukee.
- 125 Cardiac Accidents of Year's College Sports. W. S. Middleton, Madison.
- 126 Pilonidal Sinuses. W. L. Le Cron, Milwaukee.
- 127 Causes of Preventable Blindness. G. I. Hogue, Milwaukee.
- 128 Two Cases of Amebic Dysentery. M. A. McGarty, La Crosse.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

March 27, I, No. 2830, pp. 537-580

- 1 Treatment of Cranial Injuries of Warfare. P. Sargent and G. Holmes.
- 2 *Epidemic Cerebrospinal Fever: Place of Meningococcus in Its Etiology. E. C. Hort, C. E. Lakin and T. H. C. Benians.
- 3 Cerebrospinal Fever: Diagnosis and Treatment. M. Foster.
- 4 Local Anesthesia in Skin Grafting by Thiersch's Method. E. P. Gould and C. W. Archer.
- 5 Gas Gangrene and Tetanus. W. K. Hatch.
- 6 *Treatment of Painful "Frost-Bite." W. C. Davis.
- 7 Some Priori Pathometric Equations. R. Ross.

2. Epidemic Cerebrospinal Fever.—In cerebrospinal fever the authors have examined the urine of nineteen acute cases, the blood of fifteen patients, the cerebrospinal fluid of four patients and throat swabs from three patients. In the great majority of these they found, isolated, and as far as possible identified, especially from catheter specimens of urine, the gram-positive and gram-negative organisms of Jaeger at one time believed to be identical with the meningococcus of Weichselbaum. In addition to this organism, they also frequently found, in films of fresh urine, cerebrospinal fluid and blood (in order of frequency), gram-negative and gram-positive bacilli, both very small and large. Cultivation of this organism from the cerebrospinal fluid and from most of the specimens of blood failed. In two patients, however, a small gram-negative bacillus was isolated from the incubated citrated blood, and in a few cases from the urine.

In several of the urines, both in fresh catheter specimens and in incubated samples, considerable numbers of gram-negative diplococci were seen, often in clumps. They also occurred free in pairs and in tetrads. They mostly had flattened opposing surfaces, and were morphologically indistinguishable from meningococci or gonococci. In some of the films they varied from 0.1 to 0.4 micron in their greatest diameter. They were sometimes to be found in epithelial cells from the bladder and sometimes in clusters. In no case were any considerable number of pus cells seen. The diplococci could not be cultivated as persistent gram-negative organisms, but appeared to merge into Jaeger's organism, colonies of gram-positive and gram-negative rounded individuals alone surviving.

In all the specimens of urine examined in the fresh state, turbidity of varying degree was present. This turbidity was in no case due to pus cells, to blood, or to crystalline phosphates. A specimen of fresh turbid urine from an undoubted case with meningeal symptoms was passed through a tested Berkefeld filter, and a few loopfuls of the filtrate spread over the surface of an agar plate, proved to be sterile by previous incubation. Examined after four days, the plate showed a single colony. Films made from this colony showed gram-negative diplococci, morphologically indistinguishable from the meningococcus, also a few gram-positive forms; small gram-negative bacilli; gram-positive and gram-negative organisms morphologically similar to Jaeger's meningococcus; gram-negative rod-shaped organisms, with two to six gram-negative "granules" in its long axis at regular intervals, occasional gram-positive "granules" being sometimes seen. Each granule was composed of a diplococcus, with flattened opposed surfaces. In some the terminal diplococcus was detached, and was indistinguishable from the meningococcus of Weichselbaum. Gram-positive diplobacilli were seen which were sometimes unequal in size. The authors suggest the theory that the meningococcus is only a phase in the life history of the true infective agent in cerebrospinal fever, and urge to disinfect the urine of all known cases, and of all known carriers of Weichselbaum's meningococcus.

6. Treatment of Painful Frost-Bite.—The best remedy Davis has found to be cocain gr. viii, olive oil 3 iv, liquor calcis 3 iv, which simply means carron oil and cocain. A small quantity is rubbed into the feet twice daily, special attention being given to the toes; the feet are massaged with it for a few minutes, and afterward wrapped up in cotton-wool. It is an improvement to add 1 ounce of liquid paraffin to 4 ounces of carron oil, as by this addition it is prevented from oxidizing so quickly and also from drying up so rapidly, and makes it less liable to rancidity. When the oil dries on the feet, the following dusted on is an excellent powder: Camphor, gr. xxxv, zinc oxid and powdered starch, ãã 3 ss. In all recent cases in which there has been no ulceration this form of treatment has been entirely successful; one advantage is that the patient is able to sleep without a narcotic. When the acute stage passes off the carron oil and cocain are mixed with equal parts of phenol, the percentage of which is increased as the pain decreases.

Lancet, London

March 27, I, No. 4778, pp. 639-688

- 8 New Psychiatry. W. H. B. Stoddart.
- 9 *Typhoid and Paratyphoid Infection. G. Dreyer, E. W. A. Walker and A. G. Gibson.
- 10 *Case of Rupture of Heart in Child. J. Anderson.
- 11 Movements of Normal Stomach. H. Walsham and W. Overend.
- 12 *Certain Peculiar Crystals Found in Cerebrospinal Fluid from Case of Septic Meningitis. W. W. D. Thomson.
- 13 Bacteriology of Urinary Tract in Children. A. Ross.

9. Typhoid and Paratyphoid Infection.—In the method emphasized by the authors relatively large quantities of the suspected material are worked up for examination and isolated colonies of *Bacillus typhosus* or *Bacillus paratyphosus* (A) or (B) may be obtained within twelve to twenty-four hours by the use of a single plate. The method was devised by Dreyer and is based on the experience of numerous previous investigations on the biochemical action of actinic light. It consists in the subjection of an ordinary agar plate liberally spread with the bacterial emulsion to a graduated exposure to the rays of an arc light. The arc formed between silver electrodes has so far given the most satisfactory results.

The method has been tested on mixtures of *B. typhosus* and *B. coli* in the following proportions: 1 to 1, 1 to 10, 1 to 20, 1 to 30, 1 to 50, 1 to 80, 1 to 100, 1 to 150 and 1 to 200. In every case in which there were not more than 50 *B. coli* to each typhoid bacillus numerous isolated colonies of the latter were always found on some portion of the exposed area of the plate. Cases in which there were more than 50, but fewer than 200, *B. coli* to each *B. typhosus* a few colonies at any rate of the latter have almost always been discovered on the plate. In one experiment in which there were at least 500 *B. coli* to each *B. typhosus* a few isolated colonies of the latter were recovered. The colonies of *B. coli* on the exposed portion of the plate are well developed, whitish and opaque, while those of *B. typhosus* are tiny, dewdrop-like, and quite transparent after eighteen to twenty-four hours. From the latter streaks are made on the surface of plates of MacConkey's medium, Endo's medium and ordinary agar in the order named, with a once charged needle in order to confirm the diagnosis. The resulting growth is subsequently submitted to the usual tests.

10. Rupture of Heart in Child.—The patient, a girl of 5 years, was, as far as Anderson could learn, in good health up to the morning of her death. She was poorly nourished. About 9 a. m. on the morning of the child's death the woman in charge of her left the house, and the child was to stay in bed until she came back. On her return half an hour later she found the child had got out of bed and was sitting on the floor, looking ill and complaining of sickness. There was no history that the child had fallen out of bed. A little stimulant was administered, but there was no sign of improvement. The child expired on the way to the nearest police office. There was a history that eight weeks previously the child had had a fit, and a year ago she was in the parish hospital under treatment for eczema.

The pericardium was distended with fluid blood. A hemorrhagic area, 1 inch in length by $\frac{3}{4}$ inch in breadth, was noted on the anterior aspect of the heart along the line of the interventricular septum at its upper third, and also a small perforation within this area. The heart was removed and examined. It was normal in size, pale in color except at the hemorrhagic area. On opening the cavities a slight degree of dilatation was noted, but there was no hypertrophy of their walls except, perhaps, a small area in the left ventricle at the immediate apex, in which the muscular substance was altered in appearance, abnormally pale, and somewhat translucent. The columna carnea were unusually delicate and in places thread-like in character, and this condition was more noticeable in the case of the left ventricle.

The lesion which had given rise to the rupture was of remarkable character; a hematoma, $\frac{1}{4}$ inch in diameter, and formed in the wall of the left ventricle and septum at the place of discoloration above noted. Its cavity was filled with blood clot and its walls were ragged and granular. At

its lower aspect it had ruptured externally into the pericardium, and a large probe could easily be passed through the aperture, which was situated $\frac{1}{2}$ inch from the base of the ventricle. The thinned inner wall communicated with the interior of the ventricle by a large and irregular aperture, which was continuous with an extensive rupture across the inner portion of the posterior wall of the chamber. The torn area almost encircled the ventricle, and reached as far as a point immediately beneath the position of the left auricular appendix. The laceration occupied a fair depth of the muscle, and the wall of the ventricle when viewed by transmitted light was quite translucent. The right ventricular wall was intact. The valves were of normal size and their curtains were healthy.

Examination of the coronary vessels showed a stenosis of the lumen of both arteries, and the descending branch of the left coronary artery was obliterated at the seat of the rupture and could not be traced beyond it. A small thrombus was present in the right coronary artery 1 inch from its origin. The venous sinus was dilated and immediately beyond the valve a large thrombus was found in the great vein.

12. Crystals in Cerebrospinal Fluids.—The crystals found by Thomson varied greatly in size, from 2 to 10 microns. They were elongated, somewhat rounded at the ends, colorless and transparent, and possessed a refractive index greater than that of the clove oil (1.53) in which they are mounted. Most of them contained a central nucleus or spot which appeared to have crystal outlines and sometimes gave the effect of zonal structure. There were also a few twin crystals. The crystals were strongly doubly refracting, and the extinction is straight which places them in either the tetragonal, hexagonal or rhombic system. These crystals were found to be soluble in dilute acids (organic and inorganic) and alkalis, and in acid spirit. They were insoluble in alcohol, ether, chloroform, acetone, or boiling water. They were unstained by Gram's method, eosin, methylene blue, carbol-fuchsin, iodine, or collargol. No further crystals were yielded on evaporating down the supernatant fluid left after centrifugalization.

Sei-I-Kwai Medical Journal, Tokyo

March, XXXIV, No. 3, pp. 15-19

14 Researches on Electric Discharge of Isolated Electric Organ of Astrap (Japanese Electric Ray) by Means of Oscillograph. K. Fuji.

15 *Influence of Various Sugars on Action of Heart. K. Mizuno.

16 *Toxicity of Trypsin and Anaphylactic Symptoms Produced by It. F. Ishiwara.

15. Influence of Various Sugars on Heart.—Mizuno made experimental studies on the direct influence of lactose, fructose and cane sugar on the action of the heart by means of an apparatus which is a combination of the Langendorff's and Wohlgemuth's irrigation apparatus, with some modification. The animals used for the experiments were young dogs from the same litter grown up and eight to sixteen days old rabbits and tortoises. The isolated living hearts of the warm-blooded animals were irrigated with the Ringer's solution at the body temperature, to which the above mentioned sugars were added in various concentration, and which was saturated with oxygen. The tortoise's heart was irrigated with the same solution kept at 15 C. constantly. The influences of the various solutions on the hearts were noticed as regards the action and contraction of the heart and the duration of its action, etc., and registered.

The results obtained were as follows: 1. Fructose has the most favorable influences for all the hearts. The heart's action is energetic and the systole and diastole remain rhythmic for a long time. The cardiac strength and pulse frequency diminish very slowly and there are no rapid changes. In a concentration of 3 per cent. it shows a favorable influence, and in one of the isolated living hearts of a grown up rabbit the pulsation continued regularly for fourteen hours. The action of lactose on the heart is generally similar to that of the fructose, but even 0.1 per cent. solution causes in many cases a slight arrhythmia of the pulse and

rapid weakness of the heart, with the consequent stoppage of the heart. The duration of the heart's beat is shorter as the concentration gets higher. Cane sugar has a stimulating and irritating action on the heart. The heart's action is for a time after the beginning of the irrigation very energetic, but soon becomes arrhythmic and frequent and its strength weakens quickly.

16. Toxicity of Trypsin and Anaphylactic Symptoms Produced by It.—Ishiwara states that when trypsin in neutral or weakly alkaline solution is injected intravenously in guinea pigs, the anaphylactic symptoms occur in about two-thirds of the cases. This poisonous action, however, appears to be not due to the ferment itself, as these actions remain still active even after the heating of the preparations which abolishes the ferment action as a rule. After thorough investigation Ishiwara asserts that the toxicity of the trypsin preparation is due to the presence of the diamo-acid which is present in the strength of 91 per cent. He also recommends the intravenous injection as the best way of applying trypsin in studying its toxicity.

Archives des Maladies du Cœur, etc., Paris

March-April, VIII, Nos. 3-4, pp. 45-102

17 *Angina Pectoris. (L'angine de poitrine.) H. Vaquez.

17. Angina Pectoris.—Vaquez devotes forty pages to the history and clinical features and forms of angina pectoris following overexertion and of the spontaneous type occurring during complete repose. The "exertion" and the "decubitus" types may be superposed, but when the latter occurs alone and there are no organic lesions in the heart or vessels, complete recovery is not exceptional. The trouble is merely a primary dilatation of the left heart when the heart has been "forced." Vaquez incriminates tobacco in the etiology less than others do, regarding it as liable to provoke an attack with hitherto latent organic trouble but not capable of inducing the latter. Huchard found a history of syphilis in thirty-five of 150 cases of angina pectoris and Vaquez in thirty of 100, and this before the Wassermann reaction was known. The pathologic lesion responsible for angina pectoris seems to be a characteristic aortitis just at the openings into the coronaries. The changes thus causing obstruction in the coronaries are typical of syphilis although they may be due to other causes.

Bulletin de l'Académie de Médecine, Paris

March 9, LXXIII, No. 10, pp. 313-332

18 Nervous Incontinence of Urine in War. (De l'incontinence d'urine et des psychoses vésicales chez les combattants.) P. Legueu.

19 *Factors which Determine the Primary Lesion in Tuberculosis. (L'erreur de Conheim et le déterminisme du chancre tuberculeux.) A. Jousset.

20 Localization of Foreign Bodies in the Tissues. (Localisation des projectiles par le repère.) F. Menuet.

21 Serotherapy in Typhoid Fever. Remond and Minvielle.

22 Trophoneurotic Changes Main Factor in Trench Foot. (Les gelures consécutives au séjour prolongé dans les tranchées.) J. Parisot, P. Simonin and J. Glover. See Paris Letter, p. 1258.

23 Second Ossification Center Found in First Metacarpal and Metatarsal Bones in Prehistoric Skeletons. (Comment l'anatomie préhistorique permet de rectifier certaines données de l'anatomie actuelle.) M. Baudouin.

19. The Primary Lesion in Tuberculosis.—Jousset emphasizes that the physical properties, as well as the quantity and virulence of the inoculating virus, have a determining influence on the lesions which result. The amount, the viscosity, the minuteness of the particles, the homogeneity and the stability of the emulsion all have a share in influencing the outcome. He found that certain cultures producing pronounced lesions lost all their pathogenic properties after being ground fine in a mortar, thus breaking up the cohesion between the bacilli. This effect can be obtained also by slightly acidifying the culture. He comments on the surprising way in which the pathogenic properties of tubercle bacilli, hitherto deemed to be inherently specific, can be thus completely transformed or abolished by mere mechanical modification of the microbes.

Presse Médicale, Paris

March 11, XXIII, No. 10, pp. 73-80

- 24 *Six Months of Military Surgery. (Considérations sur quelques plaies de guerre après six mois de campagne.) R. Proust.
- 25 *Extra Fine Oiled Silk Applied to Burned Areas and Other Skin Wounds. (Le taffetas-chiffon appliqué au pansement des brûlures et des plaies cutanées.) P. Alglave.
- 26 Localization of Dropsy in Wounded Area. (Localisation d'un œdème brightique au niveau d'une lésion d'un nerf périphérique par coup de feu.) J. Heitz and S. I. de Jong.
- March 18, No. 11, pp. 81-88
- 27 Persisting Pain After Wounds of the Median Nerve. P. Marie and Mme. A. Bénisty.
- 28 *The Collapse in Typhoid Fever. C. Aubertin and H. Chabanier.
- 29 Surgical Anatomy of the Leg. A. Broca.

24. Impressions from Six Months of Military Surgery.—Proust has served in various hospitals during the war, at the front, at the base and in the home zone, and thus has obtained a good general oversight of what is being done for the wounded. Since the day he has had an ample supply of antitetanus serum at his disposal not a case of tetanus has developed. He gives a preventive injection of 10 c.c. believing that every wound is necessarily infected in a tetanus-breeding region. Gas gangrene can be warded off if, within the first few hours after the injury, the wound is opened up widely, thoroughly dried and arrangements for effectual drainage provided.

25. Oiled Chiffon in Treatment of Extensive Skin Wounds.—Alglave has for some years been using for direct application to burns and other large skin wounds the "taffetas-chiffon" made like oiled silk only that the base is tarlatan. The thinness, the flexibility and the softness of the surface render it peculiarly useful for aiding repair in the skin. There is no pain when the dressings are changed; the healing proceeds smoothly and regularly and the new forming skin does not stick to or grow into oiled silk as it does into gauze. The dressing should be removed each day and the surface left exposed to the air after it has been cleansed with boiled water. Air stimulates the epidermis to more active healing. He gives four illustrations of the excellent results of this method of treatment in a case of an extensive shell wound. The method is systematically applied to all the superficial wounds he now has to treat, and the results have surpassed all anticipations, especially with painful lesions, which bleed readily and have previously shown little tendency to heal.

28. Collapse in Typhoid.—Aubertin comments on the frequency of a tendency to heart failure in the soldiers with typhoid. Although young and strong, the vicissitudes of the campaign have exhausted them to such a degree that the typhoid attacks the cardiovascular system with special force. He gives the charts of a few cases, the blood pressure dropping below the recording power of the apparatus, while the pulse was uncountable. Epinephrin did not seem any more effectual in treatment than camphor, so that the suprarenals can not be altogether responsible for the collapse although, given in time, epinephrin sometimes seemed to ward off collapse. The ordinary heart stimulants and the application of heat brought these patients through; all the cases reported terminated in recovery.

Beiträge zur klinischen Chirurgie, Tübingen

XCVI, No. 1, pp. 1-180

- 30 Modern Firearms and Wounds. (Ueber Schusswaffen und Schusswunden im gegenwärtigen Kriege.) P. v. Bruns.
- 31 Dumdum Bullets and Their Action. P. v. Bruns.
- 32 Impressions and Experiences at a Base Hospital in Moravia. F. Smoler.
- 33 Experimental Research on the Action of Pointed Bullets. (Wirkung der Spitzgeschosse.) E. Bircher.
- 34 Explosive Action of Bullets. (Sprengwirkung bei Kleinkaliberschüssen.) Liebert.
- 35 Experiences of a Consultant Surgeon. L. Rehn.
- 36 Tardy Hemorrhages After Wounds in War. (Spätblutungen nach Schussverletzungen.) Schloessmann.
- 37 Wounds of the Lungs in War; Complications and Treatment. W. Hartert.
- 38 Osteoplastic Exposure of Brachial Plexus Below the Clavicle. (Osteoplastische Freilegung des Armnervengeflechts unterhalb des Schlüsselbeines.) Reich.

- 39 Localization of Bullets, etc., by Roentgen Rays. von Hofmeister.
- 40 Operative Removal of Bullets and Scraps of Shells, Especially with Aid of Electromagnet. (Operative Entfernung von Geschossen und Granatsplittern.) von Hofmeister.

Deutsche medizinische Wochenschrift, Berlin

January 14, XLI, No. 3, pp. 61-92

- 41 *War, Prostitution and Venereal Disease. (Krieg, Prostitution und Geschlechtskrankheiten.) A. Neisser.
- 42 Dysentery Among the Troops. (Zur Klinik der Kriegeruhr.) Soldin.
- 43 *Disturbance in Internal Secretion in Dysentery. H. Peiser.
- 44 Hydrogen Dioxid in Treatment of Wounds. (Verwendung des Wasserstoffsuperoxyds bei der Wundbehandlung.) E. Fraenkel.
- 45 Ultraviolet Rays in After-Treatment of Wounds. V. Hufnagel.
- 46 The Navy Medical Corps and Its Work. (Einiges aus dem Marine-Sanitätswesen.) Hoffmann. Commenced in No. 1.
- 47 *Disinfection of Passenger Cars. (Desinfektion der Eisenbahnpersonenwagen.) H. Hammerl.
- 48 Syphilitic Headache. (Syphilitische Kopfschmerz.) J. Hnatek.
- 49 Action and Absorption of Mercurial Preparations. Döhning.
- 50 The Test Inoculation of Guinea Pigs the Most Reliable Means for Revealing Tubercle Bacilli in the Blood. (Zum Tuberkelbazillennachweis im Blute.) O. Köhler.
- 51 Efficacy of Ichthyol in Treatment of Erysipelas. W. Lüth.

March 11, No. 11, pp. 301-332

- 52 Protection in Roentgenologic Work. (Schutzmittel für Aerzte und Personal bei der Arbeit mit Röntgenstrahlen.) H. E. Albers-Schönberg and K. J. A. Lorenz.
- 53 *Suggestions for Prophylaxis in Contagious Wards. (Hygienische Winke für Seuchenabteilungen.) P. Schmidt.
- 54 Agglutination by Syphilitic Serum. (Agglutination der Spirochaete pallida.) A. Kissmeyer.
- 55 Underfed Infants. (Unterernährung von Säuglingen.) C. T. Noeggerath. Commenced in No. 10.
- 56 Inherited Syphilis at Freiburg. (Aus der Freiburger Kinderpraxis.) C. T. Noeggerath.
- 57 Detoxication of Diphtheria and Tetanus Toxins. J. Schumacher.
- 58 Tar in Treatment of Chronic Eczema. F. Thedering.
- 59 Jet of Ozone Deodorizes Cancer, etc. (Eine medizinische Verwendbarkeit des Ozons.) A. Wolff.
- 60 *Rabbit and Horse Meat. (Der Wert des Kaninchenfleisches für die Volksernährung.) E. Schottelius.
- 61 Wounds of Peripheral Nerves in War. M. Kirschner.
- 62 *Turpentine Exterminates Vermin. (Bekämpfung der Läuseplage im Felde.) T. von Marschalko.

41. War, Prostitution and Venereal Diseases.—Neisser says that those troops in the home zone and at the front who are liable to be exposed to venereal diseases are acquiring them to an extent which seems far beyond the numbers recorded in the war of 1870-1871. In that campaign, 33,528 men were given treatment for venereal disease. This represented 42.6 per thousand of the average force and 70.6 per thousand of the non-wounded given hospital treatment. The idea that abstention is injurious, he continues, should be vigorously combated. The so-called "necessity" is evoked by the opportunity. The pause deadens the libido. (*Die sogen. "Bedürfnis" stellt sich immer erst ein, wenn die verführerische Gelegenheit da ist. Bliebe die Truppe noch wochenlang in Feldstellung, kein Mann wurde an Geschlechtsverkehr denken.*)

He suggests a number of measures to reduce the danger of venereal disease, among them the compulsory treatment of every prostitute, regardless of whether she is known to have syphilis or not. An intravenous injection of salvarsan and some preparation of mercury once a week would materially and with the least possible inconvenience reduce the danger of infecting others. The individual would not be cured by this alone, but others would benefit. The men should be instructed with regard to the great danger which every intercourse with any prostitute brings with it. Their reason and patriotism should be appealed to. He agrees with Lesser that prophylactic means, that is, condoms, should be placed at the disposal of the men. Naturally, he adds, this proposal is repugnant to many on so-called ethical and moral grounds, but from the sanitary-hygienic point of view this is certainly the best and most promising measure. We must bear in mind that it is a question not only of the present health of the soldiers but of the prevention of all the misery for the family later connected with tabes, general paralysis and cardiovascular disease, as also the harm wrought by inherited syphilis in the offspring.

Neisser is convinced that the soldiers acquiring syphilis can and should be given a thorough course of treatment at their posts in the regiment, even when the troops are on the march. With acute gonorrhea the man will have to drop out

of the ranks for a few days of rest and treatment to abort the disease. When conditions render the danger of venereal infection especially imminent, systematically repeated physical examination of the men will reveal the non-reported cases of syphilis in the first stages.

43. Disturbances in Internal Secretion with Dysentery.—Peiser's report shows that dysentery is liable to be accompanied by excessive functioning of the thyroid-suprarenal group, overbalancing the pancreas-parathyroid group. The practical conclusion is that the vagotomy thus revealed should be combatted with belladonna, and this proved decidedly effectual in his cases, especially when the dysentery was subsiding. In some patients a circular constriction of the small intestine could be palpated, above which the bowel was distended, causing discomfort and pain, all yielding to belladonna. This remedy also cured the pain from hypersecretion in the stomach, rebellious to opiates, in the course of dysentery, and in moderate doses caused the immediate cessation of salivation and gastric distress.

47. Disinfection of Passenger Cars.—Hammerl gives directions for the slaking lime-formaldehyd-sulphuric acid method which is proving extremely effectual for sterilization of all enclosed spaces, clothing, etc.

53. Prophylaxis of Typhoid.—Schmidt warns that the inoculation against typhoid should not render nurses and orderlies careless in regard to protecting themselves against typhoid. Special care must be taken against droplet infection when there is a typhoid angina or bronchitis. The vomit also is often swarming with typhoid bacilli. Certain typhoid patients eliminate unusual amounts of the bacilli in stools and urine while others eliminate very few. He advises a distinctive colored case-card for the former, constantly impressing on the attendants the necessity for specially protecting themselves against these *Massenausseider*. Waterproof overgarments and aprons and easily sterilized overshoes should be worn while tending them.

60. Rabbit and Horse Meat.—Schottelius comments on the well-known fact that it takes more, proportionately, to feed small animals than large ones. The expense of raising rabbits for food is thus much greater than to raise a pig to produce the same amount of meat. The horses shot in battle are supplying quantities of good meat. They are killed under conditions similar to those of the chase, and the meat thus provided can be utilized to feed at least the many thousands of Asiatic prisoners of war, thus sparing other meats for the populace.

62. Turpentine Exterminates Vermin.—Marschalko writes from the dermatologic clinic at Koloszar that seventeen years' experience has amply established the efficacy of purified turpentine oil, *oleum terebinthinae rectificatum*, in destroying lice and their eggs. It is best applied in the form of a spray, and destroys all kinds of vermin, even big roaches. The fumes also suffocate lice in time, even when quite diluted. The purified turpentine does not irritate the skin nor stain the clothing, while it evaporates so rapidly that it has no toxic action on man if there is sufficient ventilation. It is also cheap, and is not so inflammable as benzene. At his clinic the hair is sprayed with it and a flannel cloth dipped in it is tied over the head with a towel. In the morning the head is found free from live vermin, no matter how thick they were the day before. The turpentine spray has been found a satisfactory solution of the body-lice question in the trenches where it has been applied. It can also be used, incorporated to 50 or 65 per cent., in a salve. Even sheepskin can be cleared of vermin with the turpentine spray.

Münchener medizinische Wochenschrift, Munich

March 2, LXII, No. 9, pp. 289-320

- 63 *Knee-Elbow Position for Esophagoscopy. W. Sternberg.
64 Recent Decisions of the Tribunal of Honor. IV. P. Kaestner.
65 *Present Status of Treatment of Tabes and General Paralysis. (Das Problem der Therapie der syphilitischen Nervenkrankheiten im Lichte der neueren Forschungsergebnisse.) M. Nonne. Commenced in No. 7.
66 *Ultraviolet Rays in Treatment of Tetanus. (Lichtbehandlung des Tetanus.) A. Jesionek.
67 *Epidemic Hemeralopia in the Field. Braunschweig.

- 68 Increase in Eye Wounds over Those in Previous Wars. (Wichtige Kriegsverletzung der Augen.) C. H. Velhagen.
69 Field Latrines. (Feldaborte.) F. Siebert.
70 *The Hospital Train. (Bayer. Hilfslazarettzug Nr. 2.) W. Schneidt and Seitzinger.

March 9, No. 10, pp. 321-360

- 71 *Albumoses in Treatment of Typhoid. (Behandlung Abdominaltyphus mit intravenösen Injektionen von Albumosen.) H. Lüdke.
72 Biologic Processes in Tuberculin Treatment. G. Bessau.
73 Tardy Pneumothorax After Wounds of the Lungs in War. (Pneumothorax im späteren Verlauf von im Kriege erlittenen Lungenverletzungen.) C. Bäuml. Commenced in No. 9.
74 The Food Supply and Beer Production. (Kriegsbereitschaft des Ernährungswesens und Biererzeugung.) M. v. Gruber.
75 Magnesium Sulphate Intravenously in Tetanus. W. Straub.
76 *Local Chilling in Treatment of Traumatic Epilepsy. (Zur Behandlung "traumatischer Epilepsie" nach Hirnschussverletzung.) W. Spielmeyer.
77 Tests of Insect Powder. (Insektenpulverwertbestimmung.) E. Lehmann.
78 Paper for Dressings. (Verwendbarkeit von Filtrierpapier und chinesischem Papier statt Mull als Verbandstoff.) M. zur Verth.
79 Importance of Early and Adequate Prothesis After Wounds of the Jaws. (Hilfe bei Kieferverletzungen.) F. O. Walkhoff.
80 Wounds of the Ears. (Ohrbeschädigungen im Felde.) G. Krebs.
81 After-Treatment to Prevent Crippling. (Nachbehandlung der im Kriege verwundeten Heeresangehörigen.) W. E. Smitt.
82 *Sulphur to Ward Off Vermin. A. Eysell.
83 Advantages of the Open Treatment of Suppurating Wounds. (Eiternde Wunden.) Springer.
84 The Surgeon with the Cavalry. (Der truppenärztliche Dienst bei der Kavalleriedivision.) W. Blumenthal.
85 *House Flies as Carriers of Lice. (Stubenfliegen als Träger von Läusen.) Bohné.
86 Unfavorable Experiences with Scobitost. P. Rostock.

63. Improved Technic for Esophagoscopy.—Sternberg extols the superior advantages for both patient and physician when the patient takes the knee-elbow position on a table raised very high, the head extended over the edge of the table as far as possible. This combines the good points of the seated and dorsal positions without their discomfort and other drawbacks. It avoids danger of aspiration and of suffocation which are invited by esophagoscopy with the head hanging back. The secretions also flow out better, thus clearing the field for the esophagoscope. As there is so little discomfort or danger there is no need for haste, and no assistance is required. The esophagoscope slips in easily and the nose is left free as secretions do not run into it.

65. Prophylaxis and Treatment of Tabes and General Paralysis.—Nonne concludes this review of the present status of treatment of syphilogenous nervous affections with the statement that if tabes has been stationary for a long time and there are no special disturbances from it, treatment should be restricted to general measures to tone up the system. No special treatment for the syphilis should be given in advanced cases, but in early tabes a course of mercury should precede a course of salvarsan with mild dosage. The reactions in the blood and spinal cord are of no import as a guide to treatment; only the subjective symptoms should be regarded. If there is an acute exacerbation, specific treatment may be resumed, beginning with small doses. Otherwise a year should be allowed to lapse before repeating the course, and then only with small doses. The same applies to general paralysis, although the dosage with this should be still smaller and the course kept up a little longer. Tuberculin treatment of progressive paralysis has been followed by striking remissions in many instances, but whether any more than occur spontaneously is open to question.

The most important question in the field of syphilis at present is whether, with our salvarsan treatment during the first and second stages, we actually exterminate the causal germs or merely drive them back into remote fastnesses, particularly in the meninges. Time alone will answer this question, as we learn whether tabes and general paralysis become more frequent or less frequent among syphilitics treated with salvarsan during the first and second stages. This much Nonne has already learned, he says, from careful study of numbers of cases for three years, namely, that tabes can remain mild, that is, without showing any tendency to progress, even when the three reactions in the cerebrospinal fluid are still positive during the whole period. In general.

paralysis, positive findings may coincide with a prolonged remission of symptoms, amounting practically to a complete cure. He has also learned that the pathologic reactions may persist as long as three years after the clinical cure of secondary syphilis. These pathologic findings may persist positive in this way even when the Wassermann reaction in the blood has veered to negative under treatment of the primary or secondary phase. It is important now to determine whether such cases are the rule or the exception. We must find out whether these persisting pathologic reactions in the fluid are premonitory of tabes or paralysis later. He remarks that bed rest for two days should always be enforced after a lumbar puncture. Otherwise there may be serious disturbances for days or even several weeks, as he has found by practical experience. The "provocatory" infusion of salvarsan he regards as too dangerous as its aim is to rouse dormant germs, and this is liable to interfere with tendency to spontaneous healing of the early syphilitic meningitis. Experiments on animals may reveal the true status and dangers or harmlessness of the provocative injection. To date he has never attempted it.

Nonne has never known of a case of syphilis at any stage with all three reactions positive in which there were no manifest subjective or objective symptoms on the part of the nervous system. The increased numbers of cells, of globulin, and the positive Wassermann testify to meningitis. Dreyfus found the cerebrospinal fluid normal during early syphilis only in 22 per cent. but in later stages the reactions were negative in 70 per cent. showing the curability of this early meningitis. Fleischmann found the fluid normal in only 51 per cent. of 109 cases of recent secondary syphilis.

66. **Ultraviolet Rays in Treatment of Tetanus.**—Jesionek treated the wounds with the mercury vapor lamp in four cases of tetanus and the men recovered. The incubation period had ranged from nine to seventeen days.

67. **Night Blindness Among the Troops.**—Braunschweig comments on the curious coincidence that in the ninety-eight cases in his ophthalmologic service for the troops, 22 were cases of hemeralopia. No Bitot spots were discovered in any case, and he regards the condition as the result merely of physical exhaustion.

70. **The Hospital Train.**—Schneidt relates that the train in his charge has covered 14,000 kilometers—nearly 7,000 miles—since September, and he describes the work. He found that the wounds secreted more and that tetanus became much aggravated when the train was running fast, so that now the regulation speed of 30 kilometers, 19 miles, is maintained regularly. His experience has suggested as further desirable features of the equipment, arrangements for spraying the air, to clean it, as is done in theaters; arrangements for moistening the air, and a hot water douche for the personnel and the wounded able to use it.

71. **Albumose Treatment of Typhoid.**—Lüdke's research on immune serums for treatment of typhoid resulted in the discovery that certain other substances seemed to have the same action as a specific serum, when injected into a vein. This was most marked with albuminoids, and especially with deuterio-albumose. He tabulates the course in twenty-two cases of typhoid after injection of 1 c.c. of killed cultures of colon bacilli or of 1 c.c. of a 2 or 4 per cent. solution of deuterio-albumose. With the latter the fever dropped almost at once, and in more than half the cases the course of the disease was abbreviated and the organic lesions rapidly healed. The earlier the albumose injection was made, the better the results. In the eleven cases treated with the albumose alone, the fever subsided at once in five cases. It fell gradually to normal in five or seven days after the first injection, repeated once or twice during this period. None of the men had been inoculated against typhoid. The injections were begun the eighth to twenty-first day after beginning of the disease.

76. **Traumatic Epilepsy After Wounds of the Brain.**—Spielmeyer calls attention anew to Trendelenburg's research which demonstrated that cortical convulsions in dogs and monkeys could be arrested by chilling the area involved.

Spielmeyer applied this principle in his practice in the last year in the case of a man with a defect in the skull who had frequent epileptiform seizures in addition to slight left hemiparesis. The seizures generally began with paresthesia in the hand. Spielmeyer ordered him to apply to the skull an ice bag, or cloths wrung out of cold water, keeping this up for half an hour once or twice a day. During the following nine months he had no further seizures except once when he had neglected the cold applications for two weeks, and the warning paresthesia came on in the street and it was impossible for him to get the ice bag. Before this the seizures had returned regularly every tenth to fourteenth day, and sometimes occurred in series. He now applies the cold whenever he feels the paresthesia and the seizure is warded off. Two men whose skulls were wounded by a shell, have had a similar experience. The seizures have been warded off by prompt chilling of the region whenever the sensory symptoms suggest that a seizure is impending.

82. **Vermin.**—Eysell recalls that the workers in the sulphur mines of Sicily are not liable to contract malaria in that hotbed of the disease. With the discovery that infection was conveyed by the mosquito, this "miracle" has been explained. The mosquito is repelled by the odor of sulphur. In itself sulphur has no odor, but, in contact with the secretions of the skin, sulphuretted hydrogen is generated in minute amounts, enough to repel insects. This fact has been utilized satisfactorily in warding off vermin among the soldiers. The underclothing is turned wrong side out and dusted with precipitated sulphur. It is brushed into the texture of the undergarments, using several tablespoonfuls. No effect is apparent until the sulphur has been worn for twenty-four hours. Then all vermin leave the bearer. The disinfecting action of the sulphur may have further a useful influence in warding off furuncles, etc.

85. **Lice on Flies.**—Bohne reports that when his hospital ship was tied up in the harbor last fall flies were numerous, and, on two occasions, when a fly had been killed as it was depositing its eggs, three or four lice crawled away from the dead fly. The flies were the ordinary house flies.

Therapeutische Monatshefte, Berlin

March, XXIX, No. 3, pp. 129-192

- 87 *Present Status of Medicinal Treatment of Children's Diseases. (Kinderkrankheiten.) M. Klotz.
- 88 Chemotherapy. (Erfolge der pharmazeutischen Chemie in der neueren Zeit.) E. Spröngerts.
- 89 Hormonal in Treatment of Constipation from Lead Poisoning. (Hormonalbehandlung der Bleibestipation.) H. Curschmann.
- 90 *Dysentery. (Zur Behandlung der Kriegsrühr.) M. Soldin.
- 91 *Smallpox. (Zur Behandlung der Pocken.) Volland.
- 92 *Tetanus. (Behandlung des Tetanus mit subcutanen Injektionen von Magnesium sulfuricum.) F. Reingruber.
- 93 Results of Recent Researches Applied to Food Problem. (Neuere für die Physiologie und Pathologie der Ernährung wichtige Forschungsergebnisse und deren Bedeutung für die Praxis.) H. Schaumann.
- 94 German Substitutes for Foreign Proprieties. (Ausländische Spezialitäten und deutsche Ersatzpräparate.) S. Loewe and G. Lange.
- 95 *Therapeutic Notes from a Base Hospital. R. Koch.

87. **Drugs in Treatment of Children.**—Klotz comments on the complete failure of treatment of rachitis to date on the basis that it is the result of disturbances in some one internal secretion. Neither thyroid nor epinephrin treatment has displayed the least efficacy, nor hypophysis nor thymus extract. Of course if any treatment is begun just as the rachitis is spontaneously subsiding, "astonishing results" may be obtained with or rather in spite of the treatment. Calcium alone is equally ineffectual, but given with phosphorus and cod liver oil, the desired result is realized. Recent studies of the metabolism by Schloss indicate that the phosphorus can be dispensed with. The calcium can be given in the form of 1 or 1.5 gm. of calcium acetate (calc. acetic.) daily. Another field in which calcium is useful is in melena of the new born. Whatever the scientific explanation, the melena may be arrested by subcutaneous injection of 3 or 5 c.c. of a 5 per cent. solution of calcium chlorid (CaCl₂) with gelatin. Or serum or gelatin may be injected and calcium acetate (10 c.c. of a 5 per cent. solution) or calcium chlorid crystals (10 c.c. of a 10 per cent. solution) be given by the mouth

every two hours, lengthening the intervals after 3 gm. have thus been taken.

Klotz has never witnessed any benefit from calcium salts in prophylaxis or treatment of catarrhal affections or serum sickness. The main field for calcium treatment is in arresting a tendency to spasms and convulsions. From 8 to 15 gm. of the calcium chlorid must be given in the first twenty-four hours, and most of it during the first hours. With calcium acetate this dosage should be reduced one-third. The drug is then continued for three days, giving 1.5 gm. calcium chlorid or 1.25 calcium acetate six times a day, gradually reducing this until by about the tenth day 4 gm. is the daily dose, and this is kept up indefinitely. In case of a relapse, the course is begun anew with three of the initial doses and then five doses a day of 1.5 gm. of calcium chlorid or 1.25 of calcium acetate. The lactate does not act so reliably.

The spasmophilia is not cured; it is merely held in check by this treatment, and the ordinary measures, dietetic and sedative, must be given besides. Chloral by the rectum is required to arrest convulsions and laryngospasm until the influence of the calcium begins to be felt. The above course is not needed for mild spasmophilia; here 2 gm. of calcium bromid a day may be all that is necessary. Convulsions not due to spasmophilia, such as epileptic seizures, are not influenced by calcium treatment. It is possible that magnesium sulphate might answer as well as calcium; recent experiences suggest this possibility. The importance of salt as opposing the action of bromids is now generally recognized, and the way in which bromid intoxication can be controlled by giving more salt by the mouth or rectum.

90. **Dysentery.**—Soldin found that dietetic measures alone gave fully as good results as when associated with drugs, but he generally gave kaolin, bismuth or tannin when the cases became chronic. White cheese proved valuable in the diet after the first. It satisfied the hunger, and rendered the stools more solid. In 2.5 per cent. of his cases there was evidently intense intoxication and the men died within seven to seventeen days. The weakness of the heart dominated the clinical picture.

91. **Smallpox.**—Volland says that the only treatment of smallpox is to eradicate it from the land, which is easily possible by vaccination in infancy, repeated between 10 and 12, and again on entering the army. Any one who denounces this compulsory vaccination should be penalized. If systematically enforced, smallpox will be exterminated throughout the world—the only disease to date which offers such a possibility.

92. **Magnesium Sulphate in Tetanus.**—Reingruber tabulates the details of nine cases of tetanus in which recovery followed subcutaneous magnesium sulphate treatment. The article proceeds from Göppert's clinic at Göttingen and extols the subcutaneous technic for treatment of the moderately severe, long protracted cases. The magnesium sulphate will help to tide the patients along and permit the taking of nourishment until the system is able to throw off the disease. The best technic seemed to be to make the subcutaneous injections in the morning every two or three hours until the desired result was attained. Then the patient was left in peace the rest of the day. By the next morning the effect had worn off and the injections were resumed. He used a 20 or 25 per cent. solution for a child and a 40 or 50 per cent. solution for an adult. The single dose is 0.2 gm. per kilogram of the body weight, or even less.

95. **Tetanus.**—Koch emphasizes that the wounded do not develop tetanus because they have become infected with tetanus bacilli but because these bacilli are allowed an opportunity to proliferate in the wound. If with hydrogen dioxid and potassium permanganate we clear out the wound so there is no opportunity for them to develop, there will be no tetanus.

95. **Camphor in Treatment of Wounds.**—Koch extols the advantages of camphorated wine in treatment of wounds. The skin keeps its normal color, the granulations are large and lively and the wound heals remarkably fast, while the relief from pain from the first is notable. The official formula

is 1 part camphor, 1 part alcohol, 3 parts mucilage of acacia and 45 parts white wine.

Therapie der Gegenwart, Berlin

March, LVI, No. 3, pp. 81-120

- 96 *Dietetics in Wartime. (Volksernährung und Diätetik in Kriegzeiten.) A. Schmidt.
- 97 Intravenous Iodin Treatment. F. Klemperer.
- 98 *Synthetic Camphor in Therapeutics. M. Levy and W. Wolff.
- 99 *Kaolin-Charcoal Treatment of Diarrheic Processes. Wolff-Eisner.
- 100 *The Sugar Content of the Blood as Guide in Treatment of Diabetes. (Blutzuckerbestimmungen—Ivar Bangs Mikromethode—bei Diabetikern und ihre klinische Bedeutung.) M. Lauritzen. Commenced in No. 2.
- 101 Headache from Unsuspected Middle-Ear Disease. (Wesen und Grundlagen des Ohrenkopfschmerzes und seine Feststellung durch die ärztliche Untersuchung.) A. Linck. Commenced in No. 2.
- 102 *Improved Technic for Knee-Jerk. (Einfacher Handgriff zur Auslösung des Patellarreflexes.) K. Gerson.

96. **Dietetics in Wartime.**—Schmidt remarks that the exigencies of wartime have caused a return to the diet of our grandparents, less meat and less albumin and more vegetables and fruits. This is a change that has long been advocated not only by the vegetarians but by many specialists in digestive disturbances. The war has forced this experiment on the whole German people and the profession is intensely interested in the ultimate effect. Will gout and nervous affections, arteriosclerosis and kidney disease be less prevalent—as the vegetarians claim—or not? At any rate the change will not harm those with a sound digestive apparatus. For those with a weak gastro-intestinal tract the question of a digestible diet under these circumstances is a question of cooking. Cooking, he declares, is a lost art in the homes of working people, and it is at a very low level everywhere. Even for the sick, the digestibility usually depends more on the way in which the food is prepared than on the substance itself. He says it must be hammered into the women that it is now their duty to stand by the cook stove and take time to prepare the savory and digestible dishes of our grandparents who did not have meat, eggs and butter in the abundance to which we have become accustomed.

98. **Synthetic Camphor.**—The experiences related in this communication from His' clinic at Berlin testify that synthetic camphor can fully take the place of natural camphor. Only, when the dose is over 1 gm., it is wise to be a little more cautious than is necessary with the natural drug.

99. **Kaolin and Charcoal in Diarrhea.**—Eisner declares that bolus alba (kaolin), which Stumpf has been for years advocating as the best treatment for cholera, has come out triumphant from the experiences in the present war. It seems to act by absorbing the toxins and mechanically burying the bacteria and sweeping them away with it. Blood charcoal answers the same purpose, and the two can be given together. The details of twenty-five cases are tabulated showing the almost immediate arrest of violent and rebellious diarrhea in dysentery and typhoid after the dose of a tablespoonful each of the kaolin and charcoal had been taken once to three times a day. In the severer cases the proportion of kaolin was doubled. It is a familiar fact that charcoal and *Kieselgur* (fossil earth) will decolor a solution of a stain. We utilize this property in treating intestinal trouble with them. He adds that if we accept Hofmeister's definition that all the phenomena of immunity are due to colloid-chemical interactions, then we can regard the kaolin-charcoal treatment as a kind of immunotherapy, and as a new and particularly promising form of it. At the very first trial of it we are able to bind toxins which are beyond the reach of serotherapy, and thus we can materially reduce the death rate in cholera. Eisner remarks that it is not easy to find anything more harmless than this method of treatment. He gives the kaolin and charcoal in oatmeal gruel with a dash of red wine. It has to be stirred constantly to keep them from settling to the bottom. The method was applied further with apparent success to some healthy carriers. No bacilli were found in their stools afterward.

100. **Sugar Content of the Blood in Diabetes.**—Lauritzen tabulates here the findings with Bang's micromethod for determining the proportion of sugar in the blood as applied

systematically and repeatedly in one hundred cases of diabetes. The variations in the sugar content of the blood are a more reliable guide to treatment than the sugar content of the urine, he asserts.

102. **The Knee-Jerk.**—Gerson gives an illustration to show the method and advantages of passing your left arm under the patient's right thigh just above the knee, resting your hand on the man's other thigh. His leg thus rests on your forearm and you can tell whether the muscles are relaxed or not, before testing for the knee-jerk. The leg should be bare.

Zentralblatt für Gynäkologie, Leipzig

March 13, XXXIX, No. 11, pp. 161-176

- 103 Improved Technic for Sterilization by Extraperitoneal Displacement of Fallopian Tubes. W. Stoeckel.

Gazzetta degli Ospedali e delle Cliniche, Milan

March 11, XXXVI, No. 20, pp. 305-320

- 104 *Pleurisy in Syphilitics. B. Vasoin.
105 Antibodies to Cow's Milk in Infants' Blood. (Allattamento artificiale e fermenti nel sangue per l'albumina del latte eterologo.) L. Maccone.

March 14, No. 21, pp. 321-336

- 106 *Liver Abscess and Valvular Trouble Secondary to Enteritis. C. Pascale.

104. **Pleurisy in Syphilitics.**—Vasoin concludes from study of the literature that tuberculous pleurisy is rather frequent in syphilitics, but that there is no evidence to date of a pleuritis of exclusively syphilitic origin. If the Wassermann reaction were positive in the pleural effusion alone, and not in the blood, this would settle the question in the affirmative, but there is no record of such findings. We must also be on the lookout for cases in which syphilitic symptoms develop simultaneously in the skin and the pleura without previous symptoms of tuberculosis.

106. **Liver Abscess with Heart Disease.**—Pascale reports a case in which during a catarrhal enteritis an abscess developed in the liver. During the acute course of the liver trouble, cyanosis and dyspnea testified that a mild, long latent heart trouble had been fanned into a flame likewise by the bowel disease. The failing compensation of the heart trouble forbade operative treatment of the liver abscess and the woman soon succumbed.

Policlinico, Rome

March 14, XXII, No. 11, pp. 351-384

- 107 Open Iodin Treatment of Operative Wounds. (Sul trattamento aperto delle ferite operatorie con la tintura di iodio.) M. Pezzolo.

Riforma Medica, Naples

March 13, XXX, No. 11, pp. 281-308

- 108 Tubercle Bacilli Only Exceptionally in Blood in Chronic Tuberculosis. (Sulla batteriemia tubercolare.) T. Lucciarini. Commenced in No. 10.
109 Clinical Significance of Eye-Heart Reflex. (Riflesso oculocardiac.) N. Orlandi. Commenced in No. 9.

Semana Medica, Buenos Aires

February 4, XXII, No. 5, pp. 145-180

- 110 Salvarsan in Treatment of Syphilis. J. N. Posadas.
111 The Campaign against Alcohol in Latin America. (Progresos en la republica de Chile.) V. Delino.
February 11, No. 6, pp. 181-212
112 Technic for Electric Treatment of the Eye. (Soporte universal para aplicaciones electricas en los ojos.) C. Heuser.
113 Present Conception of Hysteria. (Histeria-pitiatismo.) J. Babinski.
February 18, No. 7, pp. 213-240
114 Operation for Diverticulum in the Bladder. C. V. Zerbini.
115 Serotherapy of Typhoid Fever. (Los estragos del tifus.) A. D'Alessandro.
116 Amebic Dysentery in Uruguay. A. Ricaldoni and A. Berta.

Grèce Médicale, Athens

February, XVII, Nos. 3-4, pp. 5-8

- 117 *Tuberculosis of the Kidney. P. Petridis. Commenced in No. 1.

117. **Tuberculosis of the Kidney.**—Petridis concludes from his own clinical experience and review of the literature since 1912 that we can assume with practical certainty that only

one kidney is affected in most cases. Early diagnosis is still a difficult matter, even with all the aids of modern science. There is only one method of treatment, namely, removal of the diseased organ. If the condition does not permit this, nephrostomy may be indicated, followed by nephrectomy when the condition has improved enough to allow it.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

March 13, I, No. 11, pp. 805-880

- 118 *Test for Bile Pigment in Various Body Fluids. (Studien over anhepatische galkleurstofvorming.) A. A. H. van den Bergh and Others.
119 The Coolidge Roentgen Tube. (Over een nieuwe roentgenbuis.) J. W. T. Lichtenbelt and W. H. Jolles.
120 Radium and Roentgen Treatment of Non-Malignant Gynecologic Disease. (Stralenbehandeling in de gynaekologie. II.) T. H. Van de Velde.

118. **Determination of Bile Pigment in Body Fluids.**—Van den Bergh describes an acetone technic with which it is possible to crystallize out any bilirubin that may be present in the blood serum, effusions and transudates.

Hospitalstidende, Copenhagen

March 17, LVIII, No. 11, pp. 249-280

- 121 *Gall-Stones Result of Transient Inspissation of the Bile. (Studier over Galdestenenes Patogenese.) T. Rovsing.

121. **Gallstones Result of Transient Thickening of the Bile.**—Rovsing asserts that recent research seems to have established that, just as the urine becomes abnormally concentrated during the course of a febrile disease, the bile is liable to become less fluid. In the inspissated bile, precipitation is liable to occur and the elements thus thrown down may agglomerate into concrements. Among the facts on which he bases this assertion are the results of Boysen's chemical study of the gallstones found in 200 cadavers with cholelithiasis. The young, freshly deposited gallstones and likewise the nucleus of all other kinds of biliary concrements he found consisted of bile pigment and calcium, *Pigmentkalk*, as he calls it. Other elements of the bile are precipitated on this nucleus or are drawn in by osmosis, especially cholesterol. The conditions during pregnancy and during a febrile disease are liable to favor this inspissation. The concrements resulting from it are all of about the same age, confirming the transient nature of the cause producing them and explaining why new ones do not develop after the crop has been removed. Boysen found invariably that the gallbladder was sound when the gallstones were of the small, primary bile-pigment calcium type.

A still more conclusive argument in favor of this assumption of the origin of gallstones, is that systematic bacteriologic study of the gallbladders removed in 320 cases at Rovsing's clinic between 1899 and 1914 showed that the organ was entirely sterile in fully 54 per cent., without a trace of infectious processes. The proportion in aseptic cases showing the different types of gallstones ranged from 52.7 per cent. of 55 cases in which a single large stone was found to 77 per cent. of 27 presenting the small mulberry-shaped stones. These findings demolish entirely Naunyn's theory that gallstones are deposited in consequence of an infectious process. Other data cited also disprove this, especially the fact that the symptoms of cholecystitis always follow, never precede, the gallstone formation. When the pigment and calcium are precipitated from abnormally thick bile, the resulting concrements may or may not irritate the gallbladder and ducts enough to set up inflammation. Rovsing reviews all the theories proposed concerning the pathogenesis of gallstones and shows the fallacies of each, while he expatiates on the way in which all the phenomena connected with cholelithiasis are logically explained by precipitation as the result of thickening of the bile under some temporary condition inducing transient inspissation.

Ugeskrift for Læger, Copenhagen

March 18, LXXVII, No. 11, pp. 393-428

- 122 Binet-Simon Intelligence Tests for Children. (Intelligensundersøgelser hos Børn.) Fischer-Nielsen. Commenced in No. 10.
123 Erysipelas Yields to Diphtheria Antitoxin. C. Berg-Hansen.

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CONCERNING LANDAU'S COLOR TEST FOR SERODIAGNOSIS OF SYPHILIS*

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PHILADELPHIA

Recently Landau¹ has described an iodine color reaction in syphilis for which he claims a high degree of specificity as compared with the Wassermann reaction. On account of the simplicity of the test and the claims made it has attracted considerable attention, so that I have thought it advisable briefly to record my observations, although they have not by any means substantiated Landau's claims and show the test to be without practical value.

Landau at first used iodized petrolatum for the test, prepared by mixing 5 drops of tincture of iodine in 10 c.c. of paraffin oil. To 0.2 c.c. of the serum was added 2.5 c.c. of this reagent and the test tube set aside in a dark place for from five to fifteen hours. Syphilitic serum, it is claimed, decolorizes the mixture, while the color persists a reddish yellow with normal serum.

With this method Landau examined the serums of 90 persons regarded as syphilitics; of these 49 reacted positively with the Wassermann reaction and 55 with the iodized petrolatum test. Of 32 controls regarded as nonsyphilitic, all reacted negatively with the Wassermann reaction while 1 (a case of *ulcus cruris*) reacted positively with the iodine test.

Later² the technic was modified and a 1 per cent. solution of iodine in tetrachloride of carbon employed. To 0.2 c.c. of the fresh, clear serum is added 0.01 c.c. of the iodine reagent; they are well mixed until all color disappears from the reagent and then set aside in a dark place for four hours at room temperature. With the serum of a syphilitic the fluid is a clear transparent yellow; with a nonsyphilitic serum the fluid becomes a whitish gray and is opaque.

Because of the frequent difficulty of reading the results, the addition of starch paste to the mixtures has been advocated as a means for detecting unbound iodine in the serums, as indicated by the development of a blue color. Negative tests, therefore, are supposed to be indicated by a blue color and positive tests by no change of color on the addition of starch. I have also used this technic in the examination of a number of serums, but have not found it of any aid in interpreting the reactions, so that the iodine reaction was found far inferior to the Wassermann reaction in the

practical diagnosis of syphilis, although it may possess considerable theoretical value and interest.

Landau has advanced no adequate explanation of these reactions, but was apparently influenced in his researches by the chemical physiologic reactions of Meier and Porges, Fornet and Schereschewsky, Herman and Perutz, Klausner, Ascoli, Schurman and others who have advocated various floccule, precipitin and color reactions in the diagnosis of syphilis, on the basis that the Wassermann reaction itself is a colloidal chemical reaction with lipoidal substances.

While Landau has not laid down more definite directions, I have conducted his tests in this investigation as follows:

TECHNIC

(a) Clear corpuscle-free serums were employed. Opalescent serums, as those obtained by bleeding shortly after a meal, are not adapted for the method, especially with the iodine tetrachloride of carbon technic. Practically all serums were used in a fresh active condition and also after heating or inactivation at 56 C. for one-half hour. Serums deeply stained with hemoglobin were found unsatisfactory and were discarded.

While Landau did not report on the results of the examination of cerebrospinal fluids, I have examined a number with both reagents, and with these the results were even more inconsistent than with serums.

(b) With the iodized petrolatum method the exact technic of Landau was observed; with the iodine tetrachloride of carbon method I have modified his technic to this extent, that five times the quantities of serum and reagent were used in order to observe the reaction in a larger volume. With the quantities he advised, namely, 0.2 c.c. serum and 0.01 c.c. reagent, the bulk is quite small even in the small test tubes ordinarily in use in a laboratory; whereas with 1 c.c. of serum and 0.05 c.c. reagent the readings are much easier and more definite. With the iodized petrolatum technic, readings were made at the end of fifteen to eighteen hours; with the iodine tetrachloride of carbon technic, at the end of four hours and again after twenty-four hours at room temperature.

The starch test for unbound iodine was applied by the addition of 0.5 c.c. of a 1 per cent. solution of starch in distilled water. This amount of starch gives a distinct blue color in the sediment when added at once to a mixture of serum and iodine reagent. In the tests I have added the starch after the mixtures of serum and iodine tetrachloride of carbon reagent have stood four hours at room temperature, and in some tests at the end of twenty-four hours. With few exceptions no change of color was perceptible, regardless of whether the serum was from a normal or luetic person. Thus, of 58 serums tested in this manner, 20 yielded positive Wassermann reactions; 38 yielded positive iodine reactions. After four hours the addition of starch to the 58 serums showed a faint blue reaction characterized by a few blue granules, not easily seen in but six tubes, and four of these occurred in clear serums or positive reactions according to Landau.

(c) All serums and cerebrospinal fluids were tested for the Wassermann reaction with three different antigens,

* From the Laboratories of the Philadelphia Polyclinic and College for Graduates in Medicine.

1. Landau, W.: Untersuchungen über eine Reaktionluetischer Sera mit einem Jodal Reagens, *Wien. klin. Wchschr.*, 1913, xxvi, 1702.

2. Misc. Abst., *THE JOURNAL A. M. A.*, Oct. 10, 1914, p. 1317.

namely, an alcoholic extract of human heart, reenforced with cholesterin, an alcoholic extract of syphilitic liver and an extract of acetone-insoluble lipoids of human heart. I have tabulated the results according to the Wassermann reaction, for the histories and diagnoses of the patients tested were at times incomplete and uncertain and in none of the cases regarded clinically as syphilitic was the Wassermann reaction negative.

RESULTS

(a) *With the Iodized Petrolatum Reagent.* — Twenty-five serums and five cerebrospinal fluids were tested with this reagent. As will be noted in the table, the addition of serum to this reagent practically always resulted in the mixture becoming lighter in color, irrespective of whether the serum was of a luetic or normal person. In some instances the shades and degrees of decolorization were different, but not consistent in regard to the nature of the serum derived from a syphilitic or nonsyphilitic person. Normal as well as syphilitic serums were found to decolorize the

As already stated, the results are expressed according to whether the Wassermann reaction was positive or negative. All of the serums reacting positively in the Wassermann reaction were from persons in the secondary, tertiary or latent stages of syphilis; three were of congenital syphilis; none was in the primary stage. A few were not diagnosed by the attending physician.

The iodine reactions were conducted with fresh active serums and again after heating the serums at 56 C. for thirty minutes. Readings were made after four hours, and again at the end of twenty-four hours, the tubes remaining at room temperature.

The results observed are summarized as follows:

1. WASSERMANN POSITIVE SERUMS

1. Of seventy-four serums yielding positive Wassermann reactions fifty-three, or 71.6 per cent., tested in a fresh active condition, reacted positively in the

RESULTS OF LANDAU'S IODIZED PETROLATUM TEST WITH SERUMS AND CEREBROSPINAL FLUIDS REACTING POSITIVELY AND NEGATIVELY IN THE WASSERMANN REACTION

No.	Diagnosis	Wassermann Reaction			Landau's Reaction	
		Cholesterin-ized Alc. Ext. Human Heart	Alc. Ext. Syph. Liver	Acetone Insol. Lipoids	Active Serum	Inactivated Serum
1	Secondary syphilis.....	++++	++++	++++	Partial decolorization...	Partial decolorization.
2	Secondary syphilis.....	++++	++++	++++	Partial decolorization...	Partial decolorization.
3	Secondary syphilis.....	++++	++++	++++	Almost colorless.....	Almost colorless.
4	Secondary syphilis.....	++++	++++	++++	Partial decolorization...	Partial decolorization.
5	Tertiary syphilis.....	++++	++++	++++	Partial decolorization...	Partial decolorization.
6	Secondary syphilis.....	++++	++++	++++	Partial decolorization...	Partial decolorization.
7	Acute arthritis.....	—	—	—	Almost colorless.....	Almost colorless.
8	Acute gonorrhea.....	—	—	—	Partial decolorization...	Almost colorless.
9	Secondary syphilis (salvarsan)....	++	—	—	Almost colorless.....	Partial decolorization.
10	Acute gonorrhea.....	—	—	—	Almost colorless.....	Partial decolorization.
11	Acute gonorrhea.....	—	—	—	Partial decolorization...	Almost colorless.
12	Pneumonia.....	—	—	—	Almost colorless.....	Colorless.
13	Acute endocarditis.....	—	—	—	Partial decolorization...	Partial decolorization.
14	Tertiary syphilis.....	++++	++++	++++	Partial decolorization...	Almost colorless.
15	Secondary syphilis (salvarsan)....	+++	+	++	Partial decolorization...	Colorless.
16	Infant feeding case.....	—	—	—	Partial decolorization...	Partial decolorization.
17	Sarcoma.....	—	—	—	Partial decolorization...	Partial decolorization.
18	Chronic gonorrhea.....	—	—	—	Almost colorless.....	Colorless.
19	Paresis.....	++++	+++	+++	Partial decolorization...	Partial decolorization.
20	Tabes dorsalis.....	++++	+	++	Partial decolorization...	Partial decolorization.
21	Normal rabbit serum.....	+++	+	+	Partial decolorization...	Partial decolorization.
22	Normal rabbit serum.....	++	+	+	Partial decolorization...	Partial decolorization.
23	Normal dog serum.....	++	+	±	Partial decolorization...	Partial decolorization.
24	Normal dog serum.....	+	±	—	Partial decolorization...	Partial decolorization.
25	Normal dog serum.....	—	—	—	Partial decolorization...	Partial decolorization.
26	Cerebrospinal fluid.....	++++	++++	++++	Practically no change..	Practically no change..
27	Cerebrospinal fluid.....	—	—	—	Practically no change..	Practically no change..
28	Cerebrospinal fluid.....	+++	++	++	Slightly decolorized....	Slightly decolorized....
29	Cerebrospinal fluid.....	+++	+	+	No change.....	No change.....
30	Cerebrospinal fluid.....	—	—	—	No change.....	No change.....

reagent to an equal degree. Cerebrospinal fluids, on the other hand, produced slight or no change in the color of the mixture, regardless of whether they were from a luetic or nonluetic person.

(b) *With Iodin Tetrachlorid of Carbon Reagent.*— With this reagent I examined 162 serums and fifteen cerebrospinal fluids. The former were tested in a fresh active condition and again after heating at 56 C. for half an hour. Readings were made after standing four and again twenty-four hours at room temperature.

In examining most of the serums listed I used the technic adopted, which requires five times the quantities of serum and reagent given by Landau. Even under these circumstances it was usually a difficult matter to interpret and read the results. In most instances a portion of unused serum of each specimen was employed as a control to determine the presence of faint degrees of cloudiness or to read a serum very faintly opalescent in its natural or unused state.

iodine test as read at the end of four hours; at the end of twenty-four hours a few serums became cloudy and thereby reduced the percentage of positive iodine reactions to about 68 per cent.

2. The iodine reactions with heated serums and those more than twenty-four hours old yielded results quite similar to those tested in a fresh active condition, in that 72 per cent. were positive.

3. In general the iodine reaction was negative in about 28 per cent. of serums yielding positive Wassermann reactions and regarded as from luetic persons.

2. WASSERMANN NEGATIVE SERUMS

The error of the iodine reaction is even greater with serums of normal persons and those suffering with diseases other than syphilis, in that a relatively high proportion, at least 70 per cent., react positively.

1. Of sixty-one serums reacting negatively in the Wassermann reaction and tested with the iodine reagent in a fresh, active condition, but eighteen, or

29.5 per cent., reacted negatively as read at the end of four hours.

2. Of even greater importance, therefore, is the observation that about 70 per cent. of nonluetic and Wassermann negative serums yield falsely positive iodine reactions.

3. With heated or inactivated serums the iodine reaction at the end of four hours yielded results quite similar to those observed with fresh serum, in that 26 per cent. were negative, and thereby in agreement with the Wassermann reaction.

With cerebrospinal fluids the results were entirely unsatisfactory. Practically all fluids reacted alike; that is, the color persisted in the reagent collected in the bottoms of the test tubes and the fluids remained clear irrespective of whether they were from luetic or nonluetic persons. Of fifteen fluids tested, six gave strongly positive Wassermann reactions and nine reacted negatively, but as stated, all reacted in a similar manner when tested with iodine in tetrachloride of carbon reagent.

SUMMARY

1. Of eleven serums of persons and four of normal rabbits and dogs reacting positively, and of ten reacting negatively in the Wassermann reaction, the tests with Landau's iodized petrolatum were entirely unsatisfactory. Both normal and luetic serums alike were found to produce partial decolorization of the reagent, and complete decolorization was likewise observed with both normal and luetic serums. The results with active and inactivated serum were practically similar.

2. Cerebrospinal fluids of both syphilitic and non-syphilitic persons tested with iodized petrolatum produced similar results, in that both alike caused little or no change of the reagent.

3. With the iodine in tetrachloride of carbon reagent the results with fresh active serums after standing four hours at room temperature, as directed by Landau, were as follows:

(a) Of seventy-four serums giving a positive Wassermann reaction, 53, or 71.6 per cent., gave a positive iodine reaction.

(b) Of sixty-one serums giving a negative Wassermann reaction, 18, or but 29.5 per cent., gave a negative iodine reaction. As based on the Wassermann reaction, the iodine test yielded about 70 per cent. false positive reactions with Wassermann negative serums.

4. The error of the iodine test, therefore, is not only in the low percentage of correct positive results, but is especially evident in the high percentage of false positive reactions with nonluetic serums.

5. With cerebrospinal fluids the iodine reagent produced no visible changes, irrespective of whether the fluids were from normal or luetic persons.

Free Public Laundries.—Buffalo claims to be the first city in the United States to establish free public baths and free public laundries. They are considered among Buffalo's best investments. The first free municipal bath house and laundry was opened January 2, 1897, in a tenement and cheap lodging house district. The second was opened in a similar neighborhood January 2, 1901. Both were popular from the start. According to the *Buffalo Sanitary Bulletin*, in 1915 the number of bathers was 151,111 men, 14,154 women and 53,461 children, a total of 218,714. The laundry was used by 7,698 men and 178 women, a total of 7,876. Two other municipal baths and laundries are to be established in the Black Rock and South Side districts.

THE WASSERMANN REACTION AS A CLINICAL TEST, WITH SPECIAL REFERENCE TO ITS BEARING ON MATRIMONY

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I

In concluding a recent article, Dr. E. L. Keyes, Jr.,¹ states that, "a negative Wassermann is not sufficient evidence of the cure or absence of syphilis," and that "a positive Wassermann, unsupported by clinical evidence, is not sufficient evidence of syphilis." He further remarks that "a positive Wassermann does not prohibit matrimony." With the first two statements it is impossible to disagree, although, by further study it may be shown that they are not axiomatic, and that they may be clarified in such a manner as to bring order out of apparent chaos. With the third statement cited above it is impossible to agree. The object of this article is to indicate that with the very facts from which these conclusions were drawn, other deductions might have been reached.

To dogmatize to the extent of asserting that the positive Wassermann, *per se*, indicates syphilis, is admittedly not wise, for diseases other than syphilis may give the reaction. These are yaws, lepra, tuberculosis, cancer, malaria and scarlet fever. If they are capable of causing the reaction, it goes without saying that others may do so too. We know of none, it is true, and hence, any discussion of such a possibility, however admissible, comes within the realm of medieval scholasticism. Of the diseases enumerated, yaws is at least closely related to syphilis, and the others frequently occur in syphilitics. In fact, from what we know of epithelioma of the tongue, and reasoning by analogy, it is conceivable that the Wassermann reaction is positive mostly in such carcinomas as originate in syphilitic cicatrices. Let us admit, however, that the reaction may be positive in patients suffering with the enumerated ailments, and in whom syphilis may be certainly excluded, if such a thing is possible, and what then? The Wassermann test in practice is a diagnostic and perhaps therapeutic aid to the clinician. Were there no other means to recognize non-syphilitic conditions able to produce this phenomenon, the test would indeed be worthless. All of them, fortunately, possess characteristic clinical, bacteriologic or histologic features which place their diagnosis beyond peradventure. Such being the case, it inevitably follows that a positive Wassermann in a disease obviously neither yaws, tuberculosis, lepra, carcinoma, malaria nor scarlatina, indicates the presence of syphilis.

There are other facts, however, which are more disconcerting because of their elusiveness, namely, the influence on the Wassermann reaction of various chemicals introduced into the body from without or engendered within the body by metabolic activity. Alcohol is known to render a positive Wassermann negative. Acidosis (Keyes) may excite its transitory appearance in individuals in whom it should be absent. In view of these phenomena and without theorizing about them, it is only rational for us as practitioners to study and classify them, lest they lead to misinter-

1. Keyes, E. L., Jr.: Some Clinical Features of the Wassermann Reaction, *THE JOURNAL A. M. A.*, March 6, 1915, p. 804.

pretations. It becomes necessary to exclude them in given instances in which their presence would vitiate a valuable diagnostic aid.

The avoidable discrepancies in connection with the test are due either to faulty technic or inadequate knowledge of the application of results by clinicians. These are purely intellectual matters, however, involving the personal equation and insufficient familiarity with the intricacies of syphilis. The unavoidable discrepancies have a deeper meaning. It is now known that in competent hands more than nine-tenths of the results of the test correspond, regardless of the modification used. In the remainder the want of uniformity has hitherto baffled explanation. A committee of reliable serologists from several large institutions has been formed in New York with the object of endeavoring to discover the nature of and eventually, to find means of preventing these variations. The differences in technic are as follows: in the type of antigen used, in the titration of complement, in the nature of the hemolytic system, and in the method of incubation. A detailed analysis of these points would be of interest to technicians only and may be dispensed with here. When there is a disagreement in reading the results in this very small margin in which variations occur, it can be only in one respect. One individual finds the result positive, the other finds it negative. The former asserts that his method is the more sensitive, the latter inveighs against it as being too delicate. For the sake of uniformity it would be desirable to ascertain which method yields the maximum number of positive results in known syphilitics and negative results in presumable non-syphilitics. This method should be universally adopted, lest the number of serologic sects multiply infinitely and bring the test into disrepute.

The conditions in active syphilis in which the Wassermann reaction does or may remain negative are in the first incubation period prior to the appearance of the initial lesion, early in the second incubation period, during times of latency whether spontaneous or induced by therapy, in the tertiary stage, although other manifestations of the disease are present, in malignant syphilis, and in central nervous syphilis. The consensus of opinion appears to be that during the florid secondary stage the test is always positive, that during periods of clinical latency it is somewhat less likely to be present and can usually be provoked, if absent, and that during the tertiary period it is unlikely to be wanting. When absent in malignant syphilis, it at once explains the nature of this form of the disease and renders the prognosis grave. In central nervous lues, though at times it may not be found in the blood, it is usually to be ascertained in the cerebrospinal fluid together with the other phases of Nonne. Admittedly, then, the reaction may be negative in active syphilis, but this implies no inconsistency either in the malady or the test. Rather it places on the syphilographer additional burdens of correctly interpreting a lacking cardinal feature of the disease.

The positive Wassermann in non-syphilitic conditions has already been partly discussed in the second and third paragraphs of this paper. Foreign substances in the body and illnesses capable of producing this confusion are few in number, and easy to recognize for the alert observer. It is a question, too, whether patients afflicted with yaws, lepra, tuberculosis or cancer would wish to marry. In the few

instances in which adults acquire scarlatina, it is likely that a wedding would be postponed to beyond the time of convalescence, so that even though the Wassermann reaction may arise in these illnesses, it has no bearing on matrimony. This leaves an enormous balance of positive reactions open to no other explanation than that they indicate syphilis, in fact, active syphilis and, as will be shown, syphilis capable of transmission. During the past five and a half years, at a conservative estimate, well over ten thousand tests have been performed at the German Hospital according to Wassermann's present technic, and I know of no instances which would tend to shake my faith in the above statement.

The Wassermann reaction, then, is an important diagnostic feature in syphilis when positive, and when negative it is an indication either of latency, of efficacious therapy or of cure, when properly considered. This postulate is advanced, subject to the following qualifications: first, that the test has been accurately performed, second, that all other conditions have been excluded capable of giving the reaction or of fortuitously rendering a positive test negative, or the reverse. From this it becomes plain that the test, when present, is but one symptom of the disease and is to be regarded as neither more nor less. It is perhaps the subtlest of symptoms, in that it may precede the appearance of clinical manifestations, and not fade until long after these have vanished.

II

To assent to matrimony merely because a syphilitic suspect has a negative Wassermann, would be a social and scientific dereliction. The phases of active lues during which the test may be negative have been mentioned. When a patient has been adequately treated, and without further treatment has had neither clinical evidence of the disease nor a positive Wassermann during a period of time conventionally assumed to be a year, and when all this has been verified by a provocative treatment, the test remaining negative, it seems reasonable to assume a cure. At least it seems more reasonable than to state that after five years, if a patient has no evidence of lues but a Wassermann reaction, he may safely marry. We are all familiar with the results of too early marriage amongluetics. In former days these were due to excessive optimism based on absence of clinical manifestations; in recent days, in specious confidence in the negative Wassermann, misunderstood and misapplied. Conversely, we have all been astonished at times at the apparent harmlessness of active lues when the syphilitic's mate and offspring have both remained free from the consequences of daring. It is one thing, however, to have a fortunate deliverance from disaster and another to court disaster because of a few exceptional escapes. It would not be safe for an individual with tabes, cutaneous gummata or syphilitic cirrhosis of the liver to marry, and a positive Wassermann has precisely the same significance.

The tragedies resulting from such marriages are not merely those of infecting a hitherto sound person, or of having diseased issue. At any time a syphilitic may develop central nerve lesions, aortic insufficiency or an aneurysm, and thus become a burden to his family. However small the proportion of these unhappy eventualities, their possibility is always very real. These sequelae frequently incapacitate the patient and his dependents for effective work, and any or all of

those involved may, and often do, become ineffective social units and hence a burden on the community. Thus the risks involved are far greater than merely those of the transmission of disease.

Experimental and other evidence, too, condemn the belief that a luetic may justly marry even when the only trace of the disease is in a positive Wassermann reaction. In an article by Frühwald² on the infectiousness of the blood in latent acquired syphilis, the following citations from the literature are convincing. Uhlenhuth and Mulzer infected rabbits with the milk of latent syphilitic women whose only symptoms of syphilis was a positive Wassermann. Artzt and Kerl transmitted syphilis to rabbits by injecting milk from an eight-months gravida who had had syphilis five years before and at the time of the experiment had no evidence of the disease but a positive Wassermann reaction. Frühwald, himself, successfully inoculated rabbits in numerous instances with the blood of latent syphilitics. His ninth case was that of a woman with a five and a half years' history, whose Wassermann was positive. The inoculation was successful. The same was true in a case of three and a quarter years' duration in a young man. In other more recent infections, some of the inoculations were successful and others not. Of Uhlenhuth and Mulzer's fifteen cases, two furnished successful inoculations in the latent stage of syphilis four years old. One of these patients was a woman, the other a young man. Liebermann had a similar result in a case of similar duration, and Graetz failed in six cases. The latter³ cites the history of a woman whose husband had been infected eleven years before their marriage and who had been pronounced clinically cured for years. She acquired lues within a year after her wedding. Including with Frühwald's cases those of the other investigators mentioned, about thirty-five attempts have been made to infect rabbits with the blood of latent syphilitics with the positive Wassermann reaction. In five instances this was successful, a large number considering the probable technical imperfections in so new an experimental field. These facts, together with the social and economic questions alluded to, should suffice to restrain us from regarding the positive Wassermann too leniently.

CONCLUSIONS

1. The Wassermann is negative at times in active syphilis, but only under definite and characteristic circumstances, and when this is understood, no confusion should arise.
2. The Wassermann test may be positive in the absence of syphilis, in certain other diseases, and under certain conditions easy to recognize and exclude.
3. With these exceptions the positive Wassermann indicates active lues.
4. Clinical and experimental corroboration of this point of view exists, and thus assent to matrimony should be withheld from individuals with a positive Wassermann test.

108 West Eighty-Seventh Street.

2. Frühwald: *Dermat. Wehnschr.*, 1914, lix, No. 48, p. 1319.

3. Graetz: *Dermat. Wehnschr.*, 1914, lviii, No. 11, p. 310.

Time of First Nursing.—It is quite indifferent whether or not a baby is put to the breast during the first or second twenty-four hours. The amount of milk in the breasts during this early period is as a rule so small that it need scarcely be considered from a nutritional point.—Isaac Abt, *Detroit Med Jour.*, February, 1915.

FURTHER STUDIES ON THE SPINAL FLUID WITH REFERENCE TO THE INVOLVEMENT OF THE NERVOUS SYSTEM IN EARLY SYPHILIS

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During the past two years we have been investigating the spinal fluid of all our syphilitic patients and coincidentally subjecting these patients to routine neurologic, ophthalmologic and otologic examination in order to determine, if possible, the frequency with which the cerebrospinal axis is attacked in early syphilis. The main object of this investigation was, if possible, to correlate the incidence of early central nervous system syphilis with the later sequelae in the nervous system, particularly tabes and general paresis. Our first publication on this subject, which was read before the American Dermatological Association last year,¹ included a study of thirty-six cases. In a more recent publication² we corroborated the finding of Wechselmann and others with regard to the incidence of central nervous involvement in the so-called pre-roseolar period, that is to say, in cases in which the chancre alone was present and before the hematogenous spread of the infection had occurred. Our first studies with reference to the early syphilis of the nervous system have now been supplemented with twenty-six new cases, making a total of sixty-two in all. In our later investigation we have uncovered some interesting facts and our methods of investigation have undergone some slight change.

Since the appearance of our first article, a few other investigations have been brought to light on this subject, notably one by Hauptmann.³ This author discusses the cerebrospinal fluid in the diagnosis of early syphilitic meningitis. In the main, our results coincide in most respects with those of other investigators, notably Ravaut,⁴ Dreyfus,⁵ Wechselmann⁶ and Hauptmann.

MATERIAL AND METHODS

The methods employed in this investigation have already been detailed,¹ and were again given in connection with our study of cerebrospinal involvement in the primary stage of the disease.² The routine use of the Nonne-Apelt technic in the estimation of soluble proteins in the spinal fluid, in addition to the simple boiling test, and the carrying out of complete neurologic examinations in our cases through the courtesy of Professor Camp, constitute the principal additions to our methods of approaching the problem. We wish also to acknowledge, at this point, the courtesy of Professors Walter R. Parker and R. Bishop

1. Wile and Stokes: *Jour. Cutan. Dis.*, September, 1914.

2. Wile, Udo J., and Stokes, J. H.: *THE JOURNAL A. M. A.*, March 20, 1915, p. 979.

3. Hauptmann: *Deutsch. Ztschr. f. Nervenheilk.*, 1914, li, 314.

4. Ravaut: *Ann. de dermat. et de syph.*, 1903, 4th series, No. 2, pp. 1 and 537; *ibid.*, 1904, 4th series, No. 5, p. 1507; *ibid.*, 1907, 4th series, No. 8, p. 81; *Rev. mens. de méd. inst.*, 1909, No. 3, p. 1.

5. Altman and Dreyfus: *München. med. Wehnschr.*, 1913, v, 465. Dreyfus: *Ibid.*, 1912, lix, 2567.

6. Wechselmann: *Deutsch. med. Wehnschr.*, 1912, No. 31, p. 1446.

Canfield,⁷ on whose respective services the examinations of the fundus oculi and the acoustic apparatus were carried out.

STUDY OF DATA

Broadly considered from the point of view of all the methods used by us to arrive at the condition of the nervous system, only one of the twenty-six cases in the series was frankly negative, and in this case the eighth nerve was not investigated. Two other patients presented, respectively, exaggerated knee and Achilles tendon reflexes, and slight decrease in bone conduction with normal hearing. The remaining twenty-three cases were positive on two or more particulars of the examination. On the spinal fluid alone, nineteen of the twenty-six cases showed some positive finding—a percentage of involvement, judged by this criterion, of 73 per cent. This accords very fairly with the finding of 66.7 per cent. recorded in our previous paper. It should be recalled, and we have taken occasion to emphasize this point in previous discussions, that a negative fluid at the time of puncture does not necessarily imply that such a cerebrospinal fluid will not in the future show signs of meningeal reaction, or that it has not done so at some previous time. Nor should it be forgotten that definite involvement of the central nervous system may exist without the conventional signs in the spinal fluid, and that the percentage of cases in which the nervous system is actively implicated in the disease process is undoubtedly larger than that demonstrable by lumbar puncture. We feel it proper, therefore, to lay stress on the importance of the fundus and eighth nerve examinations as well as the complete neurologic examination in determining accurately the participation of the nervous system in the pathologic picture of early syphilis.

EXAMINATION OF THE FUNDUS OCULI

From the point of view of central nervous system involvement, we have accepted the presence or absence of neuroretinitis in the fundus examination as the significant feature. Such findings as choroidal changes, arteriosclerotic changes, perivascularitis, etc., have been rated as incidental to the syphilis but not to the central nervous system involvement.

Of the twenty-six cases in the present group, twenty-one were subjected to ophthalmoscopic examination. Of these, twelve patients showed a neuroretinitis and nine did not. Of the twelve positives, five were low-grade, three moderate and four severe.

Of the twelve in which neuroretinitis was present, ten were positive in the cerebrospinal fluid and two negative.

Of the nine cases showing no neuroretinitis, five were positive in the fluid and four were negative.

Other neurologic findings accompanied the neuroretinitis in four cases, with spinal fluid involvement, and such findings were present in the absence of neuroretinitis in four cases.

From these data it would seem reasonable to conclude that the involvement of the central nervous system may take place unaccompanied by demonstrable changes in the spinal fluid. On the other hand, neuroretinitis is by no means an invariable accompaniment of changes in the cerebrospinal fluid. In fact several of the cases in our present series in which the cerebrospinal fluid involvement was most marked, showed

no changes in the nerve head. The severity of the neuroretinitis and the degree of meningeal involvement showed no definite relation to each other, in cases in which both were present.

EXAMINATION OF THE EIGHTH NERVE

Special significance was attached in these cases to decreased bone conduction in the presence of otherwise normal hearing. Changes in high and low limits of sound perception were also noted. Examination was made in sixteen cases, of which eleven were positive and five negative, or a percentage of 62.5 positives. This yields a slightly higher percentage of positives than second nerve involvement (57 per cent.) but the difference is scarcely significant. Of the eleven positive cases, eight presented positive findings in the spinal fluid and three were negative. Here, again, syphilitic involvement of a peripheral cranial nerve had taken place without any signs of meningeal reaction in three cases. Of the five cases in which the eighth nerve was normal, three were positive in the fluid and two negative.

Comparing eighth nerve involvement with that of the second nerve and other forms of central nervous involvement as revealed by general neurologic examination, we find that the test of the bone conduction is the most sensitive indicator of the condition of the nervous system at this stage of syphilis.

NEUROLOGIC EXAMINATION

Of twenty-two cases subjected to a complete neurologic examination, nine were positive in some particular and thirteen were negative. Of the nine positives, eight showed definite involvement of the spinal fluid, a significantly high percentage, which establishes the importance of a neurologic examination in all cases of early syphilis. On the other hand, the fact that a negative examination is not by any means synonymous with a normal nervous system is borne out by the fact that of the thirteen negative cases, nine had definite evidence of meningeal reaction in the spinal fluid.

A conspicuous example of positive neurologic findings with a normal spinal fluid will be specially mentioned below.

The following abnormalities were noted in the general neurologic examination: The knee and Achilles tendon reflexes were increased in six cases, diminished in one, lost in one. Pupils were sluggish in one, Argyll Robertson in one, and unequal in two. There was ptosis in one case, tremor in one, Romberg a doubtful positive in one and the gait was affected in one.

Passing from considerations dealing directly with the condition of the nervous system in early syphilis, the following additional data were compiled from the tables, dealing largely with the relation of central nervous involvement to such aspects of the disease as the general health, symptoms indicative of nervous involvement, the eruptive phenomena, influence of sex, and other general or systemic changes.

INFLUENCE OF SEX

Of the series here presented, ten were women and sixteen men. Using the spinal fluid as a criterion because of its definiteness, 80 per cent. of the women showed cerebrospinal involvement as compared with 68.6 per cent. of the men. This difference is sufficiently marked to be confirmatory of the views of

7. Canfield, R. Bishop: Jour. Mich. State Med. Soc., 1914, xiii, 389.

Fournier as to the relatively greater frequency of early central nervous involvement in women.

ERUPTIVE MANIFESTATIONS

In our previous paper we were able to bear out the observation of Ravaut relative to the higher percentage of cerebrospinal involvement in patients presenting eruptions of the indurated papular and follicular types. Since no one type of eruption existed alone in any one patient, the estimates given below are based on proportions rather than on actual cases. Patients in whom roseola was the prominent feature of the efflorescence showed positive fluid involvement in 55 per cent. of the cases. Cases in which papular eruptions were predominant were positive in the fluid in 66 per cent. of the cases. Severe alopecia showed positive involvement in 85 per cent., follicular and pustular syphilids in 100 per cent., pigmentary syphilids in 80 per cent. Recurrent eruptions were positive in the nervous system in 85 per cent. in our series. The high proportions of involvement in the follicular, pustular and pigmentary syphilids is apparent without further comment.

GENERAL HEALTH

The criteria adopted in estimating the condition of the general health in the patients studied were detailed in our previous paper, and are here quoted directly.

Under the heading "general health," an attempt was made to align the constitutional disturbance attributable to the infection into a terse estimate for comparative purposes. Slight anemia, with a loss of from 2 to 5 pounds in weight and mild asthenia which did not incapacitate the patient for work, with occasional nocturnal osteocopic pains, cephalalgias and myalgias, was rated as a "slight" effect on the general health. A "moderate" effect was regarded as including a blood picture of 3,500,000 to 4,000,000 red cells, a hemoglobin of 70 per cent., a sharp drop of from 5 to 15 pounds in weight, malaise with partial incapacity, anorexia, slight fever and pronounced symptoms of bone involvement. Our severe cases showed marked incapacitating asthenia and prostration, losses in weight varying from 15 to 40 pounds or more (syphilitic cachexia), symptoms of meningismus, hydrarthrosis and pronounced anemias. The individual habitus of the patients is of course allowed for, and we realize that such a classification involves a large subjective element.

Summarized in this way, moderate or severe involvement of the general health was found in twelve cases, of which ten were positive in the spinal fluid and only two negative. Of the cases showing slight impairment of the general health or none at all, eight were positive in the fluid and four negative. It is evident, therefore, that in this series as well as in our first publication, there is an appreciable correlation between severe impairment of the general health and positive findings in the cerebrospinal fluid. It is of interest to note that severe loss in weight with only a single exception, was accompanied by involvement of the cerebrospinal fluid. The losses ranged from 10 to 50 pounds.

SUBJECTIVE SYMPTOMS

In general, patients with negative fluids were free from subjective symptoms of any description. On the other hand, a number of the positive fluids occurred in patients who complained of no subjective symptoms whatever. In our previous series, severe headache, insomnia and increased nervous irritability seemed to preponderate in cases showing positive cerebrospinal involvement. In the present series such a relation was

only definitely apparent in the case of headache, presented by seven patients, either preceding or at the time of entry. Of this number, six were positive in the fluid and only one negative. One patient with positive fluid complained of dizziness and buzzing in the ears. An increased cell count, with headache, was present in four of the six cases. Headache was not associated with pleocytosis in one case and one case with violent headaches had a perfectly normal fluid. Again, five other cases with pleocytosis, in one case as high as 194 cells, showed absolutely no headache. From these observations it may be concluded that of all the subjective symptoms, severe headache is most often associated with cerebrospinal reaction, though not necessarily with pleocytosis.

REACTION TO PUNCTURE

Following lumbar puncture patients were put to bed without a pillow, with the foot of the bed elevated about 10 inches, and were kept quiet for twenty-four hours, or longer if they experienced symptoms on arising. In spite of these precautions a number of patients developed reactions of varying severity, marked by headache, occasional dizziness and, in a few cases, vomiting and rises of temperature. Comparison of reactions in patients with normal and with abnormal fluids, failed to show that the tendency to reaction was any greater in the one than in the other. This is contrary to the observation of Dreyfus, that reaction to puncture occurs more frequently in normal cases.

EFFECT OF TREATMENT RECEIVED PRIOR TO ENTRY

Only two patients in this series had received anything even approaching efficient treatment before entering the hospital. One of these had received two injections of salvarsan and a negligible amount of mercury. His was the only entirely negative case in the series. The other had received thirty-two injections of a mercurial salt. This patient presented a positive second and eighth nerve involvement, increased albumin in the spinal fluid, Wassermann positive on the blood and negative on the fluid. The remaining patients had received either desultory pill treatment or none at all. The figures scarcely justify comparisons on the effect of treatment in preventing early involvement, but they are at least suggestive.

It seems desirable at this point to introduce brief summaries of certain special cases which have come under our observation, illustrating phases of early central nervous system involvement in syphilis. Two cases of seventh nerve paralysis of the Bell type in association with secondary syphilis have been seen in this clinic and are here made the subjects of a brief report.

Since the data on the foregoing series were prepared, a case of florid secondary syphilis came under observation which illustrates so admirably the fact that severe involvement of the nervous system may take place with almost negligible changes in the spinal fluid, that it was deemed advisable to append a report.

REPORT OF CASES

CASE 1.—S. C., a man, aged 24, a clerk, with a negative family history, and practically negative past history, six months prior to coming under observation, developed a primary lesion on the shaft of the penis with typical satellite adenopathy. He was placed on treatment early in the disease and never developed a frank secondary eruption. Three months before entry he received a single injection of old

salvarsan and a course of pills. In spite of this treatment, however, he lost much weight and has had considerable ringing in the ears with headache and backache. Lumbar puncture four days previous to admission showed a positive Wassermann on the spinal fluid. The Wassermann reaction was also positive on the blood at this time.

Examination disclosed a poorly nourished man with a few mucous-membrane lesions and a periosteal node on the sternum. The patient was salivated on entry and exhibited a slight general adenopathy. On the third day after entering the hospital he received 0.3 gm. of neosalvarsan intravenously by the method of Ravaut. He complained of severe headache, possibly the result of his previous puncture. Epiphora and injection of the conjunctiva of the left eye were noted at this time. Three days after the initial injection of salvarsan, lumbar puncture was done, the Wassermann on the fluid being four plus. There was also a definite increase in albumin but a cell count was impossible on account of blood contamination. Twenty-four hours after the puncture, the patient suddenly complained that he was unable to close the left eye entirely and that his mouth was drawn to one side when he tried to talk. On examination, no change in the ocular or pupillary movements and reflexes could be discovered, but the left eyelid would not close more than half way and the mouth was markedly drawn to the right on talking or smiling. The patient was at once referred to Professor Camp for neurologic examination. The report is as follows:

"Patient cannot wrinkle left side of the forehead. He can close left eye with effort. Tongue protrudes straight. Says he hears better in left ear. Can hear a watch tick in contact with his right ear, 2 inches from left ear (normal 3 feet). Pupils react to light, the right a little better than left. Extra-ocular movements normal. No paralysis of soft palate, no paralysis of masseters. No anesthetics. Biceps, triceps, knee and Achilles reflexes equal and normal. There is slight dizziness. Gait is normal with eyes open, slightly staggering with eyes closed. No ataxia. 'Sour' is not tasted in the anterior two-thirds of the tongue on either side but is tasted in the mouth. 'Sweet' is not tasted on the left, is tasted right anteriorly. Left peripheral facial palsy, involvement in Fallopian canal."

This case was also discussed by R. Bishop Canfield⁷ from the point of view of combined auditory and seventh nerve involvement. In view of the obvious involvement of the central nervous system, injections of mercury salicylate were inaugurated in conjunction with the salvarsan. On the fifth day following the appearance of the palsy, a second injection of neosalvarsan, 0.3 gm., was given intravenously without reaction. On the seventh day the palsy showed the first sign of clearing up. A third injection of salvarsan was given on the tenth day and from this time on the patient showed a rapid improvement. On the twelfth day the patient's smile was again fairly symmetrical and he was able to whistle distinctly. On the seventeenth day following a fourth injection of neosalvarsan, dose 0.8 gm, it was noted that the palsy had practically cleared up. The patient was then discharged from the hospital and placed on a vigorous course of mercurial inunctions. He was kept under observation for a considerable period of time and showed no signs of relapse. He finally left the care of the clinic and went West. During this time he was placed on weaker inunctions than those originally prescribed for him. The clinic was presently notified of the fact that he had suffered a relapse which, from his description, consisted of a complete ptosis of the left upper eyelid. This apparently cleared up under treatment and the patient is at present Wassermann negative in the blood and in excellent general health. He has received in all five injections of neosalvarsan and two courses of mercury salicylate injections, in addition to a course of forty inunctions.

The feature of special interest in this case, of course, is the unusual occurrence of seventh nerve involvement in the canal. This we feel may properly be regarded as a "neuro-recidive," peculiar only in the par-

ticular nerve affected. Although the palsy was apparently of the Bell type, none of the other explanations for such a condition were applicable in this case, and the prompt response to continued antileptic treatment seems to establish the specific nature of the condition.

CASE 2.—L. W., a man, aged 27, with negative family history, acquired syphilis from his wife who was under treatment in this clinic at the same time. The primary lesion was first noticed two months before entry, with a typical satellite adenopathy. A month and a half after the first appearance of this primary lesion the patient woke up one morning to find that the left side of his face was apparently paralyzed and that the left eye would not close. At this time no signs of a secondary eruption had appeared. Fully a month after the onset of the palsy the patient developed a papular and papulopustular syphilid with mucous-membrane involvement and a slight adenopathy. The general health on the whole was little affected. Electric treatment applied by his family physician did not affect the palsy in the least. At the time of entry, the patient presented the typical picture of complete seventh-nerve paralysis on the left side. The eruptive phenomena consisted of a maculopapular rash with a few pustules and grouped follicular lesions over the thighs. Lumbar punctures, done immediately after entry, showed a spinal fluid containing twenty-four cells to the cubic millimeter and a two plus increase in albumin. The spinal fluid Wassermann was positive. Salvarsan injections were at once inaugurated, the initial dose being 0.3 gm. and the interval between injections four days. Four injections were given, the last two being full doses. The cutaneous manifestations disappeared entirely under this treatment with very little change in the facial palsy. The patient noticed some relief from the signs of irritation in the left eye and he could apparently close the lid somewhat further than when he came under observation. Examination of the fundus failed to show any signs of neuroretinitis. Examination of the acoustic complex demonstrated a moderate internal-ear deafness, more marked on the left side. Professor Camp's report is the following:

"Your patient, Mr. W., shows a facial palsy on the left side, of the peripheral type, involving the distribution of all three branches of the nerve. Bell's phenomenon was present. There is lost sense of taste in the anterior two-thirds of the tongue on the left side. There is complete reaction of degeneration in the muscles of the left side of the face. Aside from the facial palsy and its associated phenomena, the neurologic findings were practically negative. The tendon reflexes are prompt in the lower extremities. There are no sensory changes anywhere except anesthesia of both conjunctivae and the pharynx, probably hysterical in type. My diagnosis is facial palsy due to a destructive lesion in the facial nerve in the Fallopian canal."

The patient was discharged from the hospital following his fourth injection of salvarsan and has not been under observation since. His wife presented practically no neurologic manifestations.

Had this case been under observation from the onset of the disease, we should have included it in our group of cases previously reported, illustrating involvement of the central nervous system in association with primary syphilis. It seems reasonable to conclude from the absolute failure of this case to respond to treatment, that the nerve had sustained much more serious damage than could be explained by the transient edema of a "neuro-recidive." The correlation of the seventh-nerve findings with well marked changes in the spinal fluid seems to justify our placing this case among the definitely syphilitic types of involvement of the central nervous system in secondary syphilis.

Passing now from specific involvement of the seventh nerve to a group of cases illustrative of more

general involvement of the central nervous system in secondary syphilis, the following case presents the typical picture of meningeal involvement repeatedly observed in this clinic.

CASE 3.—P. S., a man, aged 19, with negative family and past history. Two months prior to entry a typical primary lesion developed on the penis. This disappeared within a few days and was followed in about four weeks by the development of furuncle-like lesions on the scalp, face and trunk. The patient began to lose weight rapidly and suffered from violent headache. When the eruption reached its fullest development the headache became less severe and stiffness of the neck gradually set in. There were osteocopic and arthralgic pains and severe involvement of the mucous membranes.

On examination the patient was found to be, decidedly undernourished and anemic. The head was carried in a peculiar rigid posture, a little tilted backwards. When the patient was requested to bend the head forward, he would bend from the waist. By putting his hands behind his head, he was able to bend it forward half the normal distance. The skin manifestations were exclusively of the large pustular type and presented the typical picture of the varioliform syphilid. A few of the larger lesions approached the rupial type. Involvement of the pharynx and buccal mucosa was unusually extensive. Adenopathy small and shotty in type. Lumbar puncture done on entry gave the following findings: Albumin two plus; cells 720; Nonne-Apel't plus-minus; Wassermann three plus. The patient suffered no reaction and was at once placed on vigorous treatment with salvarsan, the initial injection being 0.3 gm. of old salvarsan. Four injections of 0.3, 0.45, 0.6 and 0.5 neosalvarsan, respectively, produced a remarkable change in the patient's condition. The rigidity of the neck muscles rapidly disappeared. The patient made a marked gain in weight and showed a decided rise in hemoglobin. Examination of the fundus showed neuroretinitis. Bone conduction was definitely decreased in the eighth-nerve examination, and apart from the signs of meningismus and increased knee jerks, the neurologic examination was negative.

This case is of special interest on account of the very severe meningismus in association with very early second and eighth-nerve involvement. Together with this, the spinal fluid changes showed striking positive findings throughout.

CASE 4.—E. C., a woman, aged 26, with negative family history. Seven months prior to entry the patient developed what from her description was a tonsillar chancre. Five months after surgical removal the first cutaneous secondaries appeared and with their onset the patient began to notice a very definite improvement in her general health. It is of especial interest in this case to note that a patient suffering previously from gastric and visceral neuroses underwent, with a generalization of her infection, a striking improvement in general health. That this was not exclusively subjective is shown by a recorded gain of 15 pounds in weight during the five months preceding her entry. She had formerly been much troubled with headaches which apparently disappeared when her syphilis reached an active stage.

Examination disclosed a well-nourished, well-developed young woman. The cutaneous manifestations were of the maculopapular type with a very striking leukoderma colli and marked syphilitic alopecia. The mucous membranes of the mouth and vagina were also affected. Adenopathy was marked. Lumbar puncture done after the first injection of salvarsan showed a pleocytosis of 260, Nonne-Apel't positive, one to nine, and a strongly positive Wassermann. The Wassermann on the blood was also positive. There was a marked reaction to puncture. Three injections of old salvarsan were administered with excellent effect on the cutaneous manifestations. Following the first injection, she showed a marked delayed Hcrxheimer reaction. Examination

of the fundus showed a neurochorioretinitis. Neurologic examination was practically negative.

As was pointed out in the history, the special interest which attaches to this case is that of the remarkably good general health which may accompany severe involvement of the central nervous system, as evidenced by the spinal fluid findings. Cases of this type illustrate admirably the fact that objective changes in the cerebrospinal fluid may be unassociated with any subjective neurologic findings.

CASE 5.—C. F., man, aged 27. Family and past history negative except for slightly impaired hearing. Primary lesion two months prior to entry, secondary eruption of ten days' standing. Ringing in the ears for two weeks. Marked loss in weight and weakness. Profuse papulosquamous eruption combined with a grouped miliary follicular syphilid. Marked alopecia. Very large primary induration. Pronounced mucous-membrane involvement. Marked general adenopathy. Right pupil much larger than left, both very sluggish to light. Fundus examination showed a marked neuroretinitis, and the internal-ear deafness was so pronounced that the patient could scarcely hear the forks at all. Spinal puncture showed a negative Nonne-Apel't, seven cells per cubic millimeter and a plus-minus Wassermann reaction. After three injections of old salvarsan, preceded by intramuscular administration of mercury salicylate, the deafness underwent a marked improvement. Patient gained rapidly in weight and was discharged greatly improved.

Considerable interest attaches to this case on account of the very pronounced subjective and objective neurologic findings in a patient presenting a practically normal spinal fluid.

The second group of cases presented above, excluding the cases of seventh-nerve involvement, serve as admirable examples, on the whole, of the insidious onset of central nervous manifestations in secondary syphilis, and the ease with which they may be overlooked in any but systematic examination. While their importance in determining the prognosis of a case is as yet not fully established, there seems little reason to doubt that definite evidence of the determination of the infection to the nervous tissues must form an important element in prognosis. It therefore devolves on an examiner to leave no stone unturned to determine the extent of such an involvement. Lumbar puncture is a procedure within the reach of almost any physician who is called on to undertake the management of secondary syphilis. We feel that the emphasis which was placed on lumbar puncture as a diagnostic and prognostic procedure in our previous paper can profitably be reemphasized at this point. It should, however, be borne in mind that the lack of meningeal reaction does not necessarily preclude a serious involvement of the optic or auditory nerves and for this reason the examination of these structures should form a part of the expert management of a case of secondary syphilis.

It has been stated by some writers, notably by Fraenkel,⁸ that involvement of the brain and cord in secondary syphilis could be ruled out if the Wassermann reaction in the spinal fluid is negative. It is obviously impossible to accept this statement in view of the frequency of very definite involvement, both subjectively and objectively, without an accompanying positive Wassermann reaction in the fluid.

The significance of a positive reaction in the fluid itself has been questioned by some authors, notably

8. Fraenkel: *Ztschr. f. d. ges. Neurol. u. Psychiat.*, 1912, No. 11, p. 1.

by Zaloziecki,⁹ who brought forward the theory that the positive reaction in the fluid might easily be due to a filtration of complement-binding substances from the blood. Against this view is the fact that, as Plaut and Wassermann have shown, the reaction in the fluid is occasionally much stronger than it occurs in the blood itself and, moreover, it is a well-known fact that one not infrequently finds a reaction in the fluid alone, the blood remaining negative. The relative unimportance of the Wassermann reaction in the fluid is shown in Ravaut's⁴ studies and in those included in this paper, in which perfectly definite central nervous involvement was present without complement-binding substances in the fluid.

Of greatest importance is the possible bearing that these early cases of central nervous syphilis have on the later sequelae. This subject has been discussed by Mathauschek and Pilcz.¹⁰ These authors present statistics to show that in their series paresis and tabes occurred in cases which in their early stages were treated inefficiently or not at all. This confirms an observation made many years ago by Fournier. As expressed by us before, all cases of syphilis which reach the secondary stage, and indeed some of those in the preroseolar stage, receive from the primary focus a hematogenous infection which must of necessity reach the nervous system as well as other viscera. This being the case, how can one satisfactorily explain the occurrence of objective or subjective manifestations in the nervous system, or both, in certain cases, and perfect freedom of the nervous system in others? Two main theoretic considerations present themselves as explanatory. In the first, that in cases in which the nervous system is manifestly involved, one is dealing with a strain of spirochetes which has a special predilection for the nervous system. There is indeed a considerable amount of clinical as well as experimental evidence in favor of this view. The second theoretic consideration deals with the susceptibility of the individual to the organism, by reason of an already predisposed nervous system. That is to say, that in cases in which the involvement is manifest, the spirochete falls, as it were, on fertile soil. If this be so, then it might be proper to assume that tabes, paresis and arterial syphilis of the nervous system develop in those persons in whom the spirochete has early made its impress. *A priori*, it would seem that considerable weight must be given to both of these factors. Thus the person whose nervous system was already impaired or below par, in whom there was an infection with a strain of the spirochetes having a predilection for the nervous system, might be considered a likely subject for the later nervous sequelae. Much work in connection with the life history of the spirochete will be necessary before this subject can be fully elucidated.

The great frequency with which we have found definite changes in the cerebrospinal fluid without any manifest neurologic objective findings makes it seem highly probable that for the most part the involvement of the nervous system in early syphilis is of an ephemeral character. Under appropriate and vigorous treatment, the fluid soon resumes its normal appearance. The great frequency with which the second and eighth nerves as well as other neurologic

disturbances can occur without any demonstrable change in the fluid shows clearly that such negative findings in the spinal fluid are only of value when careful neurologic examination has shown that there is no involvement of the cranial nerves. We believe that the fate of every syphilitic, with regard to the integrity of his nervous system, is determined in the first months of his infection, since it is then that the nervous system receives its quota of the spirochetes. At this time the lesions are of an ephemeral character, the manifestations for the most part slight and all seem readily amenable to treatment. Any case, therefore, which shows involvement of the central nervous system in the early months, whether this be manifested by the study of the spinal fluid or by objective neurologic findings, or both, should be considered potential as a tabetic or paretic, and should receive the most energetic treatment. Our studies have been of too short duration to determine whether such cases as these which have received vigorous treatment at our hands, have been protected against later sequelae. Their very prompt recovery, however, from objective and subjective symptoms, and the prompt return of the fluid to normal, leads one to hope that such a result has been attained.

The statement has been made that the later sequelae do not develop from such cases as those just mentioned, but that they develop for the most part in those in whom early involvement is not demonstrable. It is certainly a clinical fact that there is an inverse relation between the early severity of the infection and the appearance of late sequelae in the nervous system. For the most part, tabetics and paretics have had so-called mild early syphilis, indeed, in many cases so inconspicuous that the patients remained in total ignorance of the infection. It must be remembered in this connection that the largest number of our cases with definite involvement demonstrable, occurred in patients in whom a nervous system involvement was absolutely unsuspected and would have remained undiscovered, had not careful examination been made. It is not too sweeping an assertion to say that the majority of cases of early involvement of the nervous system are unaccompanied by subjective symptoms. These cases, therefore, might well be included in the so-called mild early attacks. It must be admitted also in this connection that in such cases, in which there have been definite nerve changes early, the nervous system may have been irreparably injured. Notwithstanding the facility with which such symptoms are caused to disappear, it might well be that the nervous system had sustained an injury from which it may never recover, in spite of the most vigorous treatment directed toward it. Here again careful studies of these cases over a number of years will determine the correctness of this view.

The Pellagra Situation in South Carolina.—The State Board of Health has been notified of the existence of 2,530 cases of pellagra in the state during 1913. It is believed that the actual number of cases is much greater, for only about 35 per cent. of the physicians of the state have made any returns on the subject. A marked feature of the distribution of the disease is the greater comparative frequency of cases in the coastal plain counties. There is a marked preponderance of cases among females according to the annual report of Dr. Thomas J. Strait, Lancaster, superintendent of the State Hospital for the Insane. Over 50 per cent. of the deaths in the institution are caused by pellagra.

9. Zaloziecki: Berl. klin. Wehnschr., 1912, No. 36, p. 1717.

10. Mathauschek and Pilcz: Ztschr. f. d. ges. Neurol. u. Psychiat., No. 8, p. 133.

THE INTRAVENOUS INJECTION OF MERCURIALIZED SERUM IN SYPHILIS

A PRELIMINARY REPORT

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On reading Byrnes'¹ article on the intradural injections of mercurialized serum, it occurred to me that the unpleasant results (phlebitis and periphlebitis), which occasionally occur on the intravenous injection of mercurial salts in watery solution, might be obviated by injecting mercurialized serum instead. This was tried with very gratifying results, and I have now made sixty-six injections in eight cases, and in no case has there been the slightest amount of phlebitis.

TECHNIC

The method of procedure is as follows: From 40 to 50 c.c. of blood are collected by venipuncture and placed in a large test tube which has been boiled in salt solution. It has been found that the serum separates from the clot much more rapidly and in considerably larger quantity if collected in a tube prepared in this manner than if collected in one sterilized by dry heat. After separation, the serum is poured off and thoroughly centrifugalized.

A solution of mercuric chlorid is prepared so that each cubic centimeter contains 22 mg. ($\frac{1}{3}$ grain) of the salt.

The serum is now measured and divided into two parts, one-third of the amount placed in one tube and the remainder in another. The mercury solution is added to the first part in the proportion of 1 c.c. to each 2 c.c. of serum. A heavy precipitate of albuminate of mercury appears which is completely dissolved on the addition of the remainder of the serum.

It will be seen that the mixture will contain 22 mg. ($\frac{1}{3}$ grain) of mercuric chlorid in each 7 c.c. At first I had great difficulty in keeping the albuminate of mercury in solution for any length of time, and prepared the solution fresh before each injection, but later discovered that if the mixture is heated in the water bath for one-half hour at 55 C. (131 F.) it will remain in solution indefinitely. It is not necessary to use autogenous serum. Blood may be collected from any individual, and the mercurialized serum prepared and kept in sealed ampules.

The injections are made into one of the veins at the elbow with an all glass syringe and a 25-gage needle. It is imperative that the needle be sharp.

A tourniquet is applied above the elbow until the veins stand out prominently. The field is sterilized with alcohol and the needle inserted in the direction of the blood stream, into the most prominent vein. A slight flow of blood into the syringe will indicate that the needle is within the lumen of the vein. The tourniquet is removed and the serum slowly injected. A drop of collodion is placed on the wound.

The initial dose in all cases was 1.75 c.c., or 5.5 mg. ($\frac{1}{12}$ grain) of mercury, and was increased to 7 c.c., or 22 mg. ($\frac{1}{3}$ grain).

Quite severe ptyalism occurred in one case after 131 mg. ($1\frac{5}{6}$ grains) had been administered.

Three of the other cases showed slight symptoms of ptyalism after 165 mg. ($2\frac{2}{3}$ grains) had been admin-

istered, and the injections were discontinued. The other four cases are still under treatment. In all cases there has been noted some improvement of the symptoms. Six of the eight cases are ulcerating gummas of the skin, while of the other two, one presented a circinate syphilid, the other a papulopustular syphilid. The latter case showed the most improvement, the lesions clearing up wonderfully after ten injections with a total of 165 mg. ($2\frac{2}{3}$ grains) of mercury.

After this amount had been administered the mercury was discontinued, owing to slight symptoms of ptyalism and other remedies given (potassium iodid and salvarsan).

CONCLUSIONS

1. A method for administering mercury intravenously without the occurrence of phlebitis and periphlebitis has been devised.

2. The intravenous method of administering mercury is not the method of choice in all cases of syphilis, but is so in certain cases in which quick results must be brought about, and in those cases in which great pain occurs on intramuscular injections of mercury.

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INVOLVEMENT OF THE EIGHTH NERVE
IN SYPHILIS OF THE CENTRAL
NERVOUS SYSTEM*

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The onset of sudden or rapidly progressing deafness in patients with syphilis is a not uncommon occurrence. It is usually considered to be due to a syphilitic lesion of the eighth nerve or of the labyrinth, and the prognosis for the regaining of hearing by the patient is considered unfavorable. It is the purpose of this communication to show that these affections should not be considered and treated as instances of isolated disease of the organ of hearing, but merely as manifestations of that extremely serious condition, syphilis of the central nervous system. Cases will also be reported which demonstrate how satisfactorily hearing may return, if the diagnosis is promptly made and thorough treatment instituted before irreparable damage to the nervous tissue has resulted.

The relative frequency of syphilis of the inner ear, especially early in the syphilitic infection, has been the subject of much discussion, especially during the past three years. This discussion has evidenced a wide diversity of opinion on the part of different observers. While many have held that syphilis of the inner ear, previous to the advent of salvarsan, occurred extremely rarely in the secondary period, others have asserted with equal assurance that when looked for it was quite commonly found, and have reported numerous cases bearing out their contention. Benario¹ has even been able to show in a series of cases collected from the literature that the acoustic nerve is more commonly involved in the early stages of syphilis than any of the

1. Byrnes, C. M.: The Intradural Administration of Mercurialized Serum in the Treatment of Cerebrospinal Syphilis, *THE JOURNAL A. M. A.*, Dec. 19, 1914, p. 2182.

* From the Hospital of the Rockefeller Institute for Medical Research.

1. Benario, J.: Ueber Neurorezidive nach Salvarsan und nach Quecksilberbehandlung, München, 1911.

other cranial nerves, and this whether the patient has previously been treated with salvarsan or with mercury.

The most striking figures on the frequency of this condition are the series of cases observed by Habermann and by Mayer in the University Clinic in Graz, all of which were observed before the use of salvarsan. Habermann² in 1896 reported sixty-six cases of syphilis of the inner ear, of which thirty-four appeared during the secondary stage of the disease. Of these thirty-four cases, three appeared some days before the outbreak of the skin eruption, and in only six was the ear disease noticed later than ten weeks after the exanthem. Since Habermann reported these cases, Mayer³ has seen in the same clinic sixty-five cases of acousticus paralysis, thirty of which occurred within the first year of the syphilitic infection, and 20 per cent. within from three to ten weeks of the appearance of the primary lesion.

Rigaud⁴ in 581 patients with syphilis found sixty-one cases of early or late ear disease. The earliest reported onset of a lesion of the eighth nerve in syphilis is the case reported by Politzer⁵ in which the symptoms occurred seven days after the appearance of the chancre. Rozier⁶ also has reported two cases in which the ear disturbance occurred some days before the appearance of the cutaneous secondary lesions. All of the foregoing cases were observed before the advent of salvarsan.

The question of the frequency of syphilitic affections of the eighth nerve in the early stages of syphilis is intimately associated with the question of the etiology of the so-called "nerve relapses," the paralyses of cranial nerves occurring in patients with secondary syphilis who have been inefficiently treated with salvarsan. The findings in the spinal fluid in these cases—increased cells, excess globulin and usually a positive Wassermann reaction—have now definitely proved them syphilitic. The figures which are given above suggest that the great increase in frequency of such cases, which is claimed to have resulted from the use of salvarsan, has been exaggerated; but that the severity of these affections of the cranial nerves in early syphilis is rather markedly increased and somewhat more frequent in patients inefficiently treated with salvarsan seem to be indisputable facts.

Gennerich⁷ has studied carefully this phenomenon of increased severity in the relapses following salvarsan. He has pointed out that they hold equally for relapses occurring in the skin as for those in the nervous system. He considers that this increased severity in patients insufficiently treated with salvarsan is due to the absence of the resistance to local expansion of the syphilitic process, which usually develops in syphilitic subjects coincident with the appearance of the secondary eruption. This is the process which leads to the spontaneous regression of the primary lesion in untreated cases of syphilis. The absence of this resistance to local expansion of the syphilitic process in patients treated with salvarsan he ascribes to the rapid elimination of the mass of the infecting treponemes. If the case has been inefficiently treated, a few organisms will, however, remain in some foci difficult to reach with the curative agent. Such foci

are frequent in the nervous system. The development of organisms remaining in such a focus in a patient treated with salvarsan takes place, therefore, rapidly in the form of an intense local infiltrating lesion, simulating a primary lesion in its development. From these relapsing foci, if the patient has no further treatment, a fresh general infection of the body may again occur. Gennerich's explanation is a logical one and seems to account satisfactorily for the observed phenomena.

For many years an active discussion has been carried on concerning the exact portion of the auditory mechanism usually affected in syphilis. The majority of the earlier writers, notably Habermann² and Kreibich,⁸ considered the lesion to be usually labyrinthine. Gradenigo⁹ was the first to make any careful attempt at differential diagnosis. He considered that the symptoms were usually those of lesion of the nerve stem, rather than of the labyrinth. He, however, admits that "the clinical differentiation of nerve stem and labyrinthine disease is one of the most difficult tasks of the otologist." Rosenstein¹⁰ considered that the lesions were only rarely labyrinthine. He collected five cases from the literature in which necropsy results were given. Of these five cases, two showed lesions of the nerve stem, one of the nuclei and roots, and one of the nerve roots alone. Nonne¹¹ has pointed out how frequently disturbances of the acoustic nerve are associated with lesions of the other cranial nerves. He also considers the ear disturbances to be due to an involvement of the nerve in a basal meningitis. In 1911 Knick and Zaloziecki¹² first called attention to the changes in the spinal fluid in cases of syphilitic disease of the acoustic nerve. They reported nine cases of lesions of the eighth nerve, all occurring in the early stages of syphilis. The spinal fluids in all these cases were markedly abnormal, the cell counts being 58, 115, 56, 109, 481, 1,517, 360, 148 and 18, respectively. The Nonne-Apelt reaction was positive in all. The Wassermann reaction in the spinal fluid from one case was not mentioned, but in the other eight it was positive. Such findings are accepted evidence of a syphilitic meningitis. They seem to prove that in the early cases, at least, the disturbances of the auditory mechanism are due to an involvement of the eighth nerve in the course of a syphilitic meningitis.

During the past four years we have seen seven such cases of syphilis of the meninges involving the eighth nerve.

REPORT OF CASES

CASE 1 (No. 187).—Man, aged 32, physician. Chancre of finger, May 24, 1911. Secondaries June 30.

Admitted, July 6. Status praesens: chancre of finger; general macular syphilid; pupils and fundi normal. Watch-tick heard on right at 40 cm., on left at 20 cm.; thickening of left ear drum from old otitis media. Reflexes all active.

July 20: Chancre and rash have disappeared.

September 7: Has had ringing in right ear, and slight vertigo.

September 9: Treatment of yesterday followed by slight febrile reaction. To-day slight dizziness and headache.

November 24: Vertigo which disappeared after last treatment reappeared to-day.

November 26: Nausea and roaring in right ear has become continuous.

2. Habermann, J.: Die luetischen Erkrankungen des Gehörorgans, Jena, 1896.

3. Mayer, O.: Wien. med. Wchnschr., 1911, xxiv, 381.

4. Rigaud, M.: Ann. de dermat. et de syph., 1912, iii, 720.

5. Politzer, A.: Lehrbuch der Ohrenheilkunde, Stuttgart, 1908.

6. Rozier, de Pau: Ann. d. mal. de l'oreille, 1905, xxxi, 1, 245.

7. Gennerich, W.: München. med. Wchnschr., 1913, lx, 2391.

8. Kreibich, C.: Med. Klin., 1907, iii, 1577.

9. Gradenigo, Giuseppe: Die Erkrankungen des Nerven acusticus, Arch. f. Ohrenh., 1889, xxvii, 105.

10. Rosenstein, Alfred: Arch. f. Ohrenh., 1905, lxxv, 193.

11. Nonne, Max: Syphilis und Nervensystem, Berlin, 1909, p. 239.

12. Knick, A., and Zaloziecki, A.: Berl. klin. Wchnschr., 1912, xlix, 639.

December 3: Stiffness of neck.

December 4: Mercury injection, followed by slight improvement in symptoms.

December 8: Readmitted. Status praesens: right pupil slightly larger than left; double optic papillitis. Hearing: right, watch, 21 cm., whisper, 250 cm.; left, watch, 88 cm., whisper, more than 400 cm. Bone conduction markedly diminished on right with all forks. Weber to left; left labyrinth more irritable than right. Slight right facial paralysis. Reflexes normally active.

to left. Rinne positive in both ears. Diminished hearing in left ear is due to a chronic otitis media.

CASE 2 (No. 392).—Man, aged 34, journalist. April 22, 1911. Exposure. May 2, chancre. May 26, general macular syphilid, angina, general malaise. June 9, 16 and 24, each 0.5 gm. salvarsan. During July and August had 6 inunctions and 12 injections each of one-half grain of mercury salicylate.

August 19: Stiffness in muscles of face, lanceolating pain in occipital region; dizziness and headache, followed in one week by complete deafness in left ear.

TABLE 1.—TREATMENT AND REACTIONS IN CASE 1*

Date	Blood, Wassermann Reaction	Cerebrospinal Fluid			Treatment	
		Cells	Noguchi Globulin	Wassermann Reaction	Salvarsan	Mercury
1911—						
July 7	++	0.5 gm.	9 inject. Hg salic.
August 20	+	0.2 gm.	
September 8	—	0.4 gm.	
August 10 to October 24.....	
December 8	—	575	++	1.0 c.c. ±	0.4 gm.	
December 15	—	0.2 gm.	25 inject. Hg salic.
December 15 to Nov. 9, 1912.....	
1912—						
November 9	—	0.6 gm. neo.	
November 23	—	10	—	1.0 c.c. —	3×0.9 gm. neo.	34 injections
November 24 to December 5.....	
1913—February 6	—	Refused further treatment.			9 injections: 1.7 gm. salv. 3.3 gm. neo.	
Total.....						

* Complete fixation is indicated by ++.

TABLE 2.—TREATMENT AND REACTIONS IN CASE 2

Date	Blood, Wassermann Reaction	Cerebrospinal Fluid			Treatment	
		Cells	Noguchi Globulin	Wassermann Reaction	Salvarsan	Mercury
1911—						
September 23	++	1,094	++	0.2 c.c. ++	3×0.2 gm.	2 inject. Hg salic.
September 27 to October 12.....	
October 16	++	118	+	0.2 c.c. —	7×0.2 gm.	6 inject. Hg salic.
October 19 to November 29.....	
December 5	+±	60	+	1.0 c.c. +	2×0.2 gm.	6 inject. Hg salic.
December 7 to December 14.....	+	
1912—						
January 8 to January 15.....	7 inject. calomel
January 21	—	9	....	.....	.....
January 21 to March 4.....	6 inject. Hg salic.
March 8	+±	46	+	1.0 c.c. ±	6×0.3 gm.	
March 12 to April 16.....	6 inject. Hg salic.
April 18	—	11	±	1.0 c.c. —	3×0.3 gm.	
May 7 to May 28.....	8	—	1.0 c.c. —	0.9 gm. neo.	6 inject. Hg salic.
May 31	—	
July 16 to October 7.....	6 inject. Hg salic.
October 19	+±	
October 26	++	22	—	1.0 c.c. —	7×0.9 gm. neo.	7 inject. calomel
October 26 to December 14.....	
1913—						
January 13 to March 25.....	6 inject. Hg salic.
April 12	+±	6	+	1.0 c.c. —	3×0.9 gm. neo.	
March 29 to April 19.....	6×0.5 gm.	6 inject. Hg salic.
April 26 to June 21.....	
June 29 to August 18.....	6 inject. Hg salic.
August 30	—	3	±	1.0 c.c. —	16×0.5 gm.	
September 13 to February 21.....	39 injections
1914—						
February 21	—	6	±	1.0 c.c. —	.....
1915—January 21	—	
Total.....					57 injections: 17.6 gm. salv. 9.3 gm. neo.	

December 12: Condition much improved. Nausea, vertigo and ringing in right ear have entirely disappeared.

December 17: Hearing: right, watch, 50 cm., whisper, 400 cm.; left, watch, 120 cm., whisper, more than 400 cm.; optic papillitis has diminished; facial paralysis has disappeared.

Nov. 9, 1912: Feels well except for occasional ringing in right ear when tired. Physical condition unchanged. Slight optic papillitis persists.

May 7, 1914 (Report from patient's physician): Feels perfectly well except for occasional tinnitus in right ear when tired. Hearing: right, watch, 4 feet, left, 18 inches. Weber

August 28: Partial left facial paralysis with inability to close left eye. Mercury stopped. Deafness persisted until September 5, then passed off slowly, and left facial weakness became less marked. Headaches continued; patient unable to sleep.

September 11: Mixed treatment started.

Admitted September 23. Status praesens: patient very apathetic and mentally dull. Distinct left facial paralysis. Left pupil larger than right; fundi normal. Tendon reflexes all exaggerated. Hearing: watch, 50 cm. with either ear; whisper, right, 9 meters, left, 4.5 meters.

October 12: Immediate improvement followed treatment. To-day subjectively normal. No facial paralysis. Hearing same.

November 16: Free from symptoms. Hearing; right, watch, 165 cm., whisper, 15 meters; left, watch, 170 cm., whisper, 9 meters.

March 12, 1912: Tendon reflexes in arms exaggerated. Ophthalmoscopic: right disk normal color; veins engorged and tortuous; left disk red, nasal outline blurred; veins engorged and tortuous. Hearing: watch, right, 175 cm., left, 180 cm.

May 31: Ophthalmoscopic picture normal. Tendon reflexes in arms still exaggerated.

December 15: Feeling perfectly well. Fundi normal; reflexes normally active. Hearing: watch, right, 80 cm.; left, 100 cm.

May 23, 1914: Feeling well; right pupil larger than left; reaction to light is prompt, but excursion is diminished.

ually disappeared. February 15 to March 31, 45 grains of potassium iodid a day.

Admitted April 11, with headaches and pains all over the body. Status praesens: pupils oval, equal and react normally; optic disks both hyperemic. Hearing: watch, right, 150 cm., left, 200 cm. Reflexes: biceps exaggerated; radial periosteal, patellar and Achilles tendon very active.

May 3: Headaches continue; patient nervous and depressed.

May 13: Headaches almost gone; mental depression has disappeared.

April 22, 1914: Hearing: acoumeter, right, 7 meters; left, 7 meters; whisper, right normal, left normal. Lower tone limit: right, 18 d. v., left, 20 d. v. Upper tone limit Galton whistle normal with either ear. Bone conduction with C 256 normal on either side. Rinne positive right and left. C 256 fork referred to the left ear. There is normal tone conduction duration for all forks, both by air and bone conduction

TABLE 3.—TREATMENT AND REACTIONS IN CASE 3

Date	Blood, Wassermann Reaction	Cerebrospinal Fluid			Treatment	
		Cells	Noguchi Globulin	Wassermann Reaction	Salvarsan	Mercury
1912—						
April 16	+	190	±	0.8 c.c. ++	3×0.3 gm.	
May 6 to May 20.....	23	±	1.0 c.c. ++		
May 22	++	3×0.3 gm.	
May 29 to June 11.....	2×0.6 gm. neo	
June 19 to June 27.....	7	....	1.0 c.c. —		
July 2	+	0.6 gm. neo.	4 inject. Hg salic.
July 11	4	—	1.0 c.c. —		
September 6	++	5×0.9 gm. neo.	25 rubs
September 9 to September 23.....	0	....	1.0 c.c. —		
November 22	+	6×0.9 gm. neo.	3 inject. calomel
November 25 to January 1.....		
1913—						
April 8	++	5	—	1.0 c.c. —	8×0.5 gm.	2 inject. Hg salic.
April 1 to May 27.....	1	—	1.0 c.c. —		
September 30	±	12×0.5 gm.	4 inject. Hg. sahc.
October 1 to February 16.....		
1914—						
February 16	—	1	—	1.0 c.c. —	0.5 gm.	
April 27	++	7	—	1.0 c.c. —		
1915—February 4	—		
Total.....					41 injections: 12.3 gm. salv. 11.7 gm. neo.	13 injections, 25 rubs

TABLE 4.—TREATMENT AND REACTIONS IN CASE 4

Date	Blood, Wassermann Reaction	Cerebrospinal Fluid			Treatment	
		Cells	Noguchi Globulin	Wassermann Reaction	Salvarsan	Mercury
1912—						
November 9	+±	12	—	1.0 c.c. —	0.75 gm. neo.	
November 22 to November 29.....	3×0.9 gm. neo.	
December 6	±	0.9 gm. neo.	
December 2 to January 13.....		4 inject. calomel
1913—January 13	—		
Total.....					5 injections: 3.45 gm. neo.	4 injections

Left knee jerk slightly greater than right; reflexes otherwise normal. Hearing: acoumeter, right normal, left normal; whisper, right normal, left normal. Lower tone limit: right, 16 d. v., left, 16 d. v. Upper tone limit: Galton whistle normal. Bone conduction: right normal, left normal. Rinne positive on right and left. Patient does not lateralize sound. Normal tone duration for all forks (Edelmann set). There is an old perforation of the left drum.

Jan. 21, 1915: No change in general physical condition. Air and bone conduction for watch tick normal.

CASE 3 (No. 655).—Man, aged 25, sailor. Exposure Sept. 10, 1911. October 18, chancre. November 15, severe frontal headache, worse at night; pain in eyes; hyperesthesia of scalp. November 25, salvarsan intravenously. Headaches disappeared one week, then returned.

December 26: Sudden deafness, practically complete, in right ear, continued until Jan. 22, 1912, when patient received salvarsan intravenously, when headaches and deafness grad-

(Edelmann fork set). There are no gaps or islands in the scale of audition.

Feb. 4, 1915: Has had no treatment for past year. Feeling perfectly well. Hearing: watch, right, 80 cm., left, 150 cm. Bone conduction good. Does not lateralize sound.

CASE 4 (No. 884).—Man, aged 25, waiter. October, 1911, chancre. Jan. 1, 1912, generalized rash, dizziness, severe headache, blurring of vision, pains in eyes. These symptoms constantly present since onset, but were slightly diminished following a course of inunctions in May. Since August headaches and dizziness more severe, and mental depression marked.

Admitted Nov. 7, 1912, complaining of general depression, dizziness, buzzing in ears, blurred vision and ulcer on lip. Status praesens: pupils and fundi normal; slight lateral nystagmus with eyes in position of extreme rotation. Hearing: watch, right, 12 cm., left, 26 cm. Tendon reflexes all very active.

November 12: Ulcer on lip healed.
November 17: Vision better; dizziness has disappeared; buzzing in ears still present. Has sensation of "something creeping over lower back."
November 28: Feeling well; no buzzing in ears for past four days; hearing improved; watch, right, 32 cm., left, 45 cm.
December 15: Well except occasional headaches and blurring of vision. Eyes normal; no nystagmus. Hearing acute; watch, right and left, over 100 cm.
Jan. 13, 1913: Disappeared from observation.
CASE 5 (No. 857).—Man, aged 32, bookmaker. Jan. 15, 1912, multiple chancres, followed in one week by intense headache and severe lumbar pain, causing patient to go to bed. February 2, generalized cutaneous rash. Treatment, pills and potassium iodid for four months. Rash faded slowly but

Bone conduction for watch less over left mastoid than right. Tendon reflexes exaggerated, especially in arms.
Jan. 12, 1913: Except for relative deafness in left ear, feels well.
July 1: Ringing in left ear present for past three weeks. Hearing: watch, right, 100 cm., left, 50 cm. None of the forks heard over left mastoid. Weber to right.
July 25: Frequent headaches.
Jan. 12, 1914: Feeling perfectly well. Hearing: watch, right, 120 cm., left, 50 cm.; whisper, right, 3 meters, left, 1 meter. All reflexes are still very active.
April 16: C₂ fork: right, air conduction normal duration, left, 10 seconds shortened. C₃ right, air conduction normal, left, 13 seconds shortened. C₄ right, air conduction normal, left, 14 seconds shortened. Watch: right, 1 meter, left, 50 cm.

TABLE 5.—TREATMENT AND REACTIONS IN CASE 5

Date	Blood, Wassermann Reaction	Cerebrospinal Fluid			Treatment	
		Cells	Noguchi Globulin	Wassermann Reaction	Salvarsan	Mercury
1912—						
December 7	+	181	++	0.8 c.c. ++		
December 12	0.6 gm. neo.	
December 19	+±	0.75 gm. neo.	
December 26 to January 2.....	2×0.9 gm. neo.	
1913—						
January 7	+	23	±	1.0 c.c. ++		
January 9 to January 16.....	2×0.9 gm. neo.	
February 13 to March 25.....	7 inject. Hg salic.
April 5	—	6	±	1.0 c.c. —		
April 5 to July 25.....	7×0.5 gm.	
1914—						
January 12 to April 14.....	9 inject. Hg salic.
April 14	—	4	±	1.0 c.c. —		
Total.....					13 injections: 3.5 gm. salv. 5.0 gm. neo.	16 injections

TABLE 6.—TREATMENT AND REACTIONS IN CASE 6

Date	Blood, Wassermann Reaction	Cerebrospinal Fluid			Treatment	
		Cells	Noguchi Globulin	Wassermann Reaction	Salvarsan	Mercury
1911—						
July 29 to August 15.....	++	3×0.2 gm.	
August 16	10	+	0.2 c.c. —		
August 22 to September 19.....	5×0.2 gm.	
September 22	+±	6	—	0.2 c.c. —		
September 26 to November 16.....	2×0.2 gm. and 5×0.3 gm.	
November 20	+	3	—	1.0 c.c. —		
November 21 to March 29.....	12 inject. Hg salic.
1912—						
April 2	±	1	—	1.0 c.c. —		
April 17 to May 21.....	2×0.3 gm.	
July 15 to July 22.....	+	2×0.5 gm.	
1913—						
January 20	++	1	—	1.0 c.c. —		
January 22 to February 19.....	4×0.9 gm. neo.	
February 25	0.75 gm. neo.	
March 5 to March 19.....	3×0.5 gm.	
March 27	0.6 gm.	
March 31 to May 5.....	4 inject. calomel
Total.....					28 injections: 7.2 gm. salv. 4.35 gm. neo.	16 injections

lumbar pain quickly responded to specific treatment until May, when both headache and lumbar pain returned, again causing patient to go to bed for one week. Symptoms again disappeared under pill treatment. June 15, salvarsan intravenously, followed by eighteen inunctions. Free from symptoms until September 15, when there was sudden diplopia and attack of unconsciousness, lasting two hours. October 1, second attack of unconsciousness, followed in two hours by complete aphasia, lasting three days, but during this period patient was conscious and clear mentally. October 20, ringing in left ear, followed by deafness.
Admitted December 6, with dizziness, deafness, failing memory, and sore throat. Has lost 30 pounds in six weeks. Status praesens: right pupil larger and reacts less extensively to light than left. Hearing: watch, right, 40 cm., left, 12 cm.

Whisper, right, 7 meters, left, 150 cm. Lower tone limit: right, below 64 d. v., left, above 128 d. v. Upper tone limit: right, above 2,848, left, above 2,848 d. v. Bone conduction with fork C 128: right, normal duration, left, 16 seconds shortened. Rinné: right, positive, left, negative. Both membrani tympani normal in appearance.
CASE 6 (No. 345).—Man, aged 25, machinist. January, 1910, chancre followed by secondaries. Treatment: Thirty-four mercury injections in eight weeks. Four months later three ulcers appeared on face. Since then irregular treatment by mouth.
December, 1910: Sudden dimness of vision and diplopia, accompanied by nearly complete deafness in both ears, dizziness and inability to stand because of vertigo. Two weeks later, salvarsan intramuscularly followed by complete

disappearance of symptoms in one week. Free from symptoms until three weeks ago, when paralysis of left leg suddenly appeared, persisting until present time.

Admitted July 25, 1911. Pupils normal, fundi normal. Spontaneous lateral nystagmus, more marked to the left. Hearing: watch, right, 34 cm., left, 2 cm. Whisper: right, 3 meters, left, 1.5 meters. Bone conduction: right, 6 seconds, left, 4 seconds. All forks heard with air conduction: C, not heard with bone conduction. Caloric reaction: right labyrinth is very irritable; left responds feebly. Drums: right normal, left contracted and sclerotic. Complete flaccid flexor paralysis of the left leg. Right leg sensation of touch is acute; pain, heat and cold entirely absent. Brown-Séquard phenomenon. Arm reflexes absent on either side. Tendon reflexes in the left leg exaggerated. Babinski and Oppenheim positive in the left.

July 31: There is to-day a remarkable increase of power in the left leg.

August 3: Patient steadily improving. Now walks well. Pain sensation in right leg is only slightly diminished.

August 6: Walks well; still throws left foot a little.

August 29: Left leg now entirely normal, except for exaggerated reflexes. Pain sensation still slightly diminished in right. Nystagmus definitely diminished.

September 18: Sensation in left leg is normal.

his left ear is more acute. Hearing: watch, right, is just heard when brought into apposition with the external ear. Watch is not heard over the mastoid process, but is faintly heard in the right frontal region. Left: watch is just heard when brought into apposition with the external ear. Bone conduction for the watch is absent. Whisper: right, 30 cm., left, 20 cm. Ordinary voice: right, 12 meters, left 1 meter.

Dec. 15, 1912: Feeling well, no headache. Hearing: Watch is not heard until brought into apposition with the external ear on either side. Whisper: right, 35 cm., left, heard when spoken directly into the external ear. Ordinary voice is heard at limits of the examining room on either side.

March 12, 1914. Feeling well; remained free from headache. Physical examination unchanged.

COMMENT

Cases 1 and 2 are rather typical "neurorecidives" with no definite meningeal symptoms before salvarsan treatment was instituted. Both showed involvement of the facial nerve on the side of the affected ear; the first had an optic papillitis at the time of the development of the deafness, and the other developed a similar condition a few months later. Both had general symptoms of an intense meningitis, and the cere-

TABLE 7.—TREATMENT AND REACTIONS IN CASE 7

Date	Blood, Wassermann Reaction	Cerebrospinal Fluid			Treatment	
		Cells	Noguchi Globulin	Wassermann Reaction	Salvarsan	Mercury
1912—						
September 26	+	135	++	0.1 c.c. ++	.....	2 inject. Hg salic.
October 28 to October 31.....	+	0.45 gm. neo.	
November 4	+	0.75 gm. neo.	
November 7	+	2×0.9 gm. neo.	
November 11 to November 15.....	13	++	0.4 c.c. ++	.....
November 21	±	0.9 gm. neo.	2 inject. calomel
November 22	
November 28 to December 2.....	29	++	0.4 c.c. ++	.....	5 inject. calomel
December 5	
December 9 to January 29.....	++	20 inject. Hg salic.
1913—						
February 17 to June 17.....	9×0.5 gm.	
June 26 to August 28.....	8	++	0.6 c.c. ++	.....	9 inject. Hg salic.
September 8	—	7×0.5 gm.	
September 10 to December 1.....	—	
December 11 to March 12, 1914.....	—	
Total.....					21 injections: 8.0 gm. salv. 3.9 gm. neo.	38 injections

May 5, 1913: Feeling well; physical examination is negative, except for slight spontaneous nystagmus to the left on forced external rotation and diminished hearing in the left ear. Hearing: watch, right, 2.5 meters, left, 1.25 meters; whisper, right, 9 meters, left, 3 meters.

CASE 7 (No. 887).—Man, aged 42, fireman. Chancre followed by secondaries fifteen years ago. Irregular treatment by mouth for two years. February, 1911 (20 months ago), dull aching pain in left ear and left frontal headache persisting until three months ago, when headache shifted to right supra-orbital region. Left eye "turned in" one year ago. Difficulty in hearing with left ear and tinnitus for six months. No difficulty in walking, no dizziness, bladder, rectal or sexual disturbances.

Admitted Sept. 26, 1912, complaining of headache and deafness in the left ear. Status praesens: pupils equal, but reaction to light is slightly sluggish and the excursion limited. Well marked left internal strabismus. Beginning optic atrophy. Hearing: watch, right, 15 cm., left, patient cannot hear watch even when in apposition with the external ear. Whisper: right, 60 cm., left, unheard. Ordinary voice: right, 1 meter, left, unheard. Patient can hear loud shouting with the left ear at about 1 meter. Bone conduction for a watch tick absent on both sides.

November 17: Since the first intravenous treatment, patient has not once had even a suspicion of headache. He states that his general health is much improved and hearing with

brospinal fluids were turbid and gave very high cell counts. In both there was practically complete restoration of function of the nerves involved. Case 3 might also be regarded as a "neurorecidive" except for the fact that he had distinct symptoms of meningeal irritation early in the disease before any treatment was administered. The deafness appeared one month after the first salvarsan injection, but was promptly and apparently completely relieved by the second injection. The symptoms of meningitis reappeared, however, and the patient showed hyperemia of the optic disks when first examined by us. Case 4 had evidence of meningeal, auditory and optic nerve involvement at the time of appearance of the general secondary eruption. These symptoms were only partially alleviated by mercury inunctions, but there was complete return of function after a single short course of neo-salvarsan. Case 5 had severe symptoms pointing to meningeal involvement before the outbreak of the secondary rash, which only slowly disappeared under mercury and iodids. Later he had two attacks showing profound involvement of the cerebral tract before the onset of deafness. Case 6 developed deafness, vertigo and visual disturbance while under mercury, with prompt alleviation of symptoms following a sin-

gle intramuscular injection of salvarsan. The persistence of the infection in the central nervous system was, however, made evident by the appearance of symptoms of a spinal cord lesion. In spite of a rapid disappearance of all abnormal elements from the cerebrospinal fluid, both the last two cases had some permanent auditory disturbance possibly due to scar formation.

Case 7 is an example of quite late involvement of the auditory and abducens nerves with beginning optic atrophy. The prompt relief of headache and improvement in hearing were quite striking, but in spite of prolonged and intensive treatment, there was only slow improvement in the cerebrospinal fluid. This case illustrates well the resistance of the long-standing infection to treatment compared with the rapid improvement and return to normal of the cerebrospinal fluids of the patients treated in the early stages of the disease.

These cases illustrate the relation of these disturbances of hearing to syphilitic infection of the central nervous system. Six of them showed definite evidence of extensive infection of the nervous system. The remaining case showed also definite signs of involvement, but here the process had not gone on to an extensive development. It is to be emphasized that in all these cases the treatment previous to the onset of the affection of the eighth nerve had been quite inadequate. This is also the experience of many observers during the past three years. It has been shown conclusively that such lesions arise only in cases inefficiently treated, and that the number of such cases occurring in any clinic is an index of the efficiency of the treatment of syphilis in that clinic. Thus Gennerich,¹³ in the enormous syphilitic material in the Naval Hospital at Kiel, where the cases can be properly controlled and where the treatment is most thorough, has seen only two relapses of any kind during the past year.

The cases here reported demonstrate, however, the large amount of treatment which may be necessary in these conditions, and the necessity of repeated examination of the spinal fluid for intelligent treatment of all syphilitic disease of the central nervous system. In these patients, except the three in whom the condition had been of long standing, all signs of disease of the eighth nerve rapidly disappeared. Examination of the spinal fluid in one of them showed, however, that the process was still active within the cerebrospinal axis. Such a process, if left to itself, is certain sooner or later to reassert itself, resulting in severe and perhaps permanent damage to parts whose function is so important. It may perhaps be interesting in this connection to refer to the frequency with which syphilis of the auditory nerve occurs as a manifestation of tabes dorsalis. Glogau¹⁴ recently called attention to this point, and it has also been emphasized by Schwartz,¹⁵ Strümpell¹⁶ and Oppenheim and Siemmerling.¹⁷ In thirty cases of tabes which we have examined, 40 per cent. showed marked diminution of hearing in one or both ears, with diminution or complete loss of bone conduction for watch tick.

In conclusion, we would urge the necessity for a consideration of all lesions of the eighth nerve as

possible manifestations of a disastrous form of a general infection—syphilis of the central nervous system—and emphasize the value of an examination of the spinal fluid in every case of this type, and the necessity of repeated examinations of the fluid for the intelligent treatment and subsequent observation of all patients suffering with this serious condition.

ROENTGEN THERAPY IN THE TREATMENT OF DEEP-SEATED MALIGNANT DISEASE*

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I have been using the Roentgen rays in the treatment of deep-seated malignant disease for over fifteen years,¹ but bearing particularly on the treatment of deep-seated malignant disease, I would refer to "The Treatment of Sarcoma by Means of the Roentgen Rays,"² 1907; "The Roentgen Rays in the Treatment of Deep-seated Malignant Disease,"³ 1909; "The Healing Process of Osteosarcoma Under the Influence of the Roentgen Rays,"⁴ 1913; "Inoperable Primary Carcinoma of the Breast,"⁵ 1913, and "The Treatment of Recurrences and Metastases from Carcinoma of the Breast,"⁶ 1914. In this paper, therefore, I shall try to give the present status of the value of the treatment in deep-seated malignant disease, the theory of its action and the general technic, and will confine my reports of cases to those not previously reported. (Those who are especially interested can, therefore, refer to the other cases reported and I will avoid repetition.)

In general there has been a progressive improvement in results corresponding with the improvement in technic and with our increased knowledge of the action of the rays, together with the improvements in equipment, so that to-day results are being obtained that were not even dreamed of a few years ago.

THEORY OF THE EFFECTS OF THE ROENTGEN RAYS ON MALIGNANT DISEASE

The results obtained in the treatment of malignant disease depend primarily on the exceeding sensitiveness of pathologic cells to the Roentgen rays, for it is well known to all who have had experience with epithelioma, as an example, that with the same dose of rays given to the epithelioma and the surrounding tissue, the epithelioma undergoes degeneration and seems to melt away, while the surrounding healthy tissues may show no effect or nothing more than a little redness. It has been shown, too, by histologic studies made on tissues which have been subjected to the effect of the rays that these cells undergo degeneration before any effect is shown on the healthy cells.

* Read by invitation before the joint meeting of the Chicago Medical Society and Western Roentgenologists, March 3, 1915.

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2. Pfahler, G. E.: *New York Med. Jour.*, Dec. 21, 1907.

3. Pfahler, G. E.: *Am. Jour. Med. Sc.*, April, 1909.

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5. Pfahler, G. E.: *New York Med. Jour.*, April 26, 1913.

6. Pfahler, G. E.: *Surg., Gynec. and Obst.*, January, 1914, p. 90.

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15. Schwartz, H.: *Handbuch der Ohrenheilkunde*, Leipsic, 1892.

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It is also well known that the more nearly cells approach the embryonal type the more sensitive they are to the rays, and among normal tissues the essential cells of glands are more sensitive than the stroma, and next to the glandular cells come the protective epithelium, such as the skin, mucous membrane, and intima of the blood vessels, and next to this the connective tissue cells.

The more highly specialized the more sensitive is the cell to the Roentgen rays; therefore the generative cells of the ovary and testicle are the most sensitive of normal tissue and following these the spleen, thymus, thyroid gland, liver, the lymphatics, muscle, nerves and connective tissue.

As a result of a thorough histopathologic examination of cancer tissue of the uterus and ovaries that had been subjected to irradiation, Haendly⁷ found that a radiant treatment of two or three weeks' duration has a direct elective effect on cancer tissue, consisting in a primary injury to the cancerous cells, which leads to a disturbance in the growth of the cells, lack of mitosis and giant-cell formation, and, to a certain degree, to changes in the character of the cells (flat, scaly epithelium); and, finally, by karyolysis and disappearance of the non-nucleated masses of protoplasm, to complete destruction of the cells.

The connective tissue shows a new growth to replace the destroyed carcinoma cells. This new-formed connective tissue becomes sclerotic and degenerates, just as the rest of the connective tissue; the smooth muscle atrophies and disappears almost entirely, and some of the muscle fibers show hyaline degeneration. In the ovary the primary follicles are completely destroyed and the vessels show hyaline degeneration

of the adventitia and media; the latter is calcified here and there. From proliferation of the intima there is obliteration of numerous vessels; the elastic fibers swell and form clumps; and the plasma cells and eosinophil leukocytes disappear with the increasing sclerosis and hyaline degeneration.

The influence of the Roentgen rays on living tissue, according to Wickham,⁸ depends, first, on the sensibility of the individual cells; second, the quantity of rays and the duration of their absorption; third, the special effect of the particular degree of hardness of the rays; fourth, the period of time which has elapsed between the end of the exposure and the time of the histologic examination; and fifth, the filtration of the rays through the tissues themselves.

On the special sensibility of the younger cells depends the ground principle of Roentgen treatment, that is, that these pathologic cells will be affected by the rays that have already passed through healthy tissue cells without doing them harm. He finds that the

histologic changes in pathologic tissues are affected in the following order: (1) the malignant tumors; (2) the lesions of the hematopoietic organs and the blood; (3) the blood tumors; (4) keloids, and (5) skin tuberculosis. He also calls attention to the fact that the results obtained will depend greatly on the individual technic.

Since in this paper I do not propose to make reports on any primary carcinoma of the breast, I can do little better than repeat my remarks and conclusions based on the twelve cases of inoperable primary carcinoma of the breast, previously reported.⁹

In all instances, this treatment involves a struggle and a considerable expense; but when one realizes that we are dealing with an otherwise hopeless class of patients, the results justify the effort. I do not know that any of these patients have been cured, and did not report them as such. I believe that no one knows absolutely when a patient is cured of carcinoma, no matter what the method of treatment may have been. In this group, an otherwise hopeless class of patients have been rendered free from symptoms of

the disease from one to eight years. The treatment is not intended to replace or in any way to interfere with the operative treatment of carcinoma of the breast, but rather to supplement it, or offer hope to patients who are inoperable.

I believe that the results in primary inoperable carcinoma of the breast are at least 25 per cent. better than they were even two years ago, but the conclusions as given then can stand now, which were:

1. In inoperable cases of carcinoma of the breast, Roentgen-ray treatment offers a reasonable hope of relieving the patient of the symptoms of the disease, prolonging life, and pos-

sibly causing complete disappearance of the disease.

2. Patients have been relieved of the symptoms of the disease for from one to eight years.

3. No other method of treatment has ever accomplished so much in this class of patients.

4. A careful mastery of technic is essential to success.

Boggs¹⁰ has also made an excellent report on the treatment of carcinoma of the breast in which he summarized twenty unfavorable cases for operation, classed as unfavorable because there was the extensive involvement of both axillary and supraclavicular lymphatics about to break down. Only five of the twenty patients were living at the time of the report, but every one of them was sufficiently benefited to justify the treatment. The pain was relieved for a period averaging a year. Nearly in every case the mass was reduced in size, and in some cases it became freely

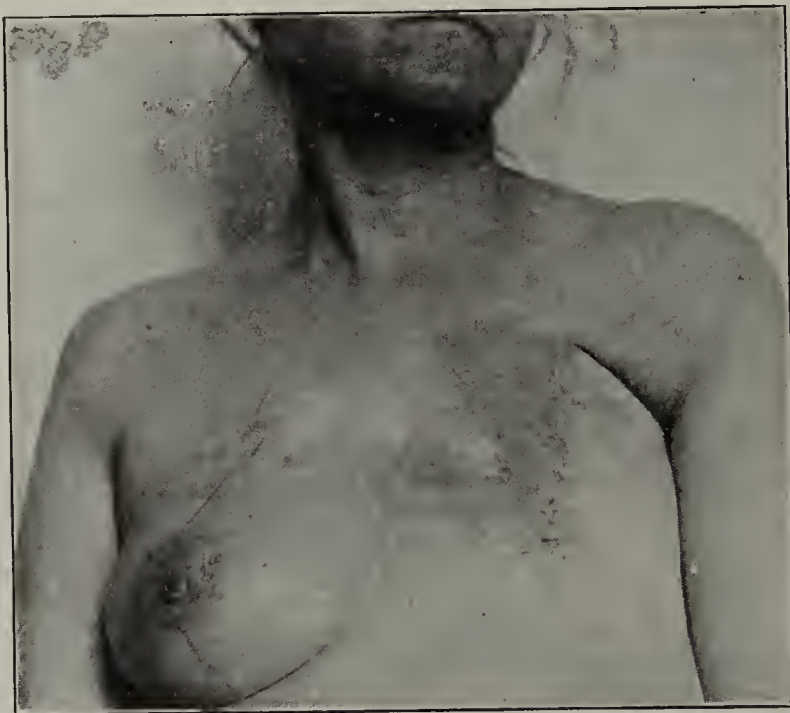


Fig. 1 (Case 4).—Recurrent and metastatic carcinoma with involvement of the opposite breast, at the beginning of Roentgen treatment, May 1, 1914.

7. Haendly, P.: *Surg., Gynec. and Obst.*, April, 1914.

8. Wickham: *Arch. d'electr. med.*, May 25, 1913.

9. Pfahler, G. E.: *Inoperable Primary Carcinoma of the Breast*, New York Med. Jour., April 26, 1913.

10. Boggs: *The Roentgen Treatment of Carcinoma of the Breast*, New York Med. Jour., Nov. 12, 1910.

movable. Almost every one of these patients was able to perform her usual duties and be with her family, free from pain and from the offensive odor so distressing in carcinoma. The patients who died from internal metastasis did so without external symptoms, excepting swelling of the arm. As a rule the patient did not know that she was dying of carcinoma.

Freund¹¹ reports thirty-nine cases of mammary carcinomas in which there were two unaffected and in all the rest improvement for a greater or less period, with recovery from subjective symptoms. In five cases, after several years' latency there was recurrence that could not be controlled in any way; in one case, after four years' Roentgen treatment, there was complete recovery. Freund believes that ulcerated carcinoma of the breast is more amenable to cure by irradiation than subcutaneous ones, and, therefore, says that in amputation of the breast the sutures should not be too firm. He believes there is no clinical difference between treatment with Roentgen rays, mesothorium and radium.

RECURRENT AND METASTATIC CARCINOMA OF THE BREAST

There is probably no field in which the striking value of the rays in the treatment of carcinoma can be demonstrated so conclusively as in this class of cases, for in this class of cases there can be no question as to diagnosis. In most instances there has been a diagnosis made by a competent surgeon and a pathologic diagnosis by a competent microscopist; and when to this are added recurrences and metastasis, which in themselves are characteristic and which in most instances are entirely inoperable, their disappearance under the action of the rays, with no other agent, becomes conclusive proof, to my mind, of the great value of the Roentgen rays in the treatment of deep-seated malignant disease.

Fifteen cases of this class were reported in a previous paper,¹² which was read before the Seventeenth International Medical Congress, London, Aug. 12, 1913. I will add a few other striking cases in this report, one of which shows the most remarkable results of which I have ever known. In reporting any of the following cases it must be understood that with the successes I also have had many failures, for, as will be shown by the cases that I report, I undertake the treatment in many cases in which there can be little hope. In practically all patients there is some improvement. The patients are made more comfortable, pain is relieved, there is a diminution in the disease, and I am sure that life is prolonged.

CASE 1.—Miss H., aged 50 years, was referred to me by Dr. John B. Deaver, Nov. 2, 1912. Her right breast had been amputated on account of carcinoma by Dr. Deaver, in June, 1911. A tumor had been growing since December, 1910. At the time of the operation the tumor was about the size of a large egg. She noticed no evidence of recurrence until September, 1912, when the rib seemed to be prominent. When she was referred to me she had a mass of recurrent carcinomatous tissue about $1\frac{1}{2}$ inches in diameter, elevated one-half inch, located inside the middle of the scar and firmly adherent to the rib. Because of its being firmly adherent, Dr. Deaver considered it inoperable.

The patient was given twenty-seven applications of the rays between Nov. 2, 1912, and June 14, 1913, at which time both in the judgment of Dr. Deaver and myself she was well. Since then she has remained well, which is now *a year and nine months*. She has gained in weight and is in every sense healthy. In an inoperable and otherwise hopeless case this must be looked on as a good result.

CASE 2.—Mrs. M., aged 48, referred by Dr. John B. Deaver, Oct. 28, 1914, had had her right breast amputated Sept. 22, 1913. She had noticed a tumor for nine months. For five

months preceding the operation she had received some Roentgen-ray treatment in another city without improvement. Following the operation she received some postoperative treatment near her home. At the time she was referred to me, she had a recurrent carcinoma the size of half a hen's egg, firmly attached to the third and fourth ribs and the interspace between them.

The patient was given eight full doses of rays through eight different areas of skin, each dose of filtered rays representing $20 \times = 160 \times$.^{*} This series was given October 28, November 18, December 14 and January 18. When the last series was given the tumor had disappeared. The patient has had in all four series of treatments, the last one being

given as an additional precaution. To all appearances she seems to be well.

CASE 3.—Mrs. G., aged 52, referred by Dr. John B. Deaver, March 30, 1912, had had the right breast amputated on account of carcinoma four months previously. When she was referred to me she had an induration in the inner side of the scar, with tumor formation over an area 3 by $1\frac{1}{2}$ inches, and each stitch hole of the scar was indurated. The whole area was painful and the arm was swollen. Under active treatment all of these symptoms disappeared. The last treatment was given April 23, 1913, and she has remained well since that date, which is about *two years*.

CASE 4.—Mrs. K., aged 52, was referred by Dr. John B. Deaver, April 30, 1914. On June 20, 1912, Dr. Deaver removed the left breast on account of a carcinoma that had been growing for a year.² The patient remained well until April, 1913, when, following a severe shock, she noticed little tumors developing over the operative area. These were supposed to be neurotic in origin, but they did not disappear, and after they had lasted and increased for a year, she consulted Dr. Deaver, who referred her to me, at which time

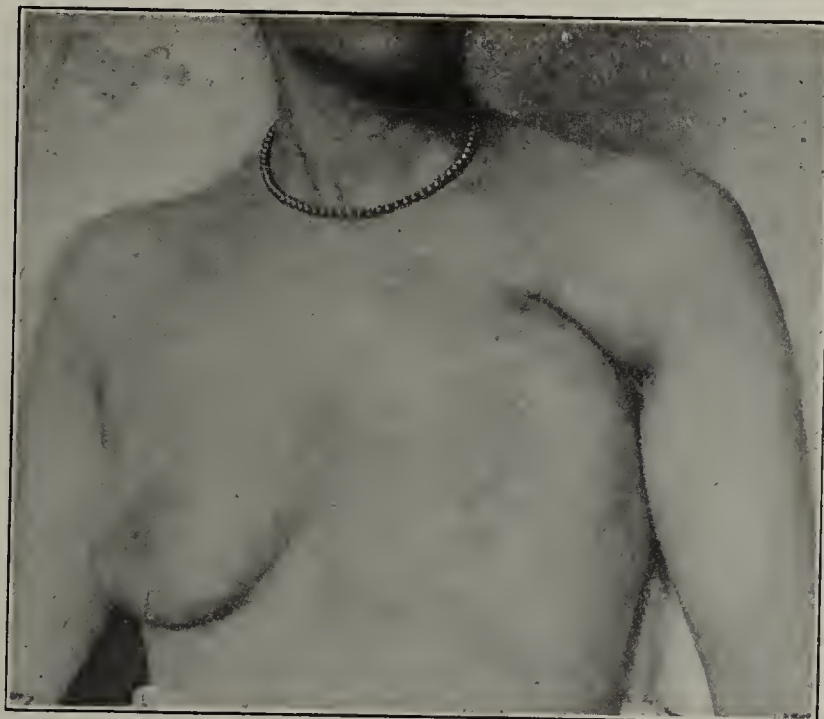


Fig. 2.—Complete disappearance of the metastatic carcinoma in Case 4, Dec. 1, 1914.

11. Freund, L.: Irradiation and Surgical Treatment of Malignant New Growths, Surg., Gynec. and Obst., June, 1914.

12. Pfahler, G. E.: The Treatment of Recurrences and Metastases from Carcinoma of the Breast, Surg., Gynec. and Obst., January, 1914, p. 90.

* One \times = a Kienböck unit (measured by a definite shade of photographic effect on special photographic paper recommended by Kienböck); $10 \times$ of unfiltered rays = an erythema or epilation dose; $10 \times$ = Tint "B" of the special barium-platino-cyanid disks (Sabouraud and Noire); $20 \times$ can be given without producing a burn because of thorough filtration and the use of hard rays.

the entire left mammary region was studded with nodules on both sides of the scar, extending into the axillary region and down to the left costal margin. This infiltration could then be traced across the sternal region to the opposite breast. The right breast was indurated and was believed by us to be carcinomatous (Figs. 1 and 2).

Within two days the patient was given a series of twenty full doses of filtered rays each representing 20 x, or in all 400 x units. When she returned at the end of three weeks for the second series, there was decided improvement. These series were repeated May 23, June 16, July 7, August 14 and September 22, or in all, six series of twenty doses each, totaling 2,400 x, and when she was examined by Dr. Deaver, Dec. 1, 1914, he could find no evidence of carcinoma. She has remained well since.

In this case we not only had an extensive metastasis over the operative field in the supraclavicular and axillary region, but involvement of the opposite breast, with complete recovery. With such striking results one cannot be skeptical of the value of the treatment.

CASE 5.—Mrs. B., aged 32, came to me Sept. 19, 1913. She had been operated on, Aug. 20, 1910, by Dr. John B. Deaver, for carcinoma of the right breast (confirmed by pathologic examination) and for recurrence, March 27, 1911. The patient said that she had had in all four operations. September 19, at the beginning of my treatment, the entire operative area on the right side was studded with nodules which were firmly adherent. These extended to the axilla, and in the right axilla there were masses from one-half to three-quarters inch in diameter firmly binding the tissues. There were large nodules in the supraclavicular region in the right side. The left breast contained a mass of tumor tissue with retraction of the nipple, with metastasis in the left axilla and in the left supraclavicular region. There were two small nodules in the scalp. About three inches of the second left rib and a small area in the third rib

was destroyed and about an inch and a half of the right tenth rib, with disease of the eighth, ninth and tenth dorsal vertebrae, the fifth lumbar, and the upper part of the sacrum. Ordinarily such an extensive distribution of disease would preclude even the thought of accomplishing any good results, but this patient had an unusual amount of determination to get well. I therefore decided to see what could be accomplished.

She has received an enormous amount of treatment over the entire body during the past eighteen months, 237 doses averaging 15 x, or amounting to 3,555 x. As a result she has gained 17 pounds in weight, she gradually became able to look after her household duties and is now doing all her housework. She looks and acts very much stronger. All the nodules on her right chest have disappeared, as well as those in the right axilla and the right supraclavicular region. The mass in the left breast has shriveled, and while there is considerable retraction of the nipple, the area feels like fibrous tissue and is freely movable. The metastasis in the left axilla and supraclavicular region has disappeared. The disease in the second rib has healed. I believe the disease in the vertebrae is healing. The disease in the fifth lumbar and sacrum is at present giving the patient most of her symptoms, and she suffers considerable pain in this region.



Fig. 3 (Case 5).—Extensive metastatic carcinoma over the operative area, in the axilla, supraclavicular region and the opposite breast, with bone involvement, Sept. 19, 1913.

This patient is, therefore, not well, but is the only instance that I have ever known of in which there is undoubted healing of metastatic carcinoma of bone after it had once started. In this case we are undoubtedly dealing with a general carcinomatous condition, and the chances of ultimate failure are very great; but so far there has been progressive improvement, and the results have been the most remarkable of anything that I have ever seen (Figs. 3, 4, 5 and 6).

While the foregoing cases illustrate the value of the rays in the treatment of inoperable recurrence and metastasis, I believe this is not the chief field of usefulness for the rays. I believe the greatest field for usefulness is in postoperative treatment, and to this group should be added the inoperable primary carcinomas and the recurrent carcinomas.

CARCINOMA OF THE THYROID

CASE 6.—Mrs. M. G., aged 36, was referred by Dr. John B. Deaver, June 14, 1910. She had been operated on for carcinoma of the thyroid, July, 1908, and for recurrence, March, 1909, and May 6, 1910. June 14, 1910, when referred to me, she again had a recurrence, and Dr. Deaver considered it unwise to operate further. Active treatment was begun, and June 30, 1911, she seemed to be free from disease.

Sept. 9, 1911, she returned with pain in her right cervical region. This pain increased, and Roentgen examination, December 6, showed metastatic carcinoma in the second cervical. From this metastasis she died, July 6, 1912, but there was no recurrence of the disease in the thyroid. This was an ultimate failure, but I look on it as a brilliant temporary result, for the rapid recurrence after the third operation was completely controlled. The metastasis in the cervical spine may have taken place at any time previously.

This case is another strong argument in favor of active postoperative treatment.

CASE 7.—Mrs. L. S., aged 46, was referred by Dr. John B. Deaver, Feb. 10, 1913. Dr. Deaver had removed a carcinoma of the thyroid two weeks previously (confirmed by microscopic examination). He was unable to remove all of the disease, and so stated when he referred the patient. She was given fifty-six full doses between Feb. 10, 1913, and Dec. 2, 1913, at which time she seemed to be well. There has been no recurrence of the disease since.

A few weeks ago she was operated on for fibroma of the uterus, with hyaline degeneration, and a fibrocystic tumor of the right ovary, which was malignant. It would seem probable that this was an independent affection, and the result in the disappearance of the remaining disease which was known to be present, following the operation in the thyroid gland is another very strong argument in favor of postoperative treatment.

CARCINOMA WITHIN THE ABDOMEN

The modern technic has given a new impetus to the treatment of carcinoma within the abdomen. Most of the cases treated, however, and reported, refer to carcinoma of the uterus, and in this field some encouraging results have been reported.

Amann¹³ states that he has applied Roentgen therapy in fifty-two cases of uterine cancer. In the thirty-one absolutely inoperable cases of cancer of the cervix, five of the patients were completely or nearly cured, 29 per cent. thus being restored to health, when they had been absolutely doomed before. The improved technic accomplishes this, besides, without danger of Roentgen burns even with the far more extensive dosage, while the action on the cancer cells is more destructive. When the rays are applied both from front and back to act on an advanced cancer of the cervix, they act on the entire region, all the lymph glands and adjacent tissues feeling the effect, and thus a more thorough cleaning out of the malignant disease is possible than could even be realized by operative measures. In one case he had removed a cancer of the cervix three years before and a recurring tumor a year later. Again a tumor as large as a fist developed in the pelvic connective tissue, but this was treated with intensive Roentgen exposures and a complete cure followed. The sciatica-like pains and the contracture of the foot from pressure on the nerves vanished and the patient gained in weight. She was in good health for a long time, but died suddenly later without recurrence of pelvic trouble. Amann's experience has been so favorable that he thinks the improved technic for Roentgen therapy can be applied even in operable cases.

Krönig¹⁴ reports sixty-four cases of carcinoma that were treated for the prevention of secondary growth after operation; of these, forty-three were treated almost exclusively with unfiltered rays, while twenty-one cases were treated partly with filtered and partly with unfiltered rays. Twenty-three of the forty-one patients undoubtedly died of carcinoma. From following the subsequent history of twenty-one cases, in which filtered rays were used, nineteen were undoubtedly free from carcinoma. Sufficient time had not elapsed to speak of them as definite cures, yet the result is so unusual that he says it will have to be credited to the treatment, and that recurrences are not so frequent when filtered rays are used after operation.

The experience of Krönig, Gauss, Krinski, Lembcke, Wätjen and Königsberger¹⁵ has shown that with either mesothorium rays or filtered Roentgen rays, deep-seated carcinomas may be destroyed without material injury to the normal tissues. Their cases have been under observation now for two years. In cases in which operation is very difficult and the chances of recurrence are great, they have decided on

radiotherapy in preference to operation; they particularly prefer radiotherapy to operation, when the carcinoma is readily reached by a cross-fire. If a carcinoma has been removed by operation, the patient should be given radiotherapy at intervals for at least two years to avoid recurrence.

Kotzenberg,¹⁶ speaking of his results of roentgenotherapy in the treatment of cancer, says that five of the thirteen patients with inoperable uterine cancer were clinically cured by the roentgenotherapy alone, one for three years to date. The outcome is not known in two other cases. Among the twenty cases of uterine cancer recently reexamined, ten of the patients were found materially improved and two clinically cured. All the patients spoke of the relief of pain after the Roentgen exposures; life was rendered bearable and lengthened by two or three years in many cases.

Nordentoft¹⁷ reports a remarkable result in metastatic carcinoma within the pelvis. The young woman had had one ovary removed fifteen months before for a supposed benign tumor; the cancer was in the remaining ovary, which was then removed. Three

weeks afterward the Roentgen treatment was commenced when already there were several metastatic lumps to be felt; one in the pouch of Douglas was a nobby tumor as large as a fist. The Roentgen treatment was applied systematically, and the metastatic tumors subsided; others developed at other points again and again, and each time they retrogressed under Roentgen exposures. Several times Norden-

toft had expected to present the patient at a meeting of his medical society, but each time new metastases developed in the interval between the sending in of the notice and the meeting. At present no tumors can be palpated, and there is nothing apparently abnormal in the pelvis except that the serosa is rough and irregular in the pouch of Douglas. He has not given up hopes of a final cure, as the metastases develop now with much longer intervals and seem to be more susceptible to the Roentgen rays. There is also a kind of auto-immunization to be counted on, like a vaccine therapy, from absorption of the cancerous tissue. The same idea was expressed by me in Case 4 (treatment of recurrences and metastases).

Good results have been reported by Gray¹⁸ in the treatment of malignant disease of the bladder.

In my own experience I have had a few results that seem rather striking in the treatment of deep-seated carcinoma within the abdomen:

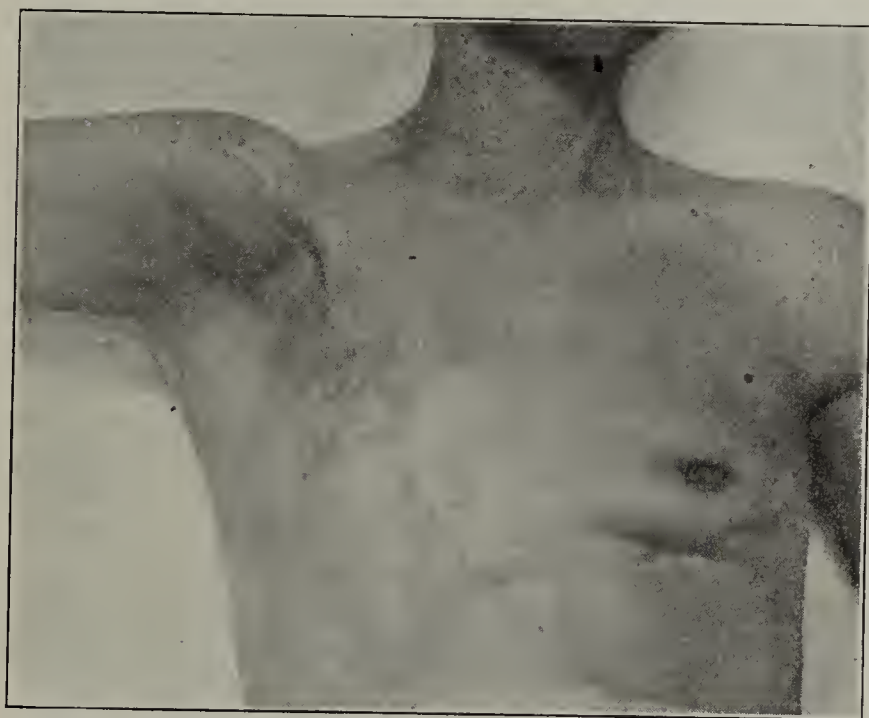


Fig. 4 (Case 5).—Disappearance of the metastatic disease with a shriveled fibrous movable mass in the opposite breast. Patient able to raise arm, the axilla being clear.

16. Gocht, H.; Kotzenberg, and Denks, H.: Roentgenotherapy at the Eppendorf Hospital, Beitr. z. klin. Chir., June, 1914; abst., THE JOURNAL A. M. A., Sept. 19, 1914, p. 1062.

17. Nordentoft, J.: Ugesk. f. Læger., 1914, lxxvi, 1541.

18. Gray, A. L.: The Roentgen-Ray Treatment of Malignant Disease of the Bladder Through a Suprapubic Incision; Report of a Case, Am. Jour. Surg., October, 1906.

13. Amann: München. med. Wehnschr., 1914, lxi, 1713.

14. Krönig: Am. Jour. Obst., 1914, lxi, 205.

15. Krönig, Gauss, Krinski, Lembcke, Wätjen and Königsberger: Surg., Gynec. and Obst., November, 1914.

CASE 8.—Mrs. B., aged 47, was referred by Dr. John B. Deaver, Oct. 30, 1907. One and one-half years previously Dr. Deaver had operated and found an inoperable omental tumor with extensive adhesions involving the entire abdominal viscera. This patient received active Roentgen-ray treatment from me during the following months. She has remained reasonably well since that time, which is seven and a half years, but occasionally has developed symptoms of intestinal obstruction. Between the intervals, however, of these attacks she has been comfortable.

CASE 9.—Mr. H. A., aged 30, was referred to me for treatment, April 6, 1914. He had been operated on, February 4, by Dr. Babcock for carcinoma of the sigmoid, with metastasis. The sigmoid was resected and the neighboring glands removed. He was given thirty-four full doses of rays between April 6 and April 9. This series was again repeated May 25, June 24 and August 3. Since this time he has remained perfectly well, has gained in weight, and to all appearances is perfectly well. Roentgen examination shows slight irregularity in the sigmoid but nothing that suggests carcinoma. I believe that the rays have been influential in preventing a recurrence and further metastasis.

CARCINOMA OF THE STOMACH

I have not treated any carcinoma of the stomach recently, and have never seen any good results except in one case.

CASE 10.—Mr. G. V., aged 54, was referred to me Nov. 22, 1904. Dr. Joseph Price had performed an exploratory operation and found an inoperable carcinoma of the stomach—the tumor being about the size of a fist. The abdomen was closed and the patient was not expected to live more than a month or two. He was weak and bedfast—had to be moved on a stretcher for treatment to the hospital. In six weeks he walked from the hospital, and in six months was attending to business. He then developed symptoms of appendicitis. Dr. Joseph Price was again called to operate. He found no appendicitis and he could not find the carcinoma of the stomach. He found extensive adhesions about the stomach, which Dr. Price said he thought might be due to either his previous operation or to treatment. Three weeks later the patient died. No necropsy was obtained. Therefore, while the result seems remarkable, it is not conclusive.

CARCINOMA OF THE TONSILS

CASE 11.—Mr. U., aged 80, was referred by Dr. Ernest Laplace, Nov. 2, 1911. He had a tumor growing in his right tonsil for a year. A section was removed, and pathologic examination showed it to be epithelioma. At the time of beginning treatment the tumor of the tonsil was about an inch in diameter, hard, immovable and ulcerated. The patient

had large submaxillary glands which were believed to be metastatic. In four months the tumor of the tonsil had disappeared and the submaxillary glands were no longer palpable. He died Feb. 17, 1913, or about ten months after he appeared to be well. The cause of his death was not reported to me, but was probably old age.

CARCINOMA OF THE LARYNX

CASE 12.—Mr. F., aged 69, was referred by Drs. William Teller and Arthur W. Watson, May 20, 1914. This tumor, which was located beneath the left vocal cord, was regarded by Dr. Watson as an adenocarcinoma. The patient received four series of treatment within three months, each series being twenty-five doses cross-firing on the tumor in the larynx, and at the end of this time he seemed to be well and has received no Roentgen-ray treatment since.

Good results have been reported in the treatment of carcinoma of the larynx by Scheppegrell¹⁹ and Delavan.²⁰

DEEP-SEATED SARCOMA

My previous papers²¹ on sarcoma contain reports of some really remarkable results, and some of these patients have remained well covering

periods of from three to twelve years. I have always felt that sarcoma was more amenable to roentgenotherapy than carcinoma, and my general results show a healing process in about 50 per cent.

Levy-Dorn²² reports two cases of sarcoma in which the patients were well six years. One case was a recurrent sarcoma in the neck and metastasis in the groin. Both disappeared. The second case was a periosteal sarcoma of the femur. Levy-Dorn quotes Kienböck's report of ninety cases in which 18 per cent. disappeared, 57 per cent. improved and 25 per cent. were uninfluenced.

A very remarkable result was reported in a case of sarcoma in which there had been metastasis to the vertebrae, by Seeligmann.²³ A girl, aged 25, in August of 1911, had a tumor filling the entire abdomen. The vertebrae were intact. A 10-pound intra-

ligamentous tumor was removed and found to be a spindle-cell sarcoma. After three months the patient



Fig 5 (Case 5).—Roentgenogram showing destruction of 3 inches of the left second rib by metastatic carcinoma, with a focus of disease in the left third rib, made Feb. 20, 1914.



Fig. 6 (Case 5).—Roentgenogram showing healing of the metastatic carcinoma of the left second and third ribs, after Roentgen treatment, made Feb. 10, 1915.

19. Scheppegrell, W.: A Case of Cancer of the Larynx Cured by the X-Rays, *Jour. Advanced Therap.*, December, 1902.

20. Delavan, D. Bryson: The Result of Treatment of Laryngeal Cancer by Means of the X-Ray, *Laryngoscope*, November, 1902.

21. Pfahler, G. E.: The Treatment of Sarcoma by Means of the Roentgen Rays, *New York Med. Jour.*, Dec. 21, 1907; The Healing Process of Osteosarcoma Under the Influence of the Roentgen Rays, *THE JOURNAL A. M. A.*, Aug. 23, 1913, p. 547. Babcock and Pfahler: A Conservative Treatment of Sarcoma, *Surg., Gynec. and Obst.*, February, 1908, p. 160.

22. Levy-Dorn: *Berl. klin. Wehnschr.*, Jan. 1, 1912.

23. Seeligmann: *München. med. Wehnschr.*, March 25, 1913, p. 637.

seemed to be well, but recurrence was noticed in nine months, and in November, 1912, the tumor entirely filled the abdomen again. There was evidence of metastasis in the twelfth dorsal and first lumbar vertebrae. The abdomen was opened and a tumor was found larger than the original, everywhere adherent, and inoperable. She was demonstrated well eight weeks after beginning treatment before the physicians' congress in Hamburg. The tumor had entirely disappeared and no signs of disease were found in the vertebrae.

Remarkable cases have also been reported showing the healing of large inoperable abdominal sarcomas, by Shoemaker²⁴ and Skinner.²⁵

To the previous cases of sarcoma reported I should like to add the following rather striking results:

CASE 13.—Mr. N. B., aged 64, was referred to me by Dr. John B. Deaver, March 26, 1914, with an inoperable sarcoma in the right side of his neck under the jaw, about 3 inches in diameter and about one and one-half times the size of a hen's egg. He was given fifteen doses of rays, March 26 and 27. This series was repeated April 9, April 30 and May 21. June 18 he was given twelve doses, and July 30 nine doses, each of these doses being given through a different area of skin cross-firing on the center of the growth. At this time the tumor had practically disappeared and he has had no treatment since, and I believe he is perfectly well. He was seen by Dr. Deaver, Sept. 24, 1914, when he said he could find no evidence of the disease. We have here a case of inoperable sarcoma of the neck disappearing with a total of eighty-one doses, or 1,620 x (Figs. 7 and 8).

CASE 14.—Mrs. W. W., aged 39, was referred by Dr. John B. Deaver, May 29, 1913. In October, 1912, Dr. Deaver removed a myxosarcoma, the size of a grapefruit, from her right thigh. A recurrence developed and was removed two weeks previous to the beginning of the Roentgen treatment. She was given twenty-four doses within a year and has remained well.

CASE 15.—Mr. G. T., aged 75, was referred by Dr. H. H. Grace.

May 11, 1914, at which time he had a sarcoma involving the hard palate, soft palate, crowding upward and filling two-thirds of the right antrum. It had involved the alveolar process, the front of the jaw, and projected three fourths inch below the palate. He was given 131 doses in five months, at the end of which time the disease had been reduced to about one-third, and since this type of sarcoma involving bone is not likely to disappear completely, we discontinued treatment. We believe the disease has been arrested and we hope permanently.

CASE 16.—Mr. Z. H., aged 45, was referred by Dr. E. B. Gleason, Jan. 31, 1913, after the removal of a round-cell sarcoma of the left tonsil, January 29. He was given thirteen full doses of rays in three weeks directed toward the tonsil.

24. Shoemaker: Sarcoma of the Abdominal Wall, and Probably of the Pelvic Viscera, Which Has Disappeared Under the Use of the Roentgen Rays, Tr. Coll. Phys. Philadelphia, Dec. 2, 1913; Am. Med., 1903, vi, 1019.

25. Skinner, C. E.: Roentgenization in the Treatment of Cancer, THE JOURNAL A. M. A., Nov. 10, 1906, p. 1541.

This has remained well. Jan. 9, 1915, he returned with a sarcoma of the left lower eyelid. He was given five doses directed toward this eyelid, January 9. February 1 there was not more than half the disease remaining.

The striking point about Case 16 is that the post-operative treatment of the tonsil seemed to arrest the disease. It is probable that the development of the sarcoma in the lower eyelid was independent of the primary growth.

TECHNIC

Improvements in technic are being made daily, but the three great lines along which improvement has been made is in filtration, cross-firing and the generation of more penetrating rays.

Filtration.—I²⁶ believe I was the first to recommend and demonstrate the importance of filters in removing the soft rays that are otherwise absorbed by the skin.

I at first recommended and demonstrated the value of a layer of sole leather interposed between the source of the rays and the skin. This alone permitted me to use a quantity of rays that would enable me to give twice the amount of rays to the tumor tissue before damaging the healthy skin. This filtration has increased, however, so that at present I use 3 mm. of aluminum, and below this a layer of sole leather which permits probably four times the amount of rays to reach the deeper tissues than could be given through an area of skin without filtration.

Cross-Firing. — From the time I first began to treat deep-seated disease I used cross-firing, and this has been done by most of the leaders in America in Roentgen therapy; but the credit of elaborating this idea belongs to Gauss. In the treatment of deep-seated disease in the pelvis, he divided the total area of skin into many small areas, which permitted him to cross-fire many times on the central portion of the dis-

ease. In this way he reached the enormous doses of from 1,000 to 1,500 Kienböck units, but this means that he gave through no particular area of skin more than 20 x—at least this is all that I feel safe in giving.

In the treatment of deep-seated malignant disease the number of areas through which a disease can be treated will, of course, vary with each particular case, and the location of the disease, but I commonly use from four to forty areas, which means from four to forty full doses, or from 80 to 800 x units. This, of course, means infinitely more deep effect that was obtained in the early days when we used the total area of skin through which to give a single fractional dose of rays.

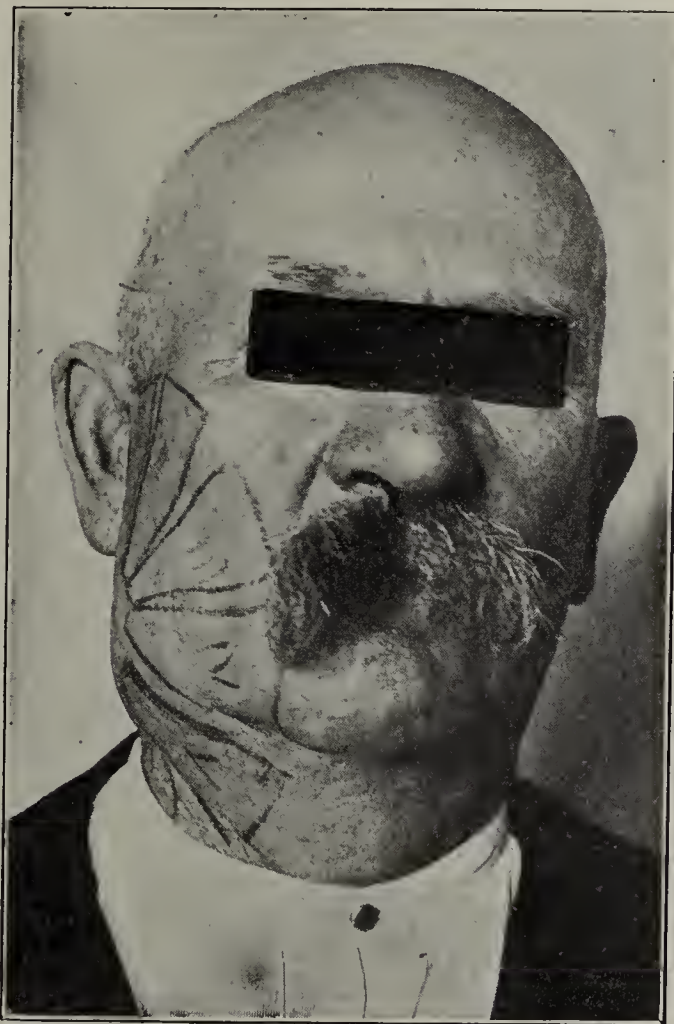


Fig. 7 (Case 13).—Sarcoma, March 26, 1914, before Roentgen treatment, showing part of the scheme of cross-fire.

26. Pfahler, G. E.: A Roentgen Ray Filter and a Universal Diaphragm and Protecting Screen, Arch. Physiol. Therapy, November, 1905.

Much of the good results in a case will depend on the skill and ingenuity with which the roentgenologist makes use of this principle of cross-firing.

Improvement in Equipment.—Until the past year it required ordinarily from twenty to forty minutes to give one of these full doses. It can be understood, therefore, how tedious it would have been to give forty such doses within a reasonable time, that it would have been exhausting to the patient, and probably not more than one dose could be given each day.

These disadvantages have been overcome, first by the invention of the Coolidge tube which permits the continuous use of large currents by means of which one can use a high degree of penetrating rays which can be kept constant. This invention has permitted the use of the transformer type of generator by which a large current can be utilized and therefore a large quantity of rays generated in a given time.

Stated briefly, my present technic in deep therapy involves the use of the Coolidge tube, excited by 5 milliamperes of continuous transformer current, with a resistance of 9-inch parallel spark gap, with the focal point 8 inches from the skin, run for five minutes and the rays filtered through 3 mm. of aluminum and one layer of sole leather, which gives approximately 20 x, or will double the tint B on the Sabouraud pastille placed at half distance. This means a double skin dose of filtered rays actually passing through each area of skin.

Interval Between Treatments.—In the very malignant patients I give my second series of doses over the affected area at the end of two weeks, the third series three weeks later, and the fourth series usually four weeks later. When the history points to a less rapidly growing disease, I prefer to allow three weeks' interval between each series, and when the disease has disappeared, or if there is any redness of the skin, I make the interval four or more weeks.

Skin Effects.—I try to avoid any damage to the skin whatever, and at present even with crowding of the treatments even though erythema does develop. When one is dealing with a disease which is certain to destroy the patient, I believe one is justified in crowding the treatments even though erythema does develop. When one is treating over the beard area or the scalp there is of course likelihood of producing alopecia. Telangiectasis is likely to develop in the skin after a year or more, provided a dermatitis has been produced, and when a dermatitis has been produced, atrophy is likely to follow.

A Dose.—A dose means all that the skin can stand without producing dermatitis. With unfiltered rays it means tint B of the Sabouraud pastille scale, or 10 x

of the Kienböck scale, or 5 H of the Holzknecht scale. When filtered rays are used and the measurement is made under the filters, this dose can be doubled, and that really means that five times the amount of rays are actually being produced, and it also means that five times the amount of rays reach the deeper tissues, for with the technic described above the skin dose with filters is obtained in one minute. It can be easily seen, therefore that to-day we are giving to the deeper tissues, in the treatment of malignant disease, hundreds of times more rays than were given in the days of fractional doses.

POSTOPERATIVE TREATMENT OF CARCINOMA

It is difficult to prove the exact value of postoperative treatment because some patients remain well from the operation alone, and up to the present time the postoperative treatment has been confined mostly to the more severe types, as is indicated in the recent paper by Rodman.²⁷ In other words, it has been used chiefly in the cases that would be expected to recur unless the rays can prevent it. Therefore, statistics of cases that have received postoperative treatment cannot be fairly compared with another list in which all types have been included.

I believe that all cases of malignancy should receive postoperative treatment, applied as soon after the operation as is possible, and with the full understanding that there is probably deep-seated disease present, and, therefore, treated by the principles covering deep technic; for instance, in the postoperative treatment of carcinoma of the breast, I send the rays through eight or ten different fields, and give from four to six such series three to four weeks apart.

The Use of Thyroid Extract.—During the past four years I have been administering, in most cases of car-

cinoma of the breast, small doses of thyroid extract, beginning with one-half grain three times a day, and at no time giving more than 2 grains three times a day. I give it on the theory that the application of the rays diminishes the normal thyroid secretion. I believe that this has increased my results. This has been more fully described in my paper before the international congress.⁶

CONCLUSIONS

1. Malignant disease that can be completely removed I believe should be dealt with surgically.
2. Each operation for malignant disease should be followed by postoperative treatment. The extent and character of this postoperative treatment will depend on the location of the disease.

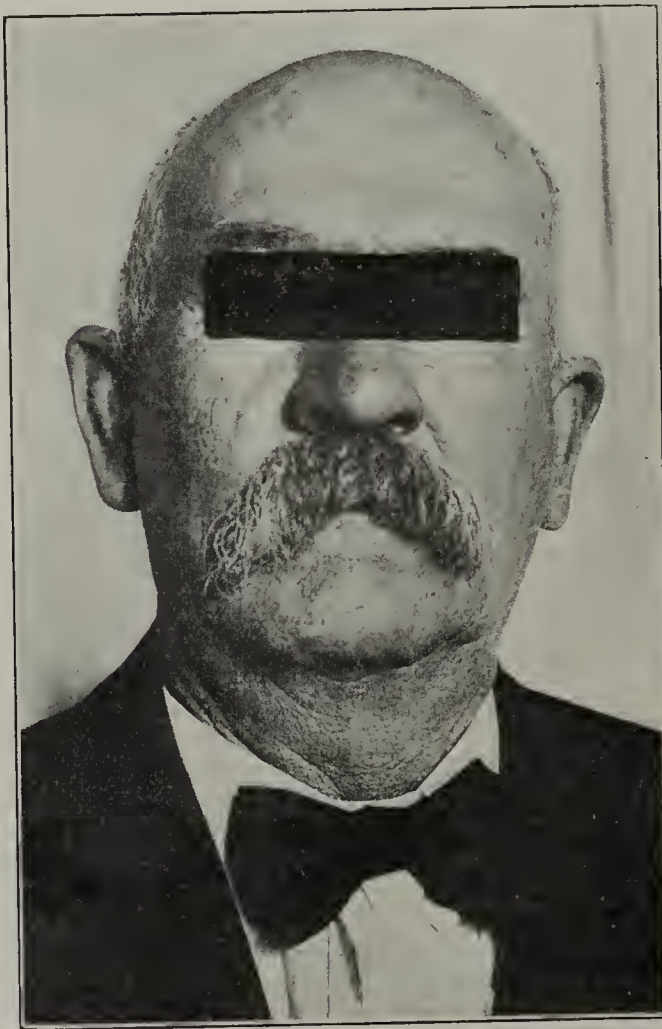


Fig. 8 (Case 13).—Two months after beginning treatment. No treatment after July, 1914. Patient still well, March, 1915.

27. Rodman, W. L.: Cancer of the Breast, THE JOURNAL A. M. A., Feb. 27, 1915, p. 707.

3. Where there is an absolute necessity for delay in operation from some other cause, the patient should be treated by means of the Roentgen rays, and this treatment should be directed toward the glandular area particularly.

4. Inoperable cases should always be given the benefit of the rays. Some of them will be removed and others made operable. Such treatment should be instituted at once and not as the patient approaches a dying condition.

5. Local recurrences yield to Roentgen therapy fairly well, and some of these patients I believe can be made permanently well.

6. Metastatic carcinoma, even when it affects the bones, has been shown to heal in at least one case which I reported.

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THE SUPRACLAVICULAR VENOUS PULSE IN MAN

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THE PRESSURE CHANGES IN THE AURICLE AND VEINS

If the slight pressure within the right auricle is recorded by a sensitive optically recording manometer of adequate efficiency, it is generally found that the pressure changes are composed of the following series of waves (Fig. 1 A).

A rise and fall (1, 2, 3) synchronous with auricular systole and diastole.

A sharp rise and fall (3, 4, 5) during early ventricular systole and apparently associated with the closure of the tricuspid valves or a movement of the auriculoventricular floor.

A slow stasis rise during ventricular systole (5, 6) sometimes marked at the closure of the semilunars by a notch or vibration at 6.

A diastolic rise continuing throughout systole of the ventricle.

It is evident that there are two main waves, an auricular or pre-systolic, and a sharp systolic wave, preceding the rise of the subclavian very definitely.

If the lateral pressure is recorded from an extrathoracic vein low in the neck in which the flow is not interrupted, the character of the waves changes (Fig. 1 B). The following waves are found:

A rise and fall (1, 2, 3) due to auricular systole and diastole. This is often preceded by a slight negativity.

A small notch (3, 4) corresponding to a similar rise in the auricle; but this is not followed by a sharp drop because it is cut short by a prominent elevation, *c*, which is exactly synchronous with the subclavian rise and therefore probably due to some arterial impact.

A late systolic rise and fall (to 6).

A diastolic rise (7) and fall (8).

If we label these waves consecutively, after the custom introduced by Mackenzie *a*, *c* and *v*, it is evident that:

1. The *a* wave within the extrathoracic veins is the homologue of the auricular wave (1, 2, 3) within the auricle.

2. The *c* wave is not the homologue of the systolic elevation of pressure within the auricle (3, 4, 5) due to movement of the *a-v* floor, for, (a) evidence of this wave, though much damped, is present in the tracings from the veins (3, 4) and the *c* wave occurs relatively later and *absolutely synchronous* with the subclavian rise.

3. After the first systolic elevation, the pressure in the veins mainly falls (*c* to 6), while in the auricle it rises (5-6).

The normal venous pulse can therefore not, as is currently stated, be regarded as an index of intra-auricular pressure. It follows the changes in intra-auricular pressure only during presystole and diastole—during systole the details of cardiac activity are obscured by the arterial impact.

THE DETAILS OF THE SUPRACLAVICULAR VENOUS PULSE IN MAN

If a receiving tambour be placed in the right supraclavicular fossa over the jugular bulb, a pure record from the internal jugular vein is not obtained, but a mixture of such a record with the pulsations from the subclavian or the carotid artery which are also located in the region covered by the tambour. Although the degree of pressure determines the extent of the arterial impact, optical tracings indicate that even with the lightest pressure of receiving tambour, the arterial element cannot be entirely eliminated.

The records from the supraclavicular region, however, are better suited to give pressure variations actually present in the auricle than are the records from veins less influenced by the impact of arteries but more distant from the heart. From the physical standpoint, the venous system is such a poor conducting system that every increase in the length of the venous column, every interpolation of valves and every augmentation of the damping by a stronger peripheral onflow, such as occurs when veins higher in the neck are selected, makes the recorded curve resemble less and less the true pressure variations near the heart. Since

the term "venous pulse" is applied to records from various regions under the impression that the same type of record is obtained from each, it seems desirable to differentiate these curves by the term, *supraclavicular venous pulse*.

If simultaneous tracings from the supraclavicular region are taken by tambours in close approximation, we are able to compare the venous pulse obtained by

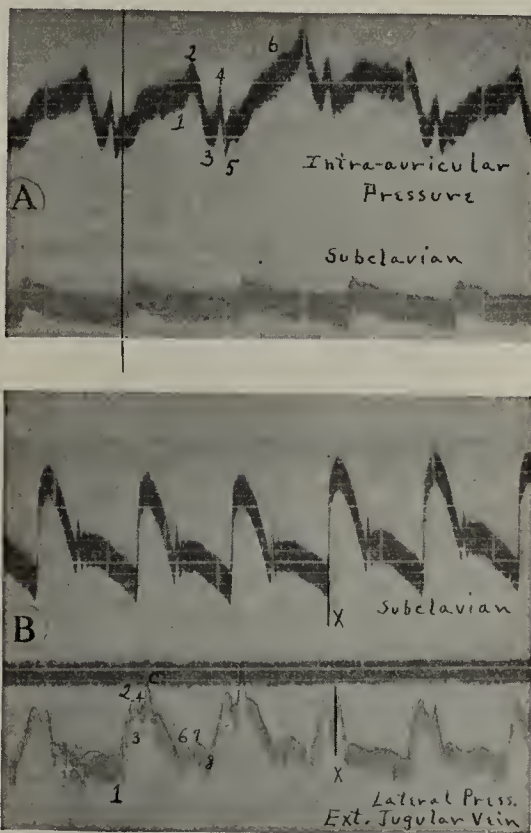


Fig. 1.—Records of intra-auricular pressure (A) and pressure in lower neck veins (B) recorded by sensitive venous manometer of adequate efficiency. Both curves compared with subclavian pressure changes. (Description in text.)

light pressure (upper) with the subclavian pulse obtained by heavy pressure (Fig. 2). The details of the latter correspond to a typical central pulse already described in a previous paper. The curve is useful, in this instance, as establishing with great exactness the onset of systole and diastole. A careful inspection makes it evident that such a record is not absolutely necessary, since the vibrations of the tricuspid and semilunar valves are often directly indicated on the venous record at *d* and *g*.

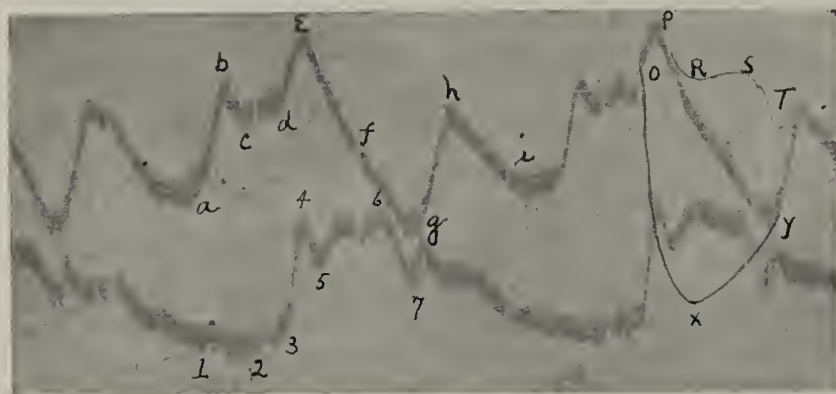


Fig. 2.—Simultaneous records of supraclavicular venous pulse (upper) and subclavian pulse (lower) in man. (Description in text.)

The supraclavicular tracing may therefore be divided into three periods, presystolic, systolic and diastolic. Each period contains, in hearts of average cycle length, one main wave, which may be designated as presystolic, systolic or diastolic, respectively. It can be seen that these correspond to the more familiar *a*, *c* and *v* waves of Mackenzie.

Presystolic Period.—The presystolic wave (*a* wave of Mackenzie) consists of a rise, *a-b*, and a fall, *b-c*. The rise is unquestionably due to auricular systole. The fall is commonly attributed to auricular diastole, for it is the only wave present when the auricle is beating alone after vagus block in animals.

Systolic Period.—The onset of ventricular systole is characterized by a preliminary rise of pressure (*c-d*) synchronous with the rise (2-3) of the subclavian record. This is interpreted as due to the closure of the tricuspid valves. It is the resultant of the sharp vibration recorded from the auricle at the beginning of systole. Absolutely synchronous with the rise of the subclavian at 3, occurs the rise *d-e* of the supraclavicular pulse obtained with light pressure. It is possible to ascribe this only to a direct impact of the underlying artery.

After reaching the summit at *e*, the pressure sharply falls until it changes its slope at *f*, or, in other cases, begins to ascend slightly. Reasoning from animal experiments, it may be inferred that the pressure within the auricle during this period follows the curve sketched in at *o-x-y*. The pressure first falls (*o-x*) and then slowly rises (*x-y*) because of stasis. Only when arterial beats are feeble, is a curve in any way corresponding to the auricular pressure curve obtained. Therefore, the entire wave (*d-e-f*) is an impact from the underlying artery, poorly recorded on account of the light pressure of the tambour. If the pressure is gradually increased, the contour of the curve changes

to correspond to the line drawn in at *R-S-T*, giving all the details of the typical subclavian pulse. It follows that, as a rule, the subclavian drop in pressure entirely overshadows the systolic rise of pressure in the auricle, and only rarely is the rise due to stasis obvious during the systole of healthy subjects.

Diastolic Period.—The wave *g-h-i* (*v* wave), as just pointed out, is, as a rule, entirely a diastolic affair.

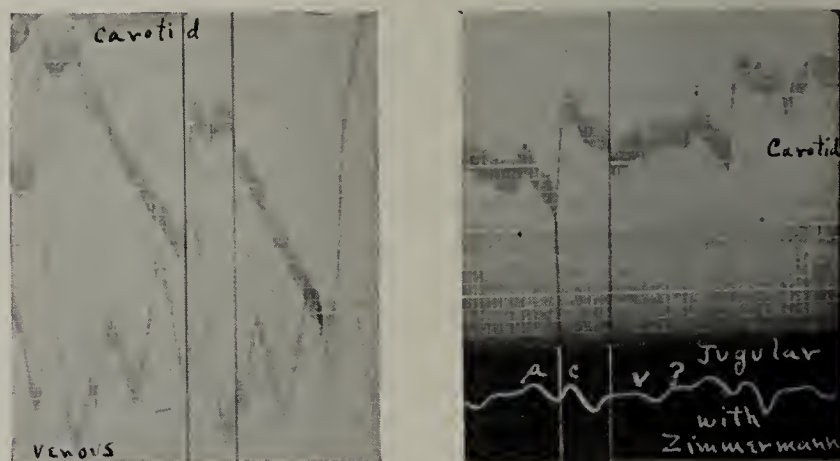


Fig. 3.—Two consecutive records of venous pulses recorded by optical segment capsules (left) and Zimmermann polygraph tambour (right).

Its fall after *h* occurs at the opening of the tricuspid valves. It remains questionable, however, whether the sudden rise, *g-h*, is merely a continuation of the auricular stasis wave, *x-y*, started during systole, or whether the upward movement of the auricle and large veins at the beginning of diastole may not definitely increase the volume of the veins.

MODIFICATION OF THE VENOUS PULSE BY POLYGRAPH TAMBOURS

It is of general interest to know how accurately the tambour levers of different polygraphs reproduce the variations of the venous pulse. For purposes of comparison with the mirror capsules, two procedures were employed. In some cases a record of the optical venous and radial were first recorded simultaneously, and then, without moving the apparatus, the same optical arterial curve was recorded simultaneously with the movements of a tambour lever projected on the photographic film. In other cases, three records were taken simultaneously, namely, an arterial, an optical supraclavicular venous and a tambour record from a place in the neck near by. The results of these two procedures were found to check very well. The records shown as Figures 3, 4 and 5 compare the optical tracings of the supraclavicular venous pulse with those taken by (a) the Mackenzie ink polygraph, (b) the Jacquet sphygmocardiograph and (c)

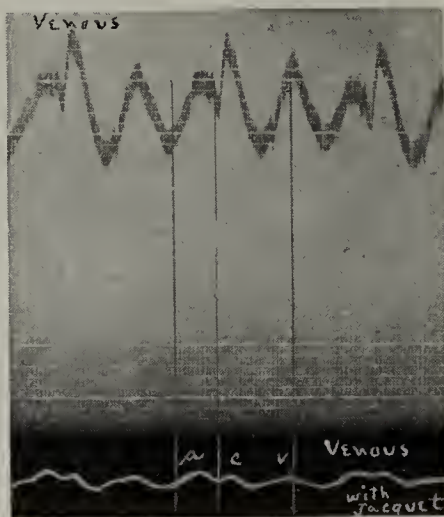


Fig. 4.—Simultaneous tracings of supraclavicular venous pulse by segment capsules (upper) and Jacquet polygraph tambour (lower).

the Zimmermann modification of the Uskoff sphygmotonomograph.

As is evident from the comparison of these tracings, the polygraphs in common use do not reproduce the details of the supraclavicular venous pulse accurately. The heart sound vibrations and the isometric interval are not recorded at all. Hence the exact onset and termination of ventricular systole cannot be directly established nor the A_s-V_s conduction time accurately

determined by them. The relative amplitude of waves is incorrectly reproduced, and their relative prominence is often entirely wrong. The curves are frequently complicated by waves which have no existence in the vein or underlying artery but are due to inherent vibrations of the lever. This is particularly true of the Mackenzie tambours and, to a less degree, of those belonging to the Zimmermann apparatus. These artificial waves (labeled? in the records) may come after the *c* wave, as in Figure 5, in which case they may be misinterpreted for *v* waves, or, in case of vigorous heart action, they may give rise to a bifurcated wave which has been variously interpreted but which is probably entirely an artefact; or these oscillations may come after the *v* wave (Fig. 3), in which case they have been interpreted as *h* or *b* waves. While undoubtedly such a late diastolic wave sometimes exists in the case of slow hearts, there can be no question that many waves so interpreted are nothing but artefacts of the lever vibration. If these possible errors are ruled out, however, by an adequate foresight and correlation with other evidences of cardiac activity, as has been so ably done by the leaders in cardiograph work, it is clear that the records of the polygraph reproduce, with a fair degree of accuracy, the onset of the auricular wave and the fall of the *v* wave—two important features of the venous pulse.

It is interesting to inquire how forms of apparatus of such low vibration frequency as is represented in these systems can record the details of the jugular pulse at all. This is due largely to the fact that the veins are transmitting systems of low efficiency and that the details of the intra-auricular waves are considerably distorted or even annulled by the time the oscillations reach the neck veins. To record the waves still present in these veins requires only an apparatus of relatively low efficiency.

Laundry Sterilization.—In New York City some experiments were made to determine the effect of the usual routine of laundry washing in sterilizing clothes contaminated with bacteria. The following tests were made: *B. prodigiosus* and *B. coli* were smeared directly on the garment; placed on squares of gauze and folded into muslin and sewed into the garment; placed on squares made of flannel blanket, folded into muslin and sewed into the garment. These garments were then placed in the center of the net bag containing other clothing and the usual washing process applied. When the garments were returned to the laboratory they were treated as follows: A sterile swab was dipped into sterile broth and rubbed vigorously over the inoculated surface of the garment. The squares of gauze and flannel were cut into small pieces with sterile scissors and inoculated directly into the mediums. Of 42 cultures on nutrient broth 41 were positive, but all of the prodigiosus cultures were negative for color. *B. coli* on Conradi was negative; on lactose neutral red fermentation tubes, 17 were positive for color and 3 for gas; 4 were negative for color. Plates made from wash and rinse water (poured agar plates) showed in one instance for 1 c.c., 2,772 colonies, with a smaller number for other specimens. The temperatures of last hot rinsing water were from 50 to 60 C.—*Weekly Bulletin* Department of Health.

THE QUESTION OF SPONTANEOUS CIRRHOSIS OF THE LIVER IN RABBITS AND OTHER LAB- ORATORY ANIMALS*

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In carrying on a series of experiments during the past three years on the experimental production of cirrhosis of the liver, I have from time to time noted statements by other workers that the ordinary laboratory animals, particularly the rabbit, are apt to show a spontaneous cirrhosis of the liver. In view of the importance of the question to others working along the same lines and along other lines where the spontaneous proliferation of connective tissue in these animals has an important bearing on results of experimental work, it seems as if a review of the literature and the results of my own findings might have some value.

Klopstock,¹ who did considerable work with rabbits in an endeavor to produce experimentally cirrhosis of the liver, stated that rabbits might show a spontaneous affection of the liver, with connective tissue proliferation, extensive enough to be considered a cirrhosis. Siegenbeck van Henkelom² expressed the same opinion.

Laffite³ mentions finding two cases of the disease in rabbits. Von Hanse- mann⁴ believed that a spontaneous tuberculosis could appear in guinea-pigs and produce cirrhosis of the liver.

Joannovics⁵ and Christian both say that occasionally one finds a cirrhotic condition of the liver in rabbits and guinea-pigs that have not been used for experimental work and were supposed to be healthy animals.

Robertson,⁷ in discussing a previous communication read at the meeting of the American Medical Association, said that at one time, in the Department of Pathology of the University

of Minnesota, work was started on experimental alcoholic cirrhosis and that it had to be abandoned, as far as using the rabbit went, because of the numerous sclerotic changes which occurred in this animal, not only in the vessels, but also in the liver, kidneys and heart.

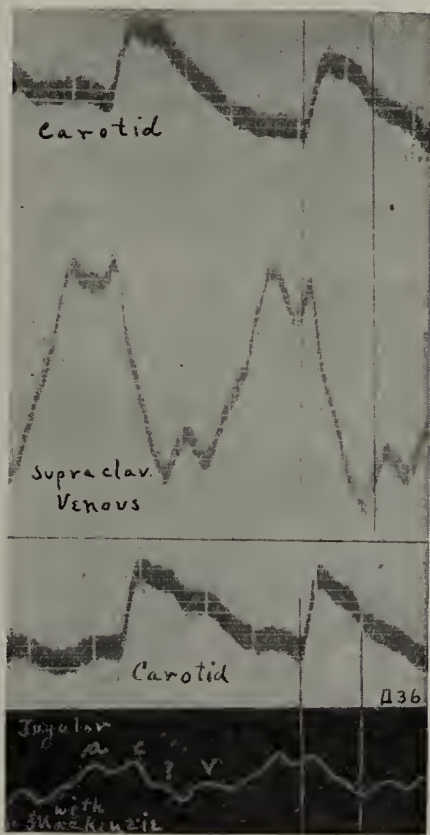


Fig. 5.—Two consecutive tracings of venous pulses first taken with optical segment capsules (upper) and then with tambour of Mackenzie ink polygraph (lower).

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1. Klopstock: Zur Lehre von der Lebercirrhose, Berl. klin. Wchnschr. 1910, Nos. 33 and 34.

2. Van Heukelom, Siegenbeck: Die experimentelle cirrhosis hepatitis, Ziegler's Beitr. z. path. Anat. u. z. allg. Path., 1896, xx.

3. Laffite: L'intoxication alcool, experimentale et la cirrhose de Laennec, Thèse de Paris, 1892.

4. Von Hanse- mann: Dissert. Verhandl. d. Deutsch. path. Gesellsch. 1904, viii.

5. Joannovics, Ueber experimentelle Lebercirrhose, Wien. klin. Wchnschr., 1904, xvii, 25.

6. Christian: Experimental Cardioresenal Disease, Arch. Int. Med., October, 1911, p. 468.

7. Robertson, H. E.: Discussion on Experimental Cirrhosis by Grover, THE JOURNAL A. M. A., 1913, Aug. 16, p. 461.

More lately Beitzke⁸ has reported two cases of spontaneous cirrhosis of the liver in rabbits. According to the illustrations accompanying the article, a marked degree of cirrhosis was obtained. The animals were of the series that Stillings previously used in his tumor transplantation experiments.

On the other hand, Saltykow⁹ and Lissauer¹⁰ say that they have both conducted a great many necropsies on rabbits but have never seen spontaneous cirrhosis. Such workers as Fahr,¹¹ Fischler,¹² Kretz,¹³ Ogata,¹⁴ Opie,¹⁵ and many others who have used rabbits very extensively in experimental work, make no mention of finding such conditions. Klopstock¹ and D'Amato¹⁶ report that an infection in the liver of dogs with coccidia may give a cirrhosis. Saltykow⁹ agrees with this.

During the last four years I have examined the livers from about three hundred rabbits. In every case careful microscopic examination has been made. In no instance has there been any evidence of what might be classed as a spontaneous cirrhosis. A cirrhotic reaction has been experimentally produced in ten cases by the use of alcohol, in one case by tying the common bile duct, in another case by the production of a pyemia, and finally in another case by chloroform intoxication. In this series are about twenty-five rabbits that died as a result of spontaneous infection with pyogenic bacteria. All showed extreme abscesses at necropsy. Three of these showed a well-marked proliferation of connective tissue in the interlobular spaces. In another case there was a marked infection of the liver with *Coccidia ovi-forme*. The accompanying photomicrograph shows two large cysts filled with coccidia and lying between them an area of liver tissue almost entirely obliterated by a dense area of fibrous connective tissue.



Two large liver cysts filled with coccidia, with an area of liver tissue between almost obliterated by dense fibrous connective tissue.

This series of rabbits is made up of animals from a great many sources. Many of them have been raised

in the laboratory and one would expect the result to be the same as in any other series of a similar size.

None of the authors quoted, except Beitzke,⁸ has given specific data. In his case the previous work done on the animals might easily have been complicated with a mild infection that was overlooked, or the transplanted tumor material may have introduced substances toxic enough to have produced a toxic form of cirrhosis. In our series no rabbit has been found that showed any evidence of cirrhotic changes in the liver except where such changes could be accounted for by experimental work or by infection present at the time. From the light of our experience we believe that the cases previously reported can be explained on the ground that either some infection present in the animal at the time had been overlooked, or else such an infection had been present previously and was healed. If the latter condition is the case, it seems that the percentage of its occurrence is not high enough in the least to affect the value of the rabbit as an animal for use in the laboratory for experimental work on cirrhosis of the liver; for if such a condition should occur in a large percentage of rabbits, it would certainly have appeared in our three hundred. Regarding the other laboratory animals, we have never seen a case of cirrhosis in a guinea-pig in a series of several hundred necropsies. As to the dog, our experience is too limited to be of value.

To sum up, we would consider that, so far, not sufficient evidence has ever been brought forward to invalidate the use of animals in experimental work on liver cirrhosis.

The Transmission of Disease.—

Though this is of such vast import, it has received little investigation in the past. To the middle of last century, inquiries had led little further than the subsistence of the subject—we distinguished, classified and named our various bodily afflictions. We also did more: for we had ascertained empirically the physiologic and therapeutic effect of many drugs—quinin, opium, mercury, iodid of potassium, ipecacuanha, and others; and also that great genius Jenner had discovered a wonderful fact which is at the basis of the theory of immunity, prevention, and cure. But the causes of disease and their mode of transference still remained hidden. At that epoch, however, and afterwards Pasteur, Koch, Lister, Behring and others created the science of bacteriology. But still, though the information thus obtained was of prime importance to the pathologist, the physician, and the surgeon, we still remained much in the dark regarding one important issue, namely, the exact path of transmission of many diseases from man to man. Bacteria are easily saprophytic and may have many paths of transmission, and I fear that we are still very much in doubt as to the most important of these numerous routes.—Ronald Ross, *Lancet*, London.

8. Beitzke, H.: Ueber spontan Cirrhose der Leber in Kaninchen Zentralbl. f. allg. Path. u. path. Anat., 1914, xxv, No. 14.

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13. Kretz, R.: Ueber Lebercirrhose, Wien. klin. Wchnschr., 1900, No. 12, p. 27; Lebercirrhose, Verhandl. d. Deutsch. path. Gesellsch., 1904, viii.

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15. Opie: Studies from the Rockefeller Institute for Medical Research, 1910, xi, 367.

16. D'Amato: Ueber experimentelle, vom Magendarmkanal aus hervorgerufene Veränderungen der Leber und über die dabei gefundenen Veränderungen der übrigen Bauchorgane, Virchows Arch. f. Path. Anat., 1907, clxxxvii.

ACTION OF THE OPIUM ALKALOIDS

INDIVIDUALLY AND IN COMBINATION WITH EACH OTHER
ON THE CORONARY ARTERY AND THE CORONARY CIRCULATION *

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Although opium and its derivatives are not classed by pharmacologists with the so-called "cardiac" drugs, every practitioner can testify to their value in the treatment of cardiac and vascular conditions. All the great clinical authorities concede to morphin an undisputed place in the armamentarium of cardiac therapy. Osler,¹ for instance, speaks of it, for nocturnal dyspnea, restlessness and distressing feelings of anxiety, as "invaluable," and in angina pectoris, it is put second only to the volatile nitrites. Indeed, Krehl² places it first, when he says, "In severe cases morphin is indispensable; in selected cases amyl nitrite and nitroglycerin are of help."³ The general impression seems to be that the opiates in heart disease do not act on the heart and vessels themselves, but indirectly through quieting the nervous system. The evidence for this theory is chiefly empirical, and considering the importance of opium in the Pharmacopeia, it is surprising to find how few experimental data there are in the literature on the action of that drug on the circulation. Since the classical work of von Schröder,⁴ little attention has been paid to the subject. A further investigation along these lines seems to be very desirable for several reasons.

In the first place, it is important to learn the action of opium and its derivatives on the heart and blood vessels by means of more recent and more exact pharmacologic methods.

In the second place, opium has been found to be the nidus of twenty-two or more alkaloids, at least a half dozen of which are present in sufficient quantities to produce definite pharmacodynamic effects. How do each of these act on the heart or vessels, and which of them is to be preferred in various cardiovascular conditions?

In the third place, the work of Straub,⁵ Bürgi,⁶ Faust⁷ and others, indicates that combinations of two or more drugs may sometimes produce pharmacologic effects very different from that of individual drugs; that two drugs may, to use a technical expression, potentiate or antagonize each other's action. Therefore, in choosing from the numerous combinations of opium alkaloids now on the market, it is necessary to bear these synergistic and antagonistic phenomena in mind.

The author has been for some time engaged in the study of the action of the opium alkaloids on the circulation, and in this paper proposes to report his work on one of the least familiar phases of the subject, namely, the action of these alkaloids individually and in combination with each other on the coronary arteries and coronary circulation.

METHODS OF STUDY

The effect of drugs on the coronary circulation has been studied in different ways. Broadly, the various methods may be divided into three classes: first, the oldest method of all, by perfusion of excised hearts; second, by studying the effect of drugs on excised arterial rings or strips, and third, by observing the effect of drugs on the coronary circulation in the living animal, with the opened chest and heart *in situ*. Each of these methods, as will be seen later, has its advantages, and each is also liable to errors and exposed to various objections. As far as I am aware, no systematic study of the pharmacologic action of the opium alkaloids on the coronary has been made by any of these methods. In the present research the subject was studied by all three methods.

I. THE METHOD OF ARTERIAL RINGS

This method of studying the action of drugs on arteries was originated by O. B. Meyer,⁸ who, however, did not study the coronary artery. It was employed for studying

the effect of epinephrin on the coronary by Langendorff⁹ in 1906, Barbour,¹⁰ and Janeway and Parks¹¹ in 1912, and in studying the action of the nitrites and the digitalis group of drugs by Voegtlin and Macht¹² in

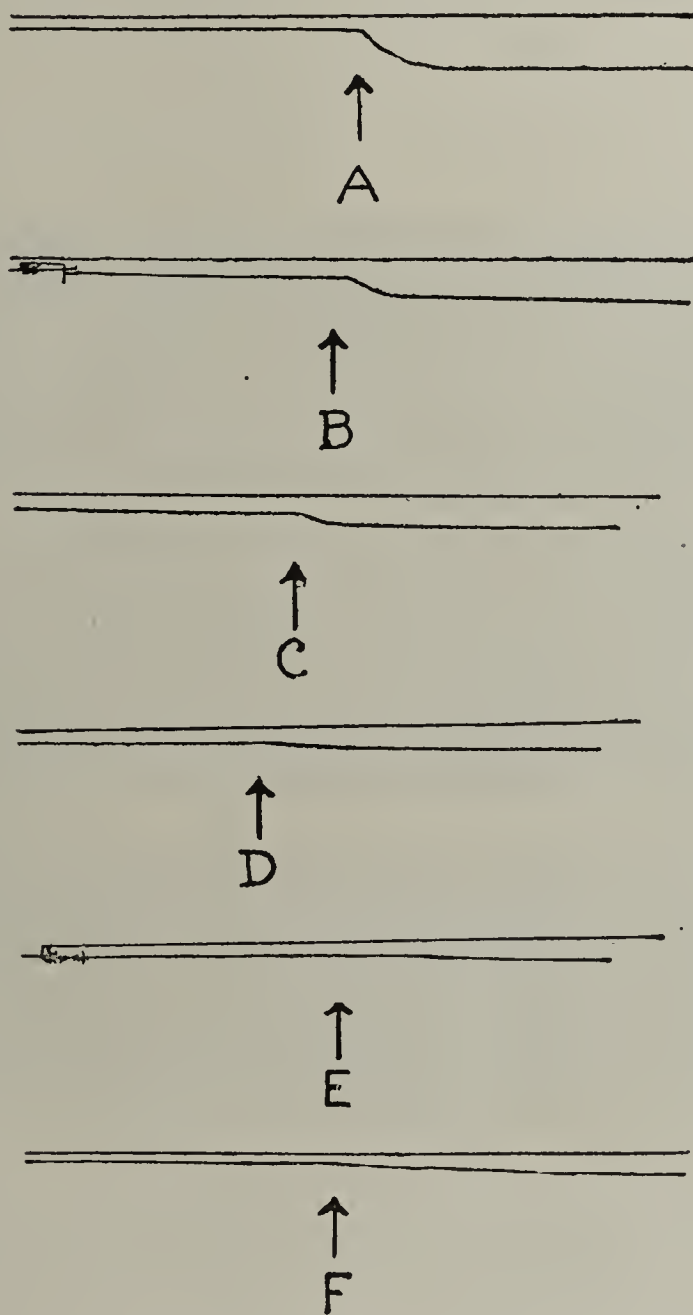


Fig. 1.—Action of opium alkaloids on rings of a freshly excised pig's coronary artery. Size of rings exactly the same in each case. Stretching weights, 30 gm.; lifting weights, 16 gm.; speed of drum, one revolution in twelve hours. Curve down indicates relaxation. A, effect of 10 mg. narcotin hydrochlorid; B, effect of 10 mg. papaverin hydrochlorid; C, effect of 10 mg. morphin sulphate; D, effect of 10 mg. codein sulphate; E, effect of 10 mg. thebain hydrochlorid; F, effect of 10 mg. narcein.

* This investigation has been endowed by a grant from the American Medical Association through the Council on Pharmacy and Chemistry.

* From the Departments of Medicine and Pharmacology, Johns Hopkins University.

1. Osler: Practice of Medicine, 1913.

2. Von Krehl, in Van Mehning: Lehrbuch der inneren Medizin, 1914.

3. "In schweren Fällen ist Morphin nicht zu entbehren, in einzelnen Fällen hilft Amylnitrit oder Nitroglycerin."

4. Von Schröder: Arch. f. exper. Path. u. Pharmacol., xvii, 96.

5. Straub: Biochem. Ztschr., 1912, xli, 419.

6. Bürgi: Deutsch. med. Wchnschr., 1910, Nos. 1 and 2.

7. Faust: München. med. Wchnschr., 1912, lix, 2489.

8. Meyer, O. B.: Ztschr. f. Biol., 1906, xlviii, 352.

9. Langendorff: Centralbl. f. Physiol., 1905, xxi, 551.

10. Barbour: Jour. Exper. Med., 1912, xv, 404.

11. Janeway and Parks: Jour. Exper. Med., 1912, xvi, 541.

12. Voegtlin and Macht: Jour. Pharmacol. and Exper. Therap., 1913, v, 77.

1913. Our method, described fully elsewhere, was briefly as follows:

METHOD

Rings of the coronary arteries of the pig were used. Although it has been shown that the arteries may be kept alive for more than a day under proper conditions, the best results are obtained by using fresh arteries, as soon as possible after the animal is slaughtered. Great care must also be taken in dissecting the arteries from the heart, not to overstretch or tear them. The artery is cut in rings about 2 mm. thick, and two or three of these rings are joined together in tandem fashion. A single ring would be sufficient to show a change, but by taking chains of two, three or four, the variation in the caliber of the vessels is magnified. The preparation is suspended in a small glass chamber, filled with warm Locke's solution at the temperature of 37 C. (98.6 F.) through which a constant stream of oxygen is kept bubbling. In case of narcotin, Ringer's solution must be used, instead of the alkaline Locke, which precipitates the alkaloid. One end of the chain of rings is fixed to the bottom of the chamber, while the other is connected to the short arm of the lever. The whole apparatus is immersed in a water bath or jacket for regulating the temperature. Great care must be taken to keep the temperature and flow of oxygen constant. The Locke's solution should be prepared with glass-distilled water to eliminate all metals that may be in the solution.

Perhaps the most difficult part of the experiment is the so-called "weighting" of the preparation. The artery when excised is in permanent tonus, and this tonus must be overcome before its reaction to drugs can be studied. To do this a stretching load is attached to the long arm of the lever, and the artery weighted or stretched until the tonus is overcome. This usually takes about twenty minutes or more, and the load varies with the thickness and the number of the rings used. After the artery has been relaxed, the stretching weight is taken off, and a permanent or lifting weight is attached. The size of the lifting weight will also vary with the preparation used. After the lifting weight has been put on and the elasticity of the artery has come to an equilibrium, the preparation is ready for testing, by removing the Locke's solution, and introducing in its place the substances to be tested, dissolved in oxygenated Locke's at 37 C.

It is well to emphasize in this place that the experiment though simple is a rather difficult one, and

requires practice to insure its proper working, so that a negative result—that is, an artery which does not respond at all—is generally of no value, unless repeatedly confirmed.

The optimum condition of tonus for each preparation has to be determined in each case by selecting the proper weights.

ALKALOIDS STUDIED

According to Winterstein and Trier,¹³ there are contained in opium, beside protein matter, sugar, gum, resins, salts of various kinds and organic acids—twenty-two alkaloids. Some of these alkaloids are present only in minute quantities. The six principal alkaloids in point of quantity and probably also of pharmacologic importance, are morphin, narcotin, papaverin, codein, narcein and thebain. These were the chief alkaloids studied in the present investigation. According to Simon,¹⁴ their

quantitative proportions in opium are on the average as follows:

Morphin	about 10.0 per cent.
Narcotin	about 6.0 per cent.
Papaverin	about 0.1 per cent.
Codein	about 0.03 per cent.
Narcein	about 0.02 per cent.
Thebain	about 0.01 per cent.

In other words, this means that an average therapeutic dose of opium of about 0.1 gm. contains

0.01 gm. of morphin
0.006 gm. of narcotin
0.0001 gm. of papaverin
0.00003 gm. of codein
0.00002 gm. of narcein
0.00001 gm. of thebain

PURITY OF THE ALKALOIDS TESTED

Inasmuch as the present investigation deals with the action of individual alkaloids and of some of their mixtures, it was especially desirable to experiment with pure substances. I have made my observations with alkaloids sold on the market as chemically pure. Samples of these alkaloids were sent for analysis to Dr. W. A. Puckner of the Chemical Laboratory of the American Medical Association. The complete data of these analyses will be published

later in a more technical paper on the action of opium alkaloids on the circulation in general. Suffice it here to state that so far the analyses have shown that the percentage of impurities in the alkaloids used was too small to produce any appreciable physiologic difference.

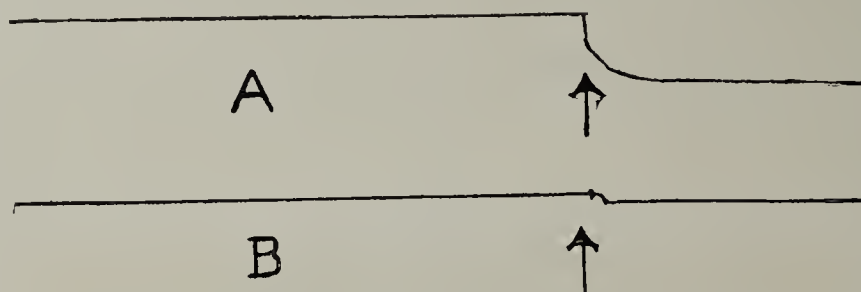


Fig. 2.—Pig's coronary artery suspended in a mixture of pig's blood serum and Locke solution. Stretching weight, 30 gm.; lifting weight, 18 gm. A, effect of 1 mg. of papaverin hydrochlorid; B, effect of 1 mg. of morphin sulphate, indicated by the arrow.

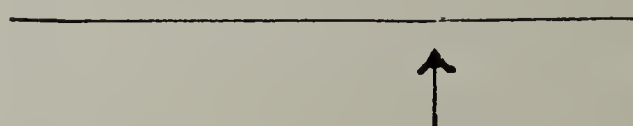


Fig. 3.—Pig's coronary artery. Stretching weight, 25 gm.; lifting weight, 11 gm. in Ringer's solution, showing how a combination of morphin and narcotin, indicated by the arrow, in the ratio of 10:6 antagonize each other.

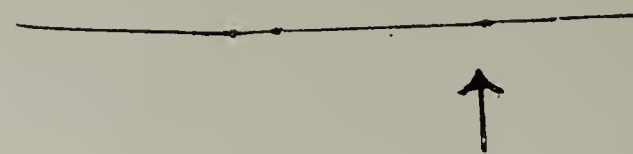


Fig. 4.—Pig's coronary. Stretching weight, 30 gm.; lifting weight, 16 gm. in serum Ringer, showing how morphin and papaverin, indicated by the arrow, antagonize each other.

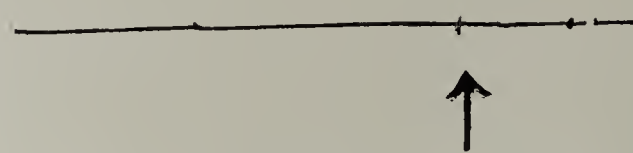


Fig. 5.—Pig's coronary. Stretching weight, 30 gm.; lifting weight, 16 gm. in serum Ringer, showing how codein and narcotin, indicated by the arrow, antagonize each other.

13. Winterstein and Trier: Die Alkaloide, Berlin, 1910.

14. Simon: Diss., Bern, 1903.

RESULTS

Of the six alkaloids mentioned above it was found that some produced dilatation of the coronary artery and some did not. Morphin was found to produce a moderate dilatation of the coronary, narcotin a still greater dilatation, and papaverin the greatest. Codein was found to produce much less dilatation or relaxation of the coronary; narcein hardly any dilatation, and thebain none at all. Heroin was found to behave practically the same as codein in this respect.

It has been shown by O'Connor,¹⁵ Voegtlin and Macht,¹⁶ and others, that normal blood serum contains vasoconstricting substances which maintain the blood vessels in a state of greater or less tonicity. It was interesting to determine whether such substances would inhibit or mask the action of the opium alkaloids noted above. The experiments were accordingly repeated by suspending arterial rings in serum instead of plain Ringer or Locke solutions.

It was found that exactly the same effect was produced. Figure 1 will illustrate the action of the alkaloids just mentioned.

It was found that comparatively small (therapeutic) doses of the alkaloids produced the relaxation described. Thus in the case of papaverin hydrochlorid, 1 mg. of the alkaloid in 100 c.c. of solution (= 0.001 per cent.) gave a distinct dilatation (Fig. 2).

ACTION OF COMBINED
ALKALOIDS

It is a well-known fact that the pharmacologic action of opium as such and of its principal constituent morphin are in some respects different, and that for therapeutic purposes sometimes one is indicated, sometimes the other. Thus, for instance, in intestinal disturbances, opium is found to act more favorably, and again in regard to the respiratory center, a dose of opium will be less depressant than an equivalent dose of morphin. This difference does not seem to be due to the inert and non-alkaloid constituents of opium; at least, it is asserted that a similar difference exists in the extracted mixture of opium alkaloids introduced by Sahli. The German pharmacologist Straub has recently advanced the theory, based on experimental work, that the difference between the pharmacologic action of morphin and opium is due to the presence of narcotin in the latter. Straub asserts that not only does the combination of morphin with narcotin (which he regards as a very little active alkaloid) produce a

pharmacologic effect different from that of the sum of its components, but also that the action of morphin is "potentiated" or many times enhanced by the inactive narcotin. Thus small doses of morphin will, according to him, exhibit greater narcotic power through the addition of narcotin; and again, the depressant effect of morphin on the respiratory center is decreased by small quantities of narcotin. As a result of this work, Straub introduced a combination of morphin and narcotin salts of meconic acid. Faust also studied various combinations of opium alkaloids. Whether the pharmacodynamic effect of combinations of opium alkaloids is a summation or potentiation of their individual properties is of little importance; but the fact that such combinations do act differently from the individual components is of importance and requires further study.

In regard to the coronary circulation a very inter-

esting phenomenon was noted in this connection. As has been stated above, morphin has a slightly dilator effect on the coronary artery. Narcotin was found to have a marked dilator action on the same. Now, if we test the effect of a combination of morphin and narcotin in the proportion of about 1 : 1 or 5 : 3, which is approximately their proportion in opium, this does not give a greater dilatation effect, but to the contrary, the vessel is affected very little or not at all. If the proportion of narcotin in the mixture is increased, a slight dilatation will be produced. In a similar manner a combination of morphin with the markedly dilating papaverin in the ratio of 10 : 1 or less will result in little or no dilatation. On the other hand, a combination of morphin with codein, or of narcotin with papaverin, will produce a

vasodilatation (Figs. 3, 4 and 5). It will be thus seen that in respect to the coronary arteries there seems to be a somewhat antagonistic action between morphin and codein on the one hand and narcotin and papaverin on the other.

In this place I may state that a similar effect has been noted by me on other vessels.

Sahli's combination of the total opium alkaloids was found to exert a very slight vasodilator action on the coronary.

The combinations recommended by Faust were also found to have very little influence on the coronary artery.

The first combination consists of morphin, 10 mg.; narcotin, 6 mg.; codein, 1 mg.; papaverin, 2 mg.; thebain, 0.5 mg., and narcein, 0.5 mg.

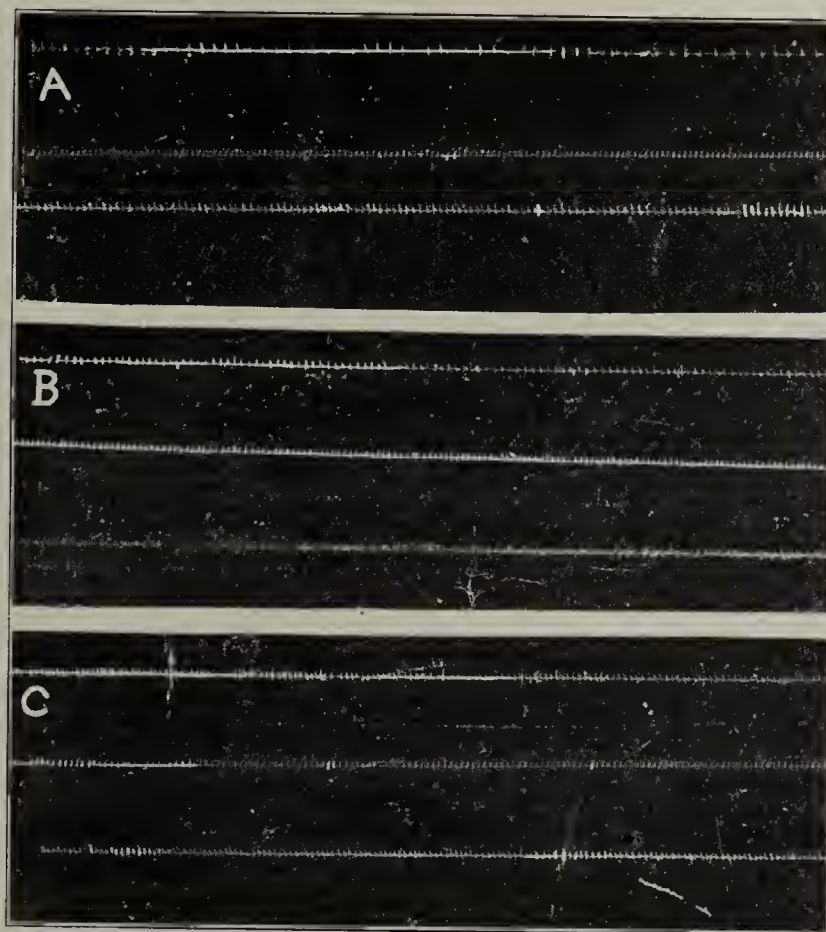


Fig. 6.—Perfusion of pig's heart with opium alkaloids by Krafkoff's method. *A*, upper line, drop outflow of normal Locke solution; middle line, time in seconds; lower line, perfusion with solution of morphin sulphate, 0.02 per cent. *B*, upper line, normal Locke; middle line, time in seconds; lower line, perfusion with papaverin hydrochlorid in Locke, 0.02 per cent. *C*, upper line, normal Locke; middle line, time in seconds; lower line, perfusion with mixture of morphin and papaverin, 0.02 per cent.

15. O'Connor: Arch. f. exper. Path. u. Pharmacol., 1911, lxvii, 195.
16. Voegtlin, Carl, and Macht, D. I.: Isolation of a New Vasoconstrictor Substance from the Blood and the Adrenal Cortex, THE JOURNAL A. M. A., Dec. 13, 1913, p. 2136.

The second combination consists of morphin, 10 mg.; narcotin, 2 mg.; codein, 1 mg.; papaverin, 0.1 mg.; thebain, 0.5 mg., and narcein, 0.1 mg.

These combinations were made up in the laboratory in the foregoing proportions from the purest alkaloids available.

II. EXPERIMENTS ON EXCISED HEARTS

The advantage of the arterial ring method of studying the coronary circulation is of course the fact that it gives us the effect of the drug directly on the wall of the artery and the nerve elements in it, without interference by other factors. This very circumstance discloses, however, its chief disadvantage, namely, that it is more or less artificial, so that one is not quite warranted, without other corroborative evidence, in concluding that the same conditions hold good in the intact animal.

I have accordingly made a number of observations on the coronary outflow in intact but excised hearts. This method of studying the behavior of the coronaries is the oldest of all. Thus, Hedbom,¹⁷ in 1899, by perfusion of the mammalian heart, concluded that caffeine, atropin and quinin act as dilators of the coronary vessels. O. Loeb,¹⁸ in 1903, used a similar method, but with different results; and Wiggers,¹⁹ in 1909, used such a perfusion method for studying the action of epinephrin. On reviewing the work of these observers it is found that their conclusions are conflicting with each other, as the method is exposed to several sources of error.

A much better method has been recently described by the Russian pharmacologist Krafkoff,²⁰ and is the one used in the present work. The procedure is briefly the perfusion of the coronary artery directly by inserting a cannula into it, in the still surviving heart.

This method, while also extracorporeal, gives us the effect on the coronary artery *in situ*, and also on the longitudinal muscle fibers in its walls. The results agreed exactly with those found with arterial rings, as well be seen from Figure 6 and the protocols.

PROTOCOL 1.—Experiment: Perfusion of Pig's Coronary Artery by Krafkoff's Method.

A. Perfusion with normal Locke Solution. Rate of outflow: 11 drops per 30 seconds.

Perfusion with morphin sulphate, 0.02 per cent., in Locke solution. Rate of outflow: 19 drops per 30 seconds.

B. Perfusion with normal Locke solution. Rate of outflow: 7 drops per 30 seconds.

Perfusion with narcotin hydrochlorid, 0.02 per cent. solution, in Locke. Rate of outflow: 30 drops per 30 seconds.

C. Perfusion with normal Locke solution. Rate of outflow: 11 drops per 30 seconds.

Perfusion with 0.02 mixture of equal parts of morphin sulphate and narcotin hydrochlorid. Rate of outflow: 11 drops per 30 seconds.

III. EXPERIMENTS ON THE INTACT ANIMAL

The behavior of alkaloids on arterial rings and on perfused mammalian hearts having been studied, it was very desirable to ascertain whether or not their action was the same in the intact animal with its heart *in situ* and its blood in circulation, for this would really approximate most to the behavior of the coronary circulation in chemical cases.

An attempt to do so was first made by François Frank²¹ in 1903, who employed the method of instantaneous photography of the superficial arteries of the heart, and observed a marked dilatation following intratracheal insufflation of amyl nitrite.

Bond,²² in 1910, studied the coronary circulation with the heart *in situ* by measuring the drop-flow of blood from a wounded coronary vein, before and after injection of drugs. The method is an excellent one, but had one chief drawback: In order to prevent clotting of the blood, Bond bled his animals to a great

extent and replaced the blood with normal saline solution. Inasmuch as we know now that blood serum contains vasoconstricting and other substances which play an important rôle in the circulation, the conditions in his experiments were also abnormal.

In order to eliminate this source of error, I have studied the coronary circulation by a modification of Bond's method, namely, by rendering the blood of the animal incoagulable by means of herudin. The procedure was, briefly, as follows:

A cat was anesthetized with ether, its chest carefully opened and artificial respiration kept up. Through a cannula inserted in the jugular vein, herudin was injected. The pericardium was then opened and the animal suspended in the prone position or face downward. A small incision was then carefully made in the descending ramus of the left coronary vein. As the vein is very thin and contains very little contractile tissue, it is not necessary to insert a cannula to get a constant flow of blood. The drop flow of blood in the

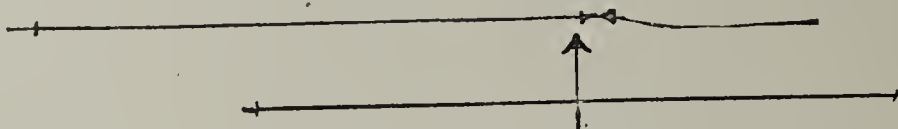


Fig. 7.—Human coronary from a female patient aged 27, who died of gastric ulcer and nephritis. Eight hours post mortem; showing relaxation produced by papaverin hydrochlorid, indicated by the arrow. Lower line is the reference line.

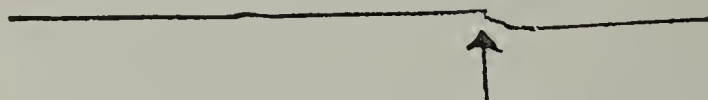


Fig. 8.—Pig's coronary. Stretching weight, 25 gm.; lifting weight, 12 gm., showing dilatation produced by papaverin plus caffeine, indicated by arrow.

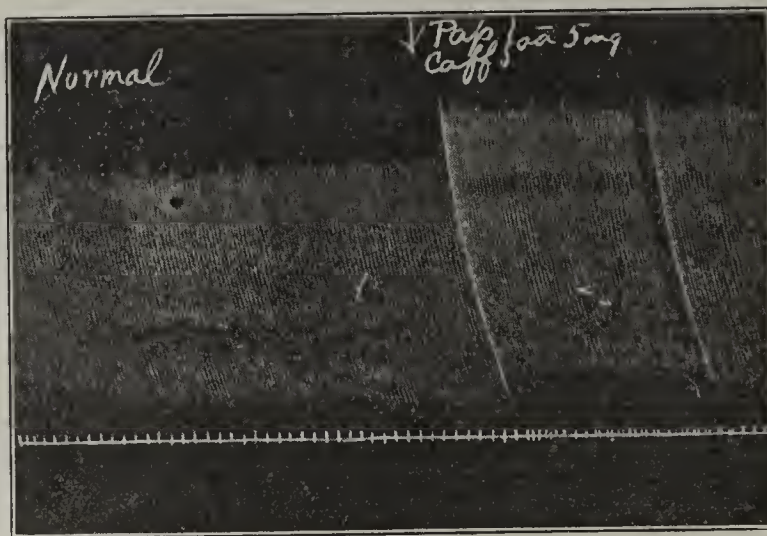


Fig. 9.—Cardiograph tracing of cat's heart. Up stroke, systole. Note increased contraction and toxicity after injection of papaverin plus caffeine, of each, 5 mg.

17. Hedbom: Skand. Arch. f. Physiol., 1899, viii and ix,

18. Loeb, O.: Arch. f. exper. Path. u. Pharmacol., 1903, li, 64.

19. Wiggers: Am. Jour. Physiol., 1909, xxiv, 391.

20. Krafkoff: Arch. f. d. ges. Physiol. (Pflüger's), 1914, clvii, 501.

21. Frank, François: Compt. rend. Soc. de biol., 1903, lv, 1448.

22. Bond: Jour. Exper. Med., 1910, xii, 575.

herudinized animal was then noted and automatically registered, before and after injection of drugs. The results of these experiments agreed with the observations made by the other methods, as may be illustrated by the following protocol:

PROTOCOL 2.—Experiment, Dec. 22, 1914. Cat, weighing 2.5 kg., under ether anesthesia, was injected with 20 c.c. herudin. Normal outflow of blood: 10 to 12 drops per minute. Morphine sulphate, 4 mg., was injected. Flow of blood: 15 drops per minute. Ten minutes later 8 mg. of a mixture of morphine and narcotin were injected. Flow of blood: 11 drops per minute. Three minutes later, flow of blood: 8 drops per minute.

Eight mg. of papaverin hydrochlorid were then injected. Flow of blood increased from 8 drops to 18 drops per minute. Three minutes later flow of blood: 26 drops per minute.

While these experiments were in progress, it was interesting to find that two other observers, Morawitz and Zahn,²³ have recently also used herudin in studying the physiology of the coronary circulation. Their method was, however, a different one, namely, by clamping off an auricle and inserting a cannula into the coronary sinus, and they did not study the effect of opium alkaloids.

ACTION ON THE HUMAN CORONARY

It was gratifying to find that the results of the observations on the coronary circulation in excised hearts and in the herudinized animals with their circulation intact were in complete agreement with those on excised arterial rings, for the ring method is the only one that can be applied to the human being. I called attention elsewhere²⁴ to the fact that the pulmonary artery of man when excised soon after death and kept in a suitable medium can be shown to be alive many days later. This holds true, though not to so great an extent, for the human coronary artery. I have succeeded in showing the dilator effect of papaverin, for instance, on the human coronary artery, as shown by Figure 7.

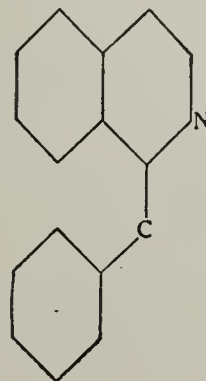
ANALYSIS AND COMMENT

From the observations described above it will be seen that the various alkaloids of opium studied affect the coronary artery and coronary circulation differently. Morphine, the principal opium alkaloid, produces a mild relaxation or dilatation of the coronary artery and an increase in the coronary outflow; narcotin produces the same effect in a greater degree, and papaverin gives certainly the most marked vasodilator action of them all. On the other hand, the vasodilator effect of codein on the coronary is very slight, and that of narcein and thebain practically none at all. A most interesting phenomenon noted is the peculiar result of the synergism, or antagonism, as we might perhaps better call it, of morphine and narcotin. A combination of these two alkaloids instead of producing a vasodilatation, as might a priori be expected, produces practically no dilator effect at all. This is interesting in connection with the peculiar synergism of morphine and narcotin on respiration and other physiologic processes described by Straub, who worked with a combination of the two alkaloids. Strange to note, however, Straub from his writings seems to regard narcotin as a practically inert substance, and speaks of the morphine effect being enhanced, or to use his expression, "potentiated" by the addition of the inert narcotin. Such does not seem to be the case, judging

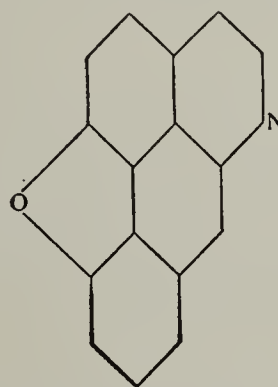
from the present work. In my experiments, I have found that narcotin is by no means an inert drug, but is quite toxic to the heart, respiration and other physiologic functions. The effect of combining morphine and narcotin seems to be rather a true synergism in which the two components play equally important parts. To a lesser extent a similar synergism has been noted between morphine and papaverin, and codein and narcotin.

If we inquire into the chemical constitution of the opium alkaloids studied, we find that they are divided into two great classes.

On the one hand we have the papaverin class, to which papaverin, narcotin and narcein belong, and which is characterized by containing the benzyl—isoquinolin group.



On the other hand, we have the morphine class, to which morphine, codein and thebain belong, and which is characterized by containing the pyridin—phenanthrene group.



It would thus seem that the peculiar synergism just referred to is produced by a combination of members belonging to opposite chemical groups.

The commercial combinations of opium alkaloids of Straub and of Sahli were found to produce very little vasomotor change in the coronary circulation.

It is hardly necessary to declare that these differences in the behavior of the different alkaloids may be of practical importance. Thus, for instance, in cases of coronary spasm, which is regarded as the commonest cause of angina pectoris, an opiate possessing a marked vasodilator action would certainly be preferable. J. Pal of Vienna, who has worked a great deal with papaverin, has actually recommended and employed that drug in angina pectoris²⁵ and other conditions with vascular spasm.²⁶ In choosing a suitable drug, other factors are, however, to be borne in mind. The principal other factors to be considered in the case of an opiate are its narcotic and analgesic action, its effect on the respiratory center, and its effect on the heart.

In respect to narcosis and analgesia of the six alkaloids studied, narcein and thebain fall out of consideration. These alkaloids, though derived from opium, have no sedative action. Indeed, thebain is a convul-

23. Morawitz and Zahn: Deutsch. Arch. f. klin. Med., 1914, cxvi, 364.
24. Macht: Jour. Pharmacol. and Exper. Therap., 1914, vi, 13.

25. Pal, J.: Deutsch. med. Wchnschr., 1913, p. 2068.
26. Pal, J.: Wien. med. Wchnschr., 1913, No. 39.

sant much like strychnin, and narcein has also an exciting rather than sedative influence on the central nervous system. Narcotin also has very little effect on pain. Of the three other alkaloids remaining, the narcotic and analgesic properties of morphin and codein are too well known to need reiteration. It is not generally known, however, that papaverin is quite an efficient drug in this respect, though attention was called to that effect by Baxt²⁷ as early as 1869.

I have made a few observations as to the effect of papaverin on pain in patients in the outpatient department of the Johns Hopkins Hospital, and although the number of cases so far is very limited, the results in quieting acute pains of various kinds—gall-stone colic, acute gastritis, stenocardia, lumbago, etc.—were very satisfactory.

In regard to action on the respiratory center of the three drugs, morphin, codein and papaverin, the morphin is certainly the most depressant. A fuller study of respiration is now being carried on, and in this place I will state only that papaverin is much less depressant than morphin in this respect, and codein still less so.

As to the action on the heart, it may be also stated in this connection that narcotin has the most toxic action of the alkaloids studied; and morphin, though not very poisonous, is in full doses depressant to the heart. Codein and papaverin, on the other hand, were found to have no depressant action in this respect, and in small doses were found actually to stimulate cardiac activity. More complete data on this subject are to be published later.

COMBINATION OF THE OPIUM ALKALOIDS WITH CAFFEIN

Inasmuch as all opium alkaloids in excessive quantities are depressant to the heart, and inasmuch as caffein is one of the chief pharmacologic antidotes to opium and is at the same time a cardiac stimulant, it was of interest to learn the action of a combination of caffein and some of the alkaloids studied. Accordingly, some experiments along these lines were made.

It was found that caffein alone dilates the coronary artery, and that this action is not antagonized by the opium alkaloids. Thus a combination of papaverin and caffein gave a dilatation of the coronary ring (Fig. 8).

In respect to the cardiac effect, it was found that caffein, given simultaneously with an opiate, produced cardiac stimulation and counteracted any cardiac depression that might otherwise have occurred (Fig. 9).

CONCLUSIONS

1. Of the principal opium alkaloids, some affect the coronary circulation markedly, others slightly, and still others not at all.
2. Morphin produces a mild dilatation of the coronary, codein a very slight one, narcotin and papaverin, a very marked one, and narcein and thebain none at all.
3. A combination of morphin and narcotin produces a much lesser relaxation of the coronary artery than that produced by each of them individually.
4. This action of the opium alkaloids has been studied in three different ways and probably holds good in the clinic.
5. It is hoped that these observations may conduce to a more rational therapy of cardiac conditions.

INTRASPINAL ADMINISTRATION OF MORPHIN *

HUGH M'GUIGAN, M.D., PH.D.

AND

E. L. ROSS, PH.D.

CHICAGO

The object of this preliminary note is to call attention to the pronounced and unexpected action of morphin when injected into the cerebrospinal canal or directly into any part of the central nervous system.

In clinical work the physician expects of this drug only a sedative, quieting and pain-relieving action. It perhaps rarely enters his mind that, depending on the mode of administration or rather the place of administration, it may have an entirely opposite effect.

It is well known to laboratory workers that, after large doses of morphin, frogs develop a tetanus much resembling that produced by the action of strychnin. Most text-books on pharmacology, however, mention the difficulty of obtaining this action in mammals except by special means. It is the object of this note to tell how this may be obtained easily and to prevent its probable development when least desired.

McGuigan and Becht have shown that when strychnin is injected directly into the spinal cord or brain ventricles, a localized segmental action is quickly developed. Knowing that the action of morphin on the cord is in some respects similar to that of strychnin, we tried the intraspinal injection of morphin and found an unexpected action. Since it is a rather common mode of drug administration, we wish to advise care in the use of drugs by this method. An example will suffice at this time. In this typical experiment we have used about an average dose for a dog if the drug had been given subcutaneously. It certainly would not have been fatal if so administered, and would have elicited a profound sedative action.

A young female fox terrier in good health, weight 6½ kg., was slightly narcotized with ether and a needle inserted above the fourth ventricle. Clear cerebrospinal fluid escaped. There was no disturbance of respiration.

At 9:35, 0.5 c.c. of a 3 per cent. morphin sulphate solution was injected and the ether removed.

At 9:50 a slight rhythmic twitching and jerking of all four legs occurred, at the rate of 200 per minute; the jerk of the hind limbs following that of the front by about one-tenth of a second.

9:55: A slight blast of air or any mechanical stimulus starts scratching movements with all limbs. The pupils are widely dilated.

10:00: Repeated scratching movements occur as if to remove an irritation from the nose and abdomen. There has been a moderate movement of the bowels. (There is never vomiting when morphin is administered in this way.) The animal is somewhat delirious. There is considerable yelping and some incoordination. Respiration is stimulated and the heart beat is about 180 per minute.

10:15: The dog is wild and acts like a rabid animal. A thick, ropy foamy saliva, not profuse, fills the mouth. The legs are stiff and claws contracted. Partial paralysis of limbs, especially of flexors, is present. Extreme pilomotor effect along spine, wider over shoulders, is seen.

10:30: The animal goes into a strong spasm.

11:02: Strong spasm; as strong as usually seen under strychnin.

11:16: Very strong spasm, in which the animal dies. The characteristics of these spasms are: They commence with a

27. Baxt: Arch. f. Anat. u. Physiol., 1869, p. 112.

* From the Department of Pharmacology, Northwestern University Medical School.

fine twitching tremor of the muscles around the nostrils; swallowing and asphyxia-like movements of respiratory muscles, perhaps some increase in the saliva. The head bends forward strongly on the chest, the muscles of the neck are rigid; the front legs are extended toward the abdomen; the hind legs are in continuous stiff scratching movements toward the abdomen; the tail is tight between the legs and the back is arched. Usually the animal twists into a pleurothotonus and gradually into a typical strychnin opisthotonus. In this case the tetanus lasted about a minute and after a few intermittent jerks the animal died in opisthotonus. As a rule, at least with larger doses, respiration stops before the heart. In this case, it was impossible to decide which stopped first.

There is some slight variation in the symptoms, depending on the part into which the morphin is injected. If injected in the lumbar region, the action develops first in that region, but it always causes increased reflexes and tetanus. Codein and apocodein apparently are inactive. The action of varying doses and the cause of the tetanus will be discussed later.

A UNIQUE FOREIGN BODY IN THE URINARY BLADDER

GEORGE DE TARNOWSKY, M.D., CHICAGO

While self-introduction of foreign bodies into the urethra by children out of pure curiosity, and by sexual perverts for the gratification of abnormal libido-sexualis is not uncommon, the following case presents features so unique as to warrant brief report.

CASE 551,066.—J. C., unmarried, aged 36, was admitted to my service at the Cook County Hospital, Oct. 10, 1914, with the general complaint of pain in the lower abdomen and dysuria. The patient was a Polish laborer of low-grade mentality, speaking no English and only a little broken German, in addition to his own native dialect, which was uninterpretable. After many attempts, the following history was obtained and corroborated:

May 15, 1914, over five months before admission, he was working on a new building as a helper. Several roofers were busy putting a tar coating on the roof. During the lunch hour these men decided to have some fun at the expense of their fellow workman, towards whom they nevertheless felt no animosity. They laid him down on one of the floors, uncovered his person and forcibly pushed long thin pieces of solid tar, which one of the men had previously rolled into the size and shape of a urethral suppository, into his urethra. After his tormentors had released him, the patient, although in agony, was able to remove the last piece of tar injected, as it was protruding beyond the glans. From that time on he complained of pain in the lower abdomen and of marked dysuria. He had been forced to urinate every half hour during the day and only slightly less frequently during the night. The stream was very small, usually dribbling, with blood at the end of micturition. At various intervals he had chills and fever. His previous history was negative, with the exception of an injury to the head seven years previously, which may be responsible for his present somewhat impaired mentality.

Examination.—The patient, a well-nourished man, appears quite sick and walks around in a stooping position; complains of pain in the lower portion of abdomen. Head and thorax negative. Lower abdomen in median line tender on palpation; no tumor-mass discernible. Extreme pain on pressure over penis, beyond the peno-scrotal angle; prostate very tender on palpation.

Urinalysis, Oct. 21, 1914, showed a specific gravity of 1.026, the urine being cloudy, acid (?), with a foul odor, a trace of albumin, and showing the presence of hyaline casts, epithelial cells and leukocytes.

Cystoscopy, Oct. 22, 1914, by Dr. Euston, "shows a very severe acute cystitis. Bladder holds very little fluid and on

account of the exudate and the acuteness of the cystitis, no further examination was made for foreign bodies."

The patient's temperature, pulse and respirations were normal on admission and remained normal after the cystoscopy.

Treatment and Result.—He was placed on a light diet, and his bladder was irrigated twice weekly with silver nitrate, boric acid or potassium permanganate solutions. Urinalysis, Nov. 29, 1914; specific gravity 1.022, acid, clear straw color, normal odor, no albumin, blood or casts. From this time on, patient made few if any complaints, became a helper in the ward and was practically forgotten as a patient, his story of the tar injection being discredited.

Urinalysis, Dec. 19, 1914; specific gravity 1.032, red-brown color, strongly ammoniacal odor, alkaline reaction, blood present (guaiac test), albumin (?), no sugar, many mucous cells, triple phosphates and bacteria present. Urinalysis, Dec. 23, 1914; specific gravity 1.028, cloudy, reddish color, alkaline, strongly ammoniacal odor, albumin present. Microscopically: granular casts, mucus and epithelial cells and white blood corpuscles were present in large quantities. The records of the last two examinations were mislaid and not reported on at the time.

Feb. 20, 1915, patient presented himself for examination, complaining of chilly sensations and severe pain in the lower abdomen. His temperature was 101.4, pulse 90, respirations 24. On the following day his temperature had risen to 102.6. In order to settle the question of a foreign body in the bladder, he was sent to the Roentgen-ray department for examination. The report stated that "there was a shadow present in the bladder which may indicate stone."

Operation.—Feb. 24, 1915, the patient's temperature, pulse and respirations had again dropped to normal, and a suprapubic cystotomy was performed. Bladder distention was found to be impossible, not over two ounces of fluid being retained per catheter. On this account, after separating the recti muscles, a small incision was cautiously made one-half inch above the symphysis. To my chagrin, even this low incision caused me to enter the peritoneal cavity. The opening was immediately closed with catgut. A second incision, well behind the symphysis was made in an upward, inward direction. An enormous hypertrophy of the bladder wall was encountered, its anterior surface being fully three-fourths of an inch thick. The bladder mucosa presented the picture of a chronic cystitis.

A mushroom-like solid mass, of the consistence of putty, partially covered with calcareous deposits, was found in the bladder, its stem being embedded in the prostatic urethra for a distance of a third of an inch. It was so firmly adherent to the urethra that it broke in several pieces while being removed. After a thorough irrigation of the bladder, the incision was closed, leaving a small suprapubic drain and a retention catheter. The specimen, when pieced together, was the size of an English walnut and weighed 24 gm. The calcareous deposits were chiefly calcium oxalates and urates. The mass itself was black, viscid, very slightly soluble in water, readily soluble in alcohol and ether. On burning it gave off the very characteristic odor of tar. No tests were made for the more complex constituents of tar, such as creosote, etc.

Barring a slight attack of bronchopneumonia the patient made an uneventful recovery. At present, twenty-five days after the operation, the incision has practically closed and patient is urinating freely through his urethra.

30 North Michigan Boulevard.

Relation of the Death Rate and the Tax Rate.—Many recognize that the death rate and the tax rate have a positive relation to each other, and that health is the first requisite in the progress and happiness of a people. When this is more generally appreciated it will not be a difficult task to secure the necessary material and support, be it public or private, individual or organized, to maintain a higher standard of public health.—Homer C. Brown, *Monthly Bulletin, Ohio State Board of Health*.

Special Article

PRACTICAL PHARMACOLOGY

(Continued from page 1399)

XVII

DRUGS WHICH STIMULATE SYMPATHETIC ENDINGS

ERGOT

Various grains are invaded by a fungus known as ergot; that growing on rye and replacing its grain is the official ergot. In damp seasons this fungus may constitute as much as 10 per cent. of the flour made from the rye, and the bread made from such flour is poisonous, giving rise to a condition known as ergotism. The symptoms are of two general types, in one of which convulsions are the predominant feature, and in the other gangrene. The two types are not sharply separated, and both types are usually seen in epidemics of ergotism. Such epidemics are now uncommon, but they still occur occasionally.

Premature delivery and abortion were frequently observed during epidemics of ergotism, and this probably led to the use of ergot in obstetrics. Ergotism, however, does not always prevent the normal progress of labor.

The marked differences observed in the general types of poisoning suggest strongly that ergot differs widely in its constituents at different times, and this has been shown to be the case. Ergot has proved an unsatisfactory drug at best for the clinician, while its chemistry has presented many difficulties for the investigator.

It has been claimed on many occasions that the active principle of ergot had been discovered, but experience has shown invariably that the supposed active principle represented at most a part of the activities of the drug, and often an insignificant part.

This much is certain, that ergot contains a number of active principles, some of them present in minute quantities, but having extraordinary activity, and there are at least four constituents which deserve mention. These are ergotoxin and ergotin, two alkaloids which are closely related, and two principles commonly considered as putrefactive principles, because they are present in putrefying meat; these are tyramin, or hydroxy-phenyl-ethyl amin and histamin, or beta-iminazolyl-ethyl-amin.

Ergotoxin, an extremely active alkaloid, is the hydrate of ergotin, which is inactive, but which is probably changed into ergotoxin under conditions which are not very well understood. Ergotin has been known since 1875; ergotoxin, only recently discovered in pure form, constitutes the active portion of various substances which have been isolated in greater or less degree of purity by various investigators and given different names.

Ergotoxin stimulates those sympathetic endings which have motor functions, and in large doses paralyzes them; the endings of those fibers which are concerned with inhibition are not affected by ergotoxin. Here again we have an example of a drug acting on whole groups of nerve-endings which have similar

functions; this results in constriction of the blood-vessels, with rise of blood-pressure, and in contraction of those smooth muscles which contract in response to stimulation of the sympathetic. It will be seen that ergotoxin resembles the action of epinephrin so far as the latter acts on the motor nerve endings, or myoneural junctions of the sympathetic, while it differs from epinephrin in that the latter also stimulates the myoneural junctions of the sympathetic which are concerned in inhibition, while ergotoxin does not.

As stated previously, in the discussion on epinephrin, the pregnant human uterus responds to sympathetic stimulation by contraction. It also responds to ergotoxin by contraction, and this serves to explain why ergot sometimes causes abortion, and also why accidents occur so frequently when ergot is used to empty the pregnant uterus, since overstimulation of the sympathetic results in tonic contraction instead of the normal peristaltic waves which are present in normal childbirth.

This tonic contraction, being desired after delivery of the placenta, also indicates the use of ergot at that stage of labor.

The uterus is more susceptible to the action of ergotoxin and epinephrin at this period than during the non-pregnant state; hence ergotoxin, like epinephrin, causes active uterine contraction with doses which have little effect on the general blood-pressure. Tonic contraction is the normal physiologic condition of the uterus after delivery of the placenta, and it is only natural that stimulation of the sympathetic would have a more pronounced action at this stage than at a time when tonic contraction would be an abnormal condition, for it is a fairly general rule that drugs influence structures more actively in the direction of their normal functions than in opposition to them.

Ergotoxin also acts on other smooth muscle which is innervated by the sympathetic, but these actions do not require discussion here.

Ergotin, being inactive, does not require further discussion except to state that it may be converted into ergotoxin by hydration.

Tyramin, or hydroxy-phenyl-ethyl-amin, resembles epinephrin in its chemical constitution and its pharmacologic actions. It is formed from tyrosin during putrefaction, from which circumstance it received the name "tyramin." It probably constitutes the chief constituent of aqueous preparations of ergot, ergotoxin being insoluble in water. It causes active contraction of the pregnant uterus.

Histamin may be derived from histidin; it is said to be present in ergot in amounts too small to influence the uterine action of the latter to any marked extent. It is so extraordinarily active on the uterus, however, that it is difficult to believe that it is without importance, though it may escape isolation in amounts that can be utilized profitably. It can be prepared synthetically, and may be obtained commercially, should further investigation indicate it has special value. It is said to cause a perceptible contraction of the uterus when that organ is perfused with a solution containing one part of the histamin in 200,000,000 parts of Ringer's solution.

It causes constriction of some vessels, but dilatation of others, the effect of its intravenous injection being a fall of blood-pressure.

In addition to the four constituents which have been discussed, ergot also contains saponin, which may

* This is the seventeenth of a series of articles on useful drugs—on practical pharmacology for the general practitioner. As soon as completed, these articles, elaborated by additional subjects, will be published in book form.

be of some importance when preparations of ergot are injected intravenously, but which is of little or none when these are used orally. In addition, there are present minute amounts of various substances which have not been isolated in pure form.

It seems probable that all of the pharmaceutical preparations of ergot, both aqueous and alcoholic, which have decided therapeutic activity, contain either tyramin or ergotoxin, or both, and while the older nomenclature is confusing and should not be employed in prescribing, the following tabulation will show the relationship between some of these preparations and the active principles known to exist in ergot, as given by Barger and Dale:

Echolin and ergotin (Wenzell) mixtures of alkaloids, containing cholin (Meulenhoff).

Sphacelinic acid (Kobert): inactive resin with adherent alkaloid.

Cornutin (Kobert): an alkaloidal resin, probably containing some ergotoxin, and also some other active substance which may be a decomposition product of ergotoxin.

Cornutin (Keller): impure mixture of ergotin with ergotoxin.

Chrysotoxin (Jacobi): inactive yellow coloring-matter with a small proportion of adherent alkaloid.

Secalintoxin (Jacobi): mixture of ergotoxin and ergotin.

Sphaecelotoxin (Jacobi): impure ergotoxin.

Hydroergotin (Kraft): recent synonym for ergotoxin.

The foregoing tabulation may serve to suggest the unwisdom of prescribing every new preparation which appears with the claim that it represents the parent drug in a new and improved form. Among the numerous proprietary preparations which have been brought forward in recent years as substitutes for ergot is clavin, which was widely advertised for a time, and which has been shown to be a mixture of leucin and aspartic acid, and to be devoid of pharmacologic or therapeutic action.

Unfortunately there is no agreement as to the exact pharmacologic action desired in many cases when ergot is used; hence it is impossible to determine which of the several active principles should be used in its place in those cases.

Ergot exerts a marked effect on the central nervous system, the convulsions being due to this action, but this has not been studied sufficiently to make its consideration profitable. The depression which toxic doses induce in the cock is due apparently to the action on the cerebrum; the ataxia to action on the cerebellum, and the clonic type of convulsions, suggest that the medulla is the seat of this action.

The vagus center in the medulla is also stimulated, and the emesis which sometimes results appears to be due to a central action.

The most striking effect of the injection of ergot in the cock is the gangrene of the comb and wattles which it induces. Ergot gangrene in man commonly affects the extremities. Many explanations have been offered to account for the phenomenon; but it can be said with certainty only that ergot exerts some peculiar action resulting in active contraction of the vessels (probably due to the ergotoxin and the tyramin) and that this is attended with stasis and hyaline thrombosis, with the resulting gangrene. Certain animals are much more susceptible to the gangrene action than others, the chicken, the pig and man being among those which are readily affected.

When fluidextract of ergot is injected directly into the veins it causes a slight and temporary fall of blood-pressure, followed by a brief rise, and then return to normal. The fall in pressure is due apparently to saponin and does not occur after the oral administration of ergot, because saponins are not

absorbed rapidly, if at all, from the gastro-intestinal tract.

Small doses of ergot cause rhythmic contractions of the pregnant uterus, while large doses cause tonic contractions. Unfortunately, it is impossible to stimulate the rhythmic contractions by ergot without risk of inducing the tonic also; hence the danger of using ergot before the uterus has been emptied.

Ergot varies quantitatively, as well as qualitatively, in its actions, deterioration being quite rapid according to the general belief, but we have no biologic test which will indicate the therapeutic activity quantitatively; hence it is impossible to say how rapid the deterioration really is. One investigator estimated that ergot was but one-eighth as active after one year as at the time of being collected, and the Pharmacopeia directs that it shall not be kept for more than one year. The liquid preparations of ergot deteriorate also, but their rate of deterioration appears to be far more variable than is that of the crude drug. Preparations made with diluted alcohol and kept without exposure to the air keep fairly well.

The want of a chemical test for the activity of ergot has led to the introduction of various biologic methods of standardization; the most generally useful of these is probably that which consists in determining the amount of ergot required to cause gangrene of the comb. The action on the uterus of the virgin guinea-pig would appear to have the advantage of testing the therapeutic activity on the organ for which the ergot is used therapeutically, but this test yields no more satisfactory results than does that on the cock's comb.

The principle or principles which induce gangrene appear to deteriorate more rapidly than does that which acts on the uterus, and the test is therefore more suitable for fresh specimens than for old ones.

Acute poisoning with ergot is rare, if one does not include the untoward action on the uterus, but occasionally overdoses give rise to gastro-intestinal disturbances, convulsions and later to gangrene. There is no specific antidotal treatment for ergot poisoning, and one can only combat the symptoms as they arise.

THERAPEUTIC USES

Few drugs have been used in a greater variety of conditions than ergot, often where opposite effects are required; for example, in shock to increase blood-pressure, and in hemorrhage, where an increase in blood-pressure is contra-indicated.

It was formerly used extensively to hasten the expulsion of the fetus in normal labor, but one can never be certain of securing the increased rhythmic contractions and avoiding the tonic which prove so dangerous. Ergot should be used in labor only after the uterus has been emptied, to prevent or control post-partum hemorrhages. If used before the fetus or the placenta is expelled, only the smallest therapeutic dose should be employed, and this should not be repeated even if no effect is perceptible. This use, however, is strongly contra-indicated.

Ergot is used for excessive menstrual flow, and because it is useful in this condition it has been assumed that it would be equally useful in uterine hemorrhage from other causes, including that due to tumors, but there is no reason to expect favorable results in such cases.

There seems to be no sufficient reason for the continued use of ergot in any chronic condition, as it is liable to cause poisoning.

While ergot is capable of increasing the blood-pressure to a certain extent, it is inferior to epinephrin in this respect, and it is not sufficiently dependable for use in shock.

The other purposes for which ergot has been recommended do not appear to merit discussion.

DOSAGE

Ergot is commonly administered in the form of the fluidextract, which may be given by the mouth or injected intramuscularly—not subcutaneously, because of the pain which the last-named method involves. The action after oral administration is usually delayed for about twenty minutes; hence the intramuscular injection is preferable when post-partum hemorrhage is to be feared.

Not exceeding 2 c.c. (30 minims) of an active fluidextract of ergot should be administered before the expulsion of the fetus, but, as previously stated, even this is not recommended. This dose given after delivery of the placenta may be repeated if necessary after fifteen minutes. The dose required will depend largely on the activity of the specimen at hand, but it is better to have a reliable specimen always at hand for emergencies.

MATERIA MEDICA

Ergota.—Ergot, U. S. P.

In Continental pharmacopeias this drug is generally known as “secale cornutum.” It is officially described as the dried sclerotium of *Claviceps purpurea*, replacing the grain of rye. The drug as it occurs in commerce is derived chiefly from Spain and Russia, though other countries, notably Germany, Austria and Sweden occasionally furnish supplies of good ergot. Spanish ergot is larger than the Russian variety, but is said to contain less ergotinin, which may be converted into the active ergotoxin.

Ergot deteriorates rapidly when kept in open vessels and in a damp atmosphere. This is particularly true of the powdered drug. The Brussels Conference Protocol and foreign pharmacopeias generally direct that ergot should not be more than one year old, and should be preserved entire. The powder when called for on prescriptions should be prepared extemporaneously at the time it is wanted.

This drug is still frequently administered in the form of powder in doses of 1 to 2 gm. (15 to 30 grains) in the form either of capsules or cachets. It is more frequently administered in the form of:

Fluidextractum Ergotae.—Fluidextract of Ergot, U. S. P.

Generally described in European countries as “extractum secalis cornuti fluidum.” This preparation is a hydro-alcoholic, slightly acid liquid, having a reddish-brown color and a characteristic rather unpleasant odor. It is readily miscible with water, but precipitates slightly when mixed with an equal volume of strong alcohol. Considerable difficulty has been experienced in securing reliable and reasonably permanent fluidextracts of other extractive preparations of ergot. Recent observations appear to indicate that samples of the fluidextract preserved in small vials or hermetically sealed tubes keep better than similar preparations exposed to the air, and the product at the present time is frequently dispensed in sealed vials or tubes containing not more than from one to four doses.

Efforts to prepare purified extracts of ergot for hypodermic use or to isolate the active principles in

water-soluble form have met with some success, and several preparations of this type now available are described in New and Nonofficial Remedies.

HYDRASTIS

This drug, its chief alkaloid, hydrastin, and hydrastinin, which is derived from hydrastin artificially, are often classified with the morphin group, but they act on the central nervous system much like strychnin. On the other hand, they are often used therapeutically for their effects on the uterus: hence it is convenient to consider them here.

Hydrastis contains berberin and another unimportant alkaloid, canadine, in addition to hydrastin. The berberin probably has no especial value, but it is sometimes used for its bitter effects.

Hydrastin stimulates the central nervous system, overdoses causing hyperexcitability of the cord. Very large doses may cause strychnin-like convulsions. Moderate doses cause a rise of blood-pressure, probably through constriction of the arterioles; the mechanism of this is in some doubt, and its therapeutic importance has been greatly exaggerated. Toxic doses cause depression of the respiratory center and a fall of blood-pressure, with cardiac depression.

Hydrastis and hydrastin induce uterine contractions which may be peristaltic in character or they become tetanic: hence they are used to prevent excessive menstrual flow or uterine bleeding from other causes except post-partum hemorrhages, in which they are said to be much less effective than ergot. They are sometimes used in subinvolution of the uterus. It is possible that their tendency to cause a rise of blood-pressure may interfere with their therapeutic usefulness in arresting uterine hemorrhage.

They are commonly credited with some special tonic action on mucous membranes, and have been widely used, largely in the form of proprietary preparations, as applications to the nose, throat, urethra and vagina in chronic catarrhal conditions.

Hydrastinin has been obtained from hydrastin by oxidation and is now being made synthetically from other products. It acts locally and centrally to induce vasoconstriction, and at the same time it is said not to depress the heart; hence the general blood-pressure rises when it is injected. It is said to be better than hydrastin for checking uterine hemorrhage from various causes. It is sometimes used in solution for local application to various mucous surfaces to check hemorrhage. Its action on the uterus is much like that of hydrastin.

There is no very clear indication for the therapeutic employment of hydrastis and its alkaloids. Hydrastinin would seem to have the advantage over hydrastis and hydrastin in nearly every case except those in which hydrastis is used as a bitter.

DOSAGE

The average dose of the fluidextract of hydrastis is 2 c.c. (30 minims); smaller doses may be used for the bitter effect; the dose of hydrastin or hydrastin hydrochlorid is 0.01 gm. (1/6 grain); that of hydrastinin is 0.03 gm. (1/2 grain).

MATERIA MEDICA

Hydrastis and its alkaloids afford an illustration of the way in which drugs of little therapeutic value attain wide popularity in the treatment of a variety of conditions. These agents have a great diversity of actions on the central nervous system, on the heart

and vascular system and on mucous membranes. The proprietary preparations containing them have been lauded in many clinical conditions regardless of the fact that we have better drugs for nearly all of these conditions.

Hydrastis.—*Hydrastis*, U. S. P.

The dried rhizome and roots of *Hydrastis canadensis*, yielding by the process given in the U. S. P. not less than 2.5 per cent. of hydrastin. Hydrastis also contains about 3 per cent. of berberin and a minute quantity of canadine. The drug is used principally in the form of:

Fluidextractum Hydrastis. — Fluidextract of *Hydrastis*, U. S. P.

A solution of the soluble constituents of hydrastis in a mixture of glycerin, alcohol and water. One hundred c.c. should contain 2 gm. of hydrastin in addition to the other alkaloids of hydrastis.

Of the naturally occurring alkaloids of hydrastis only one is at all widely used. This is official as:

Hydrastina.—Hydrastin, U. S. P.

Because this alkaloid is almost insoluble in water, it is preferably used in the form of hydrastin hydrochlorid. It is hygroscopic and must therefore be kept in well-closed glass bottles.

Hydrastininae Hydrochloridum. — Hydrastinin Hydrochlorid, U. S. P.

An artificial alkaloid derived from hydrastin or made synthetically. It occurs as white or faintly yellowish crystals having an intensely bitter taste. It is very soluble (1:1) in water and freely soluble (1:3) in alcohol.

EMMENAGOGUES

The drugs intended to stimulate the menstrual flow were formerly treated at some length in text-books of therapeutics under the heading given above, but all of the emmenagogues have other actions on which their therapeutic use depends and they do not form a well-defined pharmacologic or therapeutic group.

Menstruation is attended with uterine congestion and is disturbed or prevented by numerous causes which interfere with the uterine circulation or with the general health. Hence emmenagogues may be classified as (1) measures intended to improve the general health; (2) measures or agents which promote uterine congestion.

Iron, strychnin and cod liver oil are frequently classified as emmenagogues which act by improving the general health, but it is obvious that this class must be nearly coextensive with the materia medica.

Among the measures intended to promote the uterine circulation are hot baths and irritants of the colon and of the genito-urinary tract.

Hot baths do not require detailed discussion in this place; the mechanism by which irritants of the colon, such as aloes and other evacuants of the anthracene group, cause uterine congestion has been discussed; various volatile oils and other irritants which are excreted by the kidneys serve as irritants to the genito-urinary tract and induce uterine congestion, but their use is now limited almost entirely to users of patent medicine and mixtures intended to induce abortion.

These mixtures are usually fraudulent and seldom contain active constituents in dangerous amounts. Indirectly the sale and use of such nostrums has resulted in many fatalities due to the ingestion of dangerously large doses of volatile oils or of drugs containing them.

It is obvious from the foregoing discussion that the emmenagogues do not call for detailed discussion under this heading.

Valerian and viburnum may be discussed in this place.

Valerian is now believed to be useful in attacks of nervousness and hysteria by a psychic stimulation resulting from its disagreeable odor.

Viburnum prunifolium was formerly credited with the power to avert threatened abortion and to exert a favorable influence on menorrhagia. Reports sustaining these views have appeared in the literature, but the experience of most physicians fails to justify a belief in the qualities claimed for this drug. Viburnum contains small amounts of a volatile oil with a disagreeable odor and may act like valerian reflexly through the sense of smell.¹

DOSAGE

Valerian is commonly administered in the form of the ammoniated tincture, in doses of 2 c.c. (30 minims), and viburnum is used in the form of the fluidextract in like amounts.

Valeriana.—Valerian, U. S. P.

The dried rhizome and roots of *Valeriana officinalis*.

Tincture Valeriana Ammoniata. — Ammoniated Tincture of Valerian, U. S. P.

One hundred c.c. represent the soluble constituents of 20 gm. of valerian in aromatic spirit of ammonia.

Viburnum Prunifolium. — Viburnum Prunifolium, U. S. P.

The dried bark of the root of *Viburnum prunifolium*.

Fluidextractum Viburni Prunifolii.—Fluidextract of Viburnum Prunifolium, U. S. P.

One hundred c.c. represent the soluble constituents of 100 gm. of viburnum prunifolium in a menstruum containing approximately 60 per cent. of alcohol.

It is probable that viburnum prunifolium continues to maintain a certain degree of popularity because of extravagant claims made in advertisements in reputable medical journals by the manufacturers of various proprietary preparations such as Hayden's Viburnum Compound and Dioviburnia. The advertising creates a certain demand for these preparations and the continued demand for them serves as a stimulus to pharmaceutical manufacturers to market more or less similar compounds for those who do not care to use the proprietary preparations, a sort of vicious circle of exploitation and demand being thus established.

It seems probable that the ammoniated tincture of valerian will serve any purpose that the more expensive proprietaries may.

1. The literature of these two drugs affords an example of the unsatisfactory conditions that obtain with reference to many articles in the materia medica as the result of the blind following of those who blindly copy others equally blind. Many text-books state or imply that the actions of valerian and viburnum are practically alike, but they also state that they are used therapeutically for unlike conditions. Thus valerian is commonly used for the relief of hysteria, while viburnum is often employed as a uterine sedative in painful and excessive menstruation and kindred conditions, but no explanation is offered for this difference in their application. One is almost forced to the conclusion that very little discrimination has been shown in the use of these drugs, and while accumulated clinical experience would seem to show that valerian has at least a limited field of usefulness, there is no apparent reason to retain viburnum in the materia medica in the absence of evidence that it has therapeutic value, and it would seem wiser to substitute valerianic acid for either of them in a given case. As a matter of fact, the subject requires investigation.

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SATURDAY, MAY 1, 1915

DIET AND THE INTESTINAL BACTERIA

The conviction is growing among students of the processes which go on in the alimentary tract that the micro-organisms which inhabit it are noticeably responsive to changes in the character of the diet. There are many clinical indications that a pronounced alteration in the chemical make-up of the ration is followed promptly by a change in the intestinal flora. The free use of carbohydrates in infant feeding, for example, is not infrequently attended with an alteration in the consistency of the feces indicative of pronounced fermentative changes which speedily disappear after a return to a milk diet restricted in respect to carbohydrates. Although it was long suspected that alterations in the bacterial flora accompany such changes in feeding, it remained for Herter and Kendall,¹ among the first to examine this problem with suitable modern methods, to attempt to determine the precise effects on the nature of the microbial life that may arise from definite and abrupt variations in the chemical composition of the food. These American investigators asked themselves whether it is possible to establish quite definite and unmistakable concomitant variations in food and bacteria. They realized what is likely to suggest itself to every thoughtful reader, that the establishment of such variations, under physiologic conditions, must be an essential condition for the discovery of exact indications for a suitable regimen under states of infection in the intestine.

In order to secure decisive results, Herter and Kendall studied the fecal bacteria which are found under extreme dietary conditions so that the alternations should be as abrupt as possible and little chance would be afforded for gradual adaptations to a given type of ration. By this method it was observed, in animals, that changes from a dominantly protein dietary, abounding in meat and eggs, to a milk and sugar regimen is actually followed by a pronounced modification in the nature of the flora as well as in the putrefactive products of the feces and urine and in the clinical

conditions. The chief characteristic of the bacterial change was the gradual but rapid substitution of an acidophilic, non-proteolyzing type of flora for a strongly proteolyzing type which predominates with the rich protein intake. Similar results indicative of a simplification of the intestinal flora so that Gram-positive bacteria of the acidophilus and bifidus groups preponderate and the organisms of the colon type are reduced in number have been observed in other cases.²

To what extent changes of the sort here outlined arise in man has remained largely a matter of conjecture. The first serious attempt, so far as we are aware, to correlate conditions and changes in the fecal flora of human subjects with exact data in regard to the constitution of the diet employed have been undertaken by J. C. Torrey³ in the Department of Experimental Pathology at the Cornell University Medical College, New York City. He was fortunate in securing as subjects for this investigation typhoid patients under the care of Coleman and placed on his now well-known "high-calory" diet⁴ in order to reduce to a minimum the severe loss of nitrogen and weight which otherwise usually occurs in this disease. The examination of the stools early in the course of the disease indicated that the intestinal flora in such patients is not uniform or specific in type, but exhibits variations that may be observed in a series of supposedly normal individuals. From this it appears that the character of the intestinal flora is not a factor concerned in the determination of susceptibility to typhoidal infection.

On a diet consisting of a daily average of from 50 to 100 gm. of protein, 75 to 100 gm. of fat, and 250 to 300 gm. of carbohydrate including milk sugar, Torrey reports that the intestinal flora tended to become simplified in regard to the variety of bacterial types observed. There is a decided tendency for the development of a fermentative type, with *Bacillus acidophilus* as the dominant organism. The degree of this transformation was dependent largely on the type of flora which was present at the onset of the disease. When the flora showed a definite putrefactive tendency, the change initiated by the Coleman diets did not extend farther than the elimination of the obligate putrefactive organisms and a moderate development of the aciduric types. With a more favorable initial flora, the change was of so radical a nature that the stools finally resembled those of normal infancy in the dominance of the *Bacillus acidophilus* and even the presence of the *Bacillus bifidus* found in children.

In view of the not uncommon use of milk as the chief dietary component in febrile disease, it is inter-

2. Rettger, L. F., and Horton, G.: *Centralbl. f. Bakteriologie*, Orig., 1914, lxxiii, 362.

3. Torrey, J. C.: *The Fecal Flora of Typhoid Fever and Its Relation to Various Diets*, *Jour. Infect. Dis.*, 1915, xvi, 72.

4. *The Utilization of the High-Calory Diet in Typhoid Fever*, editorial, *THE JOURNAL A. M. A.*, Oct. 12, 1912, p. 1378; *The High-Calory Diet in Typhoid*, Jan. 16, 1915, p. 251.

1. Herter, C. A., and Kendall, A. I.: *The Influence of Dietary Alterations on the Types of Intestinal Flora*, *Jour. Biol. Chem.*, 1910, vii, 203.

esting to learn that this food alone did not bring about the transformation of the intestinal flora to such a degree as that which may follow a more liberal carbohydrate feeding. From the clinical standpoint, patients exhibiting a flora of the acidophilic or fermentative type adapted themselves more readily to the high-calory diet. They enjoyed comparative freedom from the distention attending the putrefactive type of flora, and in them the disease showed a tendency to run a mild course. Incidentally it has been noted that the typhoid bacillus was isolated from the stools of the patients on a high-calory diet less frequently than has been reported for other series of cases in which the feeding was less liberal.

Investigations like these of Torrey on the physiologic alternations in the intestinal flora of man are certain to be of great assistance in giving a clue to the most favorable dietaries for various infections, particularly those involving the digestive tract. Even where the invading micro-organism does not primarily direct its harmfulness toward the alimentary canal, the bacterial conditions of this region, which may add to the burden of an already intoxicated individual, are surely not without moment. The bacteria found in the intestine deserve renewed consideration not alone as causative agents of specific disease, such as typhoid, cholera or dysentery, but also as the factors which determine the production of chemical products affecting in no small measure the sense of bodily and psychic well-being.

EXERCISE AND THE BLOOD

Despite the fact that muscular activity and exercise in the form of various athletic sports are widely lauded both as promoters of health and as remedial agencies in certain conditions, there are few systematic treatises on the subject considered from these aspects. Playgrounds and physical education are being provided to overcome the admittedly pernicious influence of indoor life on the young and the adult. Athletic training is sometimes ordered to counteract certain pathologic manifestations. It can scarcely be said, however, that the domain of the physiology of exercise, considered as an independent discipline, has yet been adequately explored in a thoroughly scientific manner. If exercise is to gain a permanent place in a complete scheme of education and in the treatment of abnormal or diseased conditions, this "Cinderella of the therapeutic family," as Dr. R. Tait McKenzie has termed it, should be placed before the profession in its true character.

Isolated observations regarding the influence of muscular exertion and even of prolonged training on individual functions of the body are recorded in considerable number. For the most part they have remained, up to the present, as detached facts. Our knowledge regarding some of them has at length reached a point at which a survey of the situation

presented and its physiologic significance may be essayed. This statement applies to the effect of muscular activity on the blood.

It has become evident that the muscular exertion incident to such performances as running, walking, bicycle riding, swimming and other sports almost invariably causes an immediate increase in the number of red corpuscles in a unit volume of the blood, together with a leukocytosis.¹ Detailed data are of little direct significance when the conditions under which they are obtained vary as widely as they do in activities of different individuals at different times. Some representative indications of the range of the effects is afforded by the recent determinations of Schneider and Havens¹ at Colorado College in Colorado Springs. They found that the immediate influence of physical exertion on the blood of the peripheral capillaries was one of concentration in which the percentage of increase varied as follows: hemoglobin from 3.5 to 10.9, erythrocytes from 3.2 to 22.8, and leukocytes from 13.8 to 130.2. The specific gravity increased proportionately with the red corpuscles. Within a few minutes after the close of the exertion, the blood began to be diluted, and this usually resulted in a subnormal specific gravity and content of hemoglobin and red corpuscles. At the end of the exertion, the differential counts of the leukocytes showed no change; but very soon the polymorphonuclears increased from 9 to 45 per cent., and the total number of mononuclear elements decreased from 14 to 55 per cent.

As Hawk has already pointed out, several explanations for the increase of erythrocytes in exercise readily suggest themselves. Thus, there may be a production of new corpuscles, concentration of the blood through increased urine formation and copious sweating, concentration of the blood through increased evaporation in the lungs, passage of fluid from the blood to the active muscles, concentration of the blood through vasomotor contraction and rise in blood pressure, and sudden passage into the blood of a large number of cells lying dormant in various parts of the body. Some of these factors, notably those involving removal of water by sweating and respiration, doubtless help to induce some concentration of the blood. The increment in the number of corpuscles is so prompt as to make it probable, when taken into consideration with other factors, that the primary agency in this phenomenon is not the loss of water from the body, but the discharge of a large mass of sidetracked corpuscles into the general circulation.

The splanchnic area appears to be the chief reservoir for the reserve red corpuscles. According to Schneider and Havens, the picture of the blood

1. Hawk, P. B.: On the Morphological Changes in the Blood after Muscular Exercise, *Am. Jour. Physiol.*, 1904, x, 384. Schneider, E. C., and Havens, L. C.: Changes in the Blood after Muscular Activity and During Training; *Ibid.*, 1915, xxxvi, 239. The older literature is referred to in these papers.

changes in exercise may be briefly summarized as follows: During muscular inaction, a large mass of the blood is diverted to the splanchnic area, where it probably stagnates and gives up plasma as lymph. There is also throughout the remainder of the body, especially in the limbs, an accumulation of lymph. With the onset of muscular activity, the carbon dioxide content of the blood rises, this carbon dioxide stimulates the central nervous centers which regulate the secretion of the suprarenal glands, and hence the output of epinephrin is increased. The epinephrin causes a constriction of the blood vessels of the splanchnic area, and this forces the stagnant red corpuscles into the general circulation, thus occasioning the rise in specific gravity, hemoglobin, erythrocyte and leukocyte content of the peripheral blood. Further, the contraction of the voluntary muscles accelerates the flow of lymph, throwing lymph rich in leukocytes into the blood. The increase in red corpuscles and hemoglobin makes it possible to supply more readily the greater demand for oxygen made by the active muscles. Shortly after the close of the exercise, the carbon dioxide content of the blood falls below normal; as a result, the discharge of epinephrin becomes subnormal and the blood once more accumulates in the splanchnic area, so that there is a gradual return to the normal composition and even a temporary subnormal content in red corpuscles.

Observations corroboratory of this view deserve mention here. Abdominal massage and pressure raise the content of hemoglobin and red corpuscles in the blood of the peripheral capillaries. A tightly drawn belt or pressure on the abdomen following exertion prevents in large measure the customary subsequent dilution of the blood, presumably by delaying the side-tracking of the formed elements back into their splanchnic reservoir.

It has been maintained by some that there is a rapid destruction of red corpuscles in violent exercise, especially because the very considerable early increase becomes gradually less pronounced. The newest evidence¹ does not support this view. It suggests that the ultimate decrease in hemoglobin and red cells is not due to an actual disintegration of the corpuscles, but rather to their stagnation in some of the capillaries.

Schneider and Havens appear to have furnished the first carefully obtained data respecting the deportment of the little understood platelets in exercise. There is a marked fall in the number per cubic millimeter of blood, shortly after cessation of muscular action, of from 17 to 30 per cent. Later there occurs a sort of overproduction leading to a rapid increase. It would be premature to theorize in this field.

The increased count of blood corpuscles noted after massage² probably has much in common with the phenomena just described. It is important from every

standpoint to learn conclusively whether some of the procedures of so-called physiologic therapeutics bring about their blood changes by promoting new hemopoietic activities or merely by inducing a redistribution of the circulating fluids. To this end further investigation is warranted.

DEATHS FROM THE SEQUELAE OF TYPHOID FEVER

We have statistics on the approximate number of deaths from typhoid fever, so far as concerns those who die during the acute stage of the disease; estimates of the number of persons incapacitated for varying periods as a result of illness with typhoid, and estimates of the financial loss to the community. But the results of the sequelae or after-effects of the disease, on those who have survived the acute effects of the infection, have not been considered. Such a study is difficult, for it is necessary that reliable record must be had of the illness, and the patient must be kept under observation for several years. Moreover, the number of persons observed must be sufficiently large to eliminate the undue prominence of uncontrollable factors.

Recently Dublin¹ has reported the results of a study of 1,936 cases of typhoid fever recorded in 1911 among the reports of the visiting nurse service of the Metropolitan Life Insurance Company. Of these, 362 were eliminated from consideration, as the diagnosis was not considered to have been accurately established. The record of the remaining 1,574 cases seems to have given new information of much value in regard to the effect of typhoid fever on vitality during the first three years following recovery. One hundred and forty-six of the patients died while under treatment, a lethal rate of 9.28 per hundred treated. The principal complications in the fatal cases were intestinal perforation and hemorrhage, meningitis, pneumonia and heart involvement, which accords with previous observations.

To determine the effect of the disease on vitality for the three years following the attack, it was necessary to compare the actual mortality of the 1,428 survivors with the expected mortality among the same class of persons. This was done by distributing the 1,428 cases by sex, color and 10-year age period, and by comparing them with similar groups taken from the mortality tables of the company for the same years. In other words, the mortality was not an arbitrary measure, but gave the death rates which persons of the same age, sex and color among the policy holders had experienced for the same years. From such comparisons, it was found that in the series of 1,428 persons the expected number of deaths was 26.45, whereas the actual number that occurred was 54, the conclusion being that during the first three years after recovery

1. Dublin, Louis I.: Typhoid Fever and Its Sequelae, *Am. Jour. Pub. Health*, January, 1915.

2. Mitchell, J. K.: *Am. Jour. Med. Sc.*, 1894, cvii.

from typhoid fever, the mortality is twice the normal. This increased rate, however, was not uniform for all three years, being greatest during the first year following recovery, less during the second year, and still less the third.

As a cause of death among the fifty-four patients who died within the three years following recovery, tuberculosis heads the list (39 per cent.), with diseases of the heart following (14.8 per cent.). Dublin believes that, in the United States each year, 8,000 deaths occur among persons who have recovered from an attack of typhoid fever but who, as a result of impaired vitality from the disease, succumb during the first or second year after recovery.

Similar studies should be made of the after-effects of other diseases. We know, for example, in a somewhat general way that measles and whooping cough, as well as other diseases, are not infrequently followed by tuberculosis; but we have not had an accurate comparison of the actual to the expected mortality, and it is of importance that we should have such comparisons.

DISEASES OF THE SOIL

For the better part of a generation, we have been hearing of the exhaustion of the soil in this country. Abandoned farms in New England had to be given up because they returned such poor crops that their further cultivation was not worth while. Important elements for plant life and growth were said to have been ruthlessly taken from them by wasteful farming and never restored, and it was prophesied that the same thing would happen to our great farming lands in the Middle and Far West. The popular impression existed that the earth beneath our feet was "an inanimate mixing bowl out of which plants ate as cattle feed from the trough. What was not put in could obviously not be taken out; and since chemical analysis proved that plants do absorb mineral plant food elements, the bowl must quite as obviously run empty unless we poured back as much as the crops took out." This seemed an eminently satisfactory theory. When the United States Bureau of Soils undertook an investigation, however, it found no basis for the general deterioration of the soil thus suggested. It did find that properly cultivated soil increased in fertility in the course of time, but that certain changes in the soil, which might well be called "diseases," were responsible for the lessening of the crops; further, these diseases could be treated rather readily, once they were recognized.

The whole story has many analogies with certain theories of human diseases and with many of our medical problems. Quite apart from the interest which physicians have in the food supply of the country, a description of the investigation by Bruère¹ is interest-

ing. In recent years, the United States Bureau of Soils has been investigating cases of "sick soil," finding the true diagnosis, and then suggesting the remedy. The experiments and observations have been conducted with wheat plants which, it is suggested, correspond closely to the guinea-pig of the physiologic and pathologic laboratory. The whole mode of investigation is eminently suggestive of an application to another department of human interest of the methods which have proved successful in the investigation of human disease. The agricultural chemists, however, have found more grounds for the idea of chemical change as a reason for disease than have been found in our investigations of human beings. It is possible that they may thus give back to us by suggestion at least even more than they have borrowed from us.

Certain substances develop in soils which make it difficult to obtain good crops, in spite of the fact that there may be an abundance of fertilizer and apparently plenty of plant food in the soil. They act as inhibitors of plant nutrition and growth. Soil taken from Takoma Park, Maryland, was found to contain an abundance of the mineral plant food elements, and yet it was exceedingly infertile and did not respond to treatment either with manure or with commercial fertilizers. After careful investigation, it was found that certain substances like picolin, carboxylic acid, uvitonic acid and dihydroxystearic acid occurred in this and other soils of marked infertility. The last substance, particularly, reduced the power of plants to transpire moisture to less than one fourth of the normal, and this so disturbed their metabolism as to cut their green weight in two. In the course of a short time it actually killed the plants exposed to its action.

The question arose as to the origin of this undesirable substance. It was found to be due probably to the occurrence of fungi and molds on the soil. Wherever there was improper drainage and careless ploughing, so that soil became water-logged or failed to be properly treated, these inhibiting chemical substances occurred. They are much the same as tuberculosis in human beings, which flourishes best in dark, damp, ill-ventilated rooms. When the soil samples containing such substances were kept in greenhouses under conditions of good aeration, the deterioration chemicals disappeared after a few weeks and left the soil greatly improved for plant growth.

Out of this investigation has come the interesting conclusion that the soil is not a dead set of minerals in a mixing bowl, but an organism having hitherto unperceived likenesses to the body of man. Cultivation seems to be to the crop-bearing earth what exercise and air are to human beings, and there are probably laws of hygiene and sanitation quite as applicable to the control of the soil's health as to that of mankind. As the report of the United States Bureau of Soils says, "The soil has vital functions. It cannot be con-

1. Bruère, R. W.: The Control of Soil Fertility, Harper's Month. Mag., April, 1915.

sidered as the dead, inert remains of rocks and previous vegetation. It is not dead, but is endowed with functions analogous to those of life itself. In it go on the same processes of solution and deposition that have taken place in past ages in connection with the geologic action upon the rocks and minerals in the earth's crust; the same chemical and physical interactions as those through which the movement of subsurface waters generally have formed ore deposits; the same processes of fermentation, digestion and decay of organic materials as those that take place in animals and plants through the agency of enzymes, bacteria, fungi, and molds."

A generation ago, chemistry and physics were everywhere invading the biologic domain and apparently, ousting biology from her place as mistress of the household and making it clear that living processes were due only to physical causes and effects. Now biology is vindicating her claims not only in her own proper field, but also in borderlands where physics and chemistry were thought to hold absolutely indisputable sway. The vital forces, in addition to reclaiming their own, are extending their realm. This latest recognition of the soil itself as strikingly like a living organism is not only scientifically valuable, but also eminently suggestive of the trend of modern science.

THE PREVENTION OF TYPHUS FEVER

Among the brightest pages of the history of American medicine are those recording the work of American scientists on the part played by insects in the transmission of disease. The foundation of the later work on the transmission of disease was laid by Theobald Smith in his work on the transmission of Texas fever of cattle by the tick. That pioneer work opened up and laid the foundation for practically all the subsequent work by others, both in the United States and abroad, in this important branch of medical science.

Since then other insect-borne diseases have been added to the list by American scientists—yellow fever through the work of Reid, Carroll, Lazear and Agramonte; Rocky Mountain spotted fever by Ricketts, King and McClintic; typhus by Anderson and Goldberger, Ricketts and Wilder; plague by McCoy, and anthrax by Mitzmain.

By applying the principles determined from a consideration of the work of these investigators to the control of different diseases, many of them have been brought under control or have been practically eradicated from this country. By the application of measures based on the part played by the tick in the transmission of Texas fever of cattle, the area of infection has been greatly reduced, and each year sees it still further limited.

Since the brilliant campaign of the Public Health Service, under the leadership of White, in New Orleans

in 1905, the South has lost its terror of a yellow fever epidemic. Outbreaks of bubonic plague are quickly brought under control by giving attention to the part of the rodent and the flea.

The most recent work of American investigators on insect transmission of disease, that of the conveyance of typhus fever by the louse, promises to have a vital part in the control of typhus in Serbia and eastern Europe, if reports of conditions in the European war zone are not exaggerated.

Recently Anderson¹ has discussed the etiology of typhus and the methods for its control based on the part played by the louse as an intermediary. In this connection it is of interest to note that, according to Nicolle, antilouse measures have had a remarkable effect on the prevalence of typhus fever in Tunis. This disease is very prevalent among the native population. In 1909 there occurred in Tunis 836 cases of typhus. In 1912 attempts were made to control the disease, based on antilouse measures, and as a result there occurred during that year but 22 cases. The only prophylactic measure enforced was the systematic destruction of lice and their eggs found on the clothing and persons of those in the vicinity of patients suffering from typhus.

Anderson, in his discussion of the subject, states that there is no experimental evidence to support the view that typhus is acquired in any manner other than by the bite of lice which have previously fed on a person sick with the disease. Such being the case, the fundamental procedures on which prevention may be based may readily be deduced. According to Anderson, these measures may be broadly proposed under the following headings:

1. Measures for the reduction of lice infestation among the population in general.
2. The destruction of all lice and their eggs found on the bodies, clothing, bedding and surroundings of all cases of typhus, typhus suspects, and contacts.
3. The adoption of measures, by persons in the vicinity of cases of typhus, to reduce or prevent the possibility of their being bitten by lice.
4. Inoculation with the mild type of the disease (Brill's disease) by persons contemplating entering localities where typhus is prevalent. Should Plotz's² work be confirmed, this may be replaced by the use of a vaccine prepared from the typhus fever germ.

The measures to be adopted under the first heading are, to a considerable extent, educational, except in institutions and places over which the sanitary authorities have supervision, such as bath houses, lodging houses, and other places where numbers of persons may congregate.

1. Anderson, John F.: The Etiology of Typhus Fever and the Methods of Its Prevention, Pub. Health Rep., April 30, 1915.

2. See editorials: Typhus in Serbia, THE JOURNAL, April 17, 1915, p. 1329; The Cause of Typhus Fever, THE JOURNAL, April 24, 1915, p. 1429.

In surroundings where lice may be found, systematic efforts should be made for the destruction of lice and their eggs. These efforts consist in the use of insecticides, both chemical and physical, bearing in mind the important point that the louse requires frequent feedings of blood and therefore is most likely to be found on recently used clothing or bedding. It is not difficult to kill when exposed to insecticides, but its eggs are much more resistant to chemical agents, though readily destroyed by heat or steam.

Under the second heading comes, first of all, the institution of measures requiring the prompt report to the sanitary authorities of all cases or suspected cases of typhus fever. Such cases should be promptly seen and the inspector should be satisfied that the patient's surroundings are free from lice, in which case the patient may, without danger to the community, be treated at home. If, however, such is not the case or there is doubt, the patient should at once be removed to a hospital, and the place from which he is removed should be treated to destroy all lice and even their eggs.

For the treatment of material, such as clothing and bedding, the use of steam is the method of choice. All suspects and contacts should be bathed, the lice and their eggs in the hair being destroyed, and a change of clothing should be given and the old clothes disinfected. They should be kept under observation for at least twelve days.

The measures to be adopted under the third heading are such as should prevent or minimize the possibility of persons near cases of typhus being bitten by lice. It should be borne in mind that the louse has not the radius of action of the mosquito or even of the flea; therefore, the striking distance of typhus is shorter than that of yellow fever, malaria or plague. For the transference of lice from one individual to another, rather intimate association with the lice-infested person or his surroundings is necessary; and because the louse requires frequent feedings to maintain life, this means, for practical purposes, surroundings recently occupied by persons and possibly by animals.

There is but little to say in regard to the procedures suggested under the fourth heading. The case mortality of the mild form of typhus (Brill's disease), so widespread in the United States, is very low, probably not over one per hundred attacked, while the case mortality in Serbia, for example, is possibly twenty or perhaps more per hundred attacked. For this reason alone (and there are other reasons) the advisability of inoculation with the mild form of typhus would certainly seem worthy of serious consideration for those going to places where typhus is prevalent in a virulent form. Some may question the advisability of inoculating with the mild form of the disease in order to protect against the virulent type; but, as Anderson says, it is certainly worthy of consideration.

The inability of the louse to transport itself, except for very short distances, explains the many times observed fact of the short striking distance of typhus and that it is those who come into most intimate contact with the sick who are most apt to be attacked. This fact, together with the necessity for frequent feedings of blood by the louse, have important practical relations in the prevention and control of the disease.

Current Comment

AN ANTIVIVISECTION INQUIRY

A circular letter is being sent to laboratories throughout the country asking for a report on the number of mammalian animals used for scientific research or physiologic demonstration during the year ending Dec. 31, 1914. The report is to include statements regarding the number (1) used for demonstrations, (2) experimented on by students, and (3) employed for research. The letter is sent out by the Society for the Prevention of Abuse in Animal Experimentation, and is signed by their treasurer and counsel, Mr. Frederick P. Bellamy. Mr. Bellamy declares that one of the objections to animal experimentation is that no one can tell its extent. The "extent," however, has not been in question. The feature that the antivivisectionists have objected to and have made much of is the "extreme pain" and "appalling suffering" which they have *assumed* that animals experience in the laboratories. Against painless experimentation most of them would have no objection. It is to be noted that in the inquiry now being made, there is no mention of anesthesia. The figures as to the *number* of animals used would be of not the slightest significance, therefore, unless it is assumed that the animals are cruelly treated. From the publications of the Society for the Prevention of Abuse in Animal Experimentation, it is fair to suppose that there would be no hesitancy in their assuming frequent abuse of animals. For example, they quote with approval Spencer's saying: "We consider as wholly unjustifiable the common practice of subjecting animals to torture in the laboratory or classroom merely for the purpose of demonstrating well-known and accepted facts. We hold that the infliction of torment upon a living animal under such circumstances is not justified by necessity, nor is it a fitting exhibition for the contemplation of youth." To this we say, amen. But we also say that there is no evidence to justify the assumption that the teachers of medicine in this country, while making demonstrations to their students do inflict "torture" and "torment." In the circular letter the statement is made that the Society for the Prevention of Abuse in Animal Experimentation is not opposed to vivisection. It happens, however, that the treasurer and counsel of that society has on two occasions been prominent at legislative hearings in New Jersey, in his vigorous opposition to the establishment, in that state, of the Rockefeller Institute's Laboratory for the Study of Animal Dis-

eases. Action speaks louder, etc. In consideration of the facts given above, it is clear that any information secured by the society which Mr. Bellamy represents is likely to be twisted to its purposes and in opposition to the methods of medical research.

THE NONEXISTENCE OF UROLEUCIC ACID

The chemical anomalies are quite as interesting as the structural peculiarities which are so frequently encountered in medicine, although, as a rule, they are less readily observed, because of the great difficulty of detecting metabolic perversions. They do not reveal themselves in the conspicuous way that discloses morphologic defects. Alkaptonuria and cystinuria are sufficiently rare to excite interest whenever they are discovered. The cause of the immediate urinary conditions which determine these designations is now well known. The abnormal metabolism of the amino-acids tyrosin and phenylalanin in alkaptonuria result in the excretion of homogentisic acid, an aromatic derivative of known constitution. Years ago Kirk¹ described what he believed to be an analogous compound in so-called "alkapton" urine, and named it uroleucic acid. This alleged finding received the support of the late Professor Huppert of Prague, a chemical investigator of the urine. Although homogentisic acid has been described in at least seventy-five cases of alkaptonuria in the intervening years, there have been only two or three isolated mentions of the occurrence of uroleucic acid in pathologic urine. The name and its assumed significance has, however, become one of the inherited features which go to swell the anomaly lists of textbooks and have been copied from decade to decade. Dr. Adolf Oswald² of Zurich has had an opportunity to examine urine specimens from both of the historic patients who were the occasion for the anomalous findings hitherto reported. A careful chemical investigation has convinced him that the alleged uroleucic acid was nothing other than homogentisic acid. In accord with this conclusion the current statements may now be revised.

FETAL ERYTHROBLASTOSIS, A FORM OF CONGENITAL DROPSY

Congenital dropsy may be caused in various ways: It may depend on cardiac anomalies and diseases, on obstructions to the portal circulation, on syphilitic infection, or on other less common causes. Recently it has been established that general congenital dropsy with hydramnios may be associated with a pathologic state of the blood, and of blood formation, and there is good ground to believe that this is a distinct form of congenital dropsy and hence a hitherto unrecognized disease. To Schridde belongs the credit of having made this discovery (1910), which has been substantiated by several other observers.³ The disease is

characterized by general dropsy — anasarca and fluid in the cavities — hydramnios and enlargement of the spleen and liver. In these organs, especially, there is found microscopically a great accumulation, both inside and outside of the blood vessels, of erythroblasts and in less degree of other marrow cells. The liver cells proper are crowded out, and there are no follicles in the spleen. Even the kidneys, the adrenals and lymph glands may contain erythroblastic centers. In the blood the number of erythroblasts is far in excess of the normal. There being hemosiderin — iron containing pigment from red corpuscles — in the liver and spleen, Schridde set up the idea that the condition is due to a severe anemia with compensatory hematopoiesis not caused by syphilis. Others assume that the extramedullary formation of blood corpuscles is the result of some form of toxic action. In the case described by Chiari there was no blood pigment in the liver and spleen, and consequently no indications of any antecedent destruction of blood corpuscles. The heart is often hypertrophied, but as yet we have no satisfactory explanation of the dropsy. It undoubtedly indicates some profound metabolic disturbance. The name "erythroblastosis" was suggested by Raubmann, and as this name signalizes one of the most distinctive features of the condition, it probably will be used, at least until some still more appropriate name based on a better understanding of the nature and cause of the disease is suggested. Since Schridde described this form of congenital dropsy, Fischer, from search of the older literature, found about twenty cases described as congenital leukemia and otherwise, which in all probability were instances of erythroblastosis, and several new cases have been observed. That the disease has been overlooked so long is due to careless and superficial examination of the bodies of infants congenitally dropsical. Now that such an interesting and remarkable condition has been uncovered among cases of congenital dropsy, they are certain to receive more careful scrutiny, and no doubt soon we shall learn more about this new form of blood disease.

Vagaries of Rifle Bullets.—Two instances of the action of rifle bullets in the war, as related in the *Lancet* by a correspondent in northern France, are of more than ordinary interest. One bullet which had traveled probably 200 or 300 yards and was therefore almost at its maximum velocity, entered the head just in front of the ear, passing through the sphenoid and having its exit at a point almost exactly opposite the point of entrance. Its track was perfectly straight. Though this wound was one really of the face only, it proved instantly fatal. On opening the skull the reason was apparent. It had reduced the under surfaces of the frontal lobes to a structureless jelly. The rapid movement of the bullet had given rise to lines of force emanating in all directions and had pulpified the brain. This is somewhat contrary to the belief that a rapidly moving missile exerts a more knife-like action than a slow one, with less collateral injury. In the other case the bullet had traveled probably 1,500 to 2,000 yards before reaching its mark and the residual momentum was comparatively small. This bullet entered the forehead and was found just inside the skull. It had traversed the head, impinged on the inside of the occipital bone and rebounded along the original track and was only a short distance from the point of entrance. There was no general bruising of the tissues surrounding the track of the bullet.

1. Kirk, R.: On a New Acid Found in Urine which Darkens with Alkalies (Alkaptonuria), *Jour. Anat. and Physiol.*, 1889, xxiii, 69.

2. Oswald, Adolf: Ueber die Nicht-Existenz der "Uroleucinsäure," *Ztschr. f. physiol. Chem.*, 1914, xciii, 307.

3. For review of the literature see Chiari: *Jahrb. f. Kinderh.*, 1914, lxxx, 561.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

IOWA

Personal.—Dr. Henry Matthey, Davenport, is on duty with the German Red Cross at Lazarett, Holzen, Germany. —Dr. Joseph A. Juen, Ossian, is reported to be seriously ill in Cresco Hospital.

District Society Organized.—Physicians from Lyon, Osceola, Sioux and O'Brien counties met in Sheldon, April 16, and organized a district medical society to be known as the Big Four Medical Society, with an initial membership of thirty-five.

Reorganization Bill Killed.—In the state senate, April 16, the bill for the reorganization of the State Board of Health providing seven members for the new board, five of whom should be instructors in the state university, one a member of the faculty of the state college and the seventh the state labor commissioner, was defeated by a vote of 21 to 23.

ILLINOIS

Health Sunday in Springfield.—May 16 has been designated as Health Sunday and on that day physicians from the state who have come to attend the meeting of the Illinois State Medical Society will fill the pulpits of the various churches in the city.

Smallpox at Joliet.—The discovery of cases of smallpox in the penitentiary at Joliet has caused the institution to be placed in quarantine and neither prisoners nor the public will be permitted to go in or out until the quarantine is raised. It has compelled the postponement of work on country roads by the squads of honor men from the prison.

Bids for Sanatorium.—Rockford has decided on the establishment of a municipal tuberculosis sanatorium to cost about \$17,000 and to be ready for occupancy in September. The building will be two stories and basement in height and will be constructed of reinforced concrete tile and brick. The institution is to be known as the Oak Park Sanatorium.

Chicago

Measles at the County Hospital.—A threatened epidemic of measles in the children's department at the County Hospital has compelled the use of a ward in the psychopathic hospital to quarantine the patients. The total cases to April 26 was nine, and the children's ward was closed to further admissions.

New City Officials.—Mayor Thompson has announced the appointment of Dr. John Dill Robertson, a graduate of Bennett Medical College in 1896, and dean of that institution, as commissioner of health, succeeding Surgeon George B. Young, U. S. P. H. S., and of Dr. Michael Joseph Purcell, a graduate of the Chicago College of Medicine and Surgery in 1912, as city physician.

Personal.—Dr. Haim I. Davis has resigned as superintendent of the Cook County Psychopathic Hospital, the resignation becoming effective April 19. —Dr. Davis has been appointed consulting physician to the Psychopathic Hospital. —Dr. Adam Sz wajkart, a member of the State Board of Health, has assumed his new duties as head of the County Psychopathic Hospital. —Dr. Gottlieb A. Lurie left Chicago, April 25, to join the Serbian Red Cross service.

Society of Medical History Meets.—The Society of Medical History held its fifth annual meeting on April 27. Dr. Edward Clark Streeter of Boston spoke on "Leonico and the School of Ferrara" and exhibited original editions of some of his more noted works. Dr. Charles B. Reed read a paper on "A Physician Not Without Honor," which concerned the life of Haller of Berne and Göttingen and the contemporaneous period. At the annual election the following officers were elected: Dr. Arthur C. Reynolds, president; Dr. Mortimer Frank, secretary, and Dr. Charles B. Reed, councillor.

New Safety Bulletin.—Number eight of the first volume of the Public Safety Bulletin, has just been issued. The Bulletin is issued jointly by the Public Safety Commission of Chicago and Cook County, and the coroner, Peter M.

Hoffman. Among the subjects chiefly touched on in the first issue are the burning and scalding of children; a law to decrease railroad fatalities; a law for the detention of mental defects, and a series of recommendations by the coroner and coroner's juries, covering the cases examined during the past few months.

INDIANA

Free Dental Treatment.—In accordance with a contract of the City Board of Health with the Indiana Dental College, all indigent schoolchildren of Indianapolis will be given free treatment and school nurses will take the children to the clinics.

Insanity Statute Held Unconstitutional.—Judge Mull of the superior court, Indianapolis, has given his opinion that the statute under which insanity proceedings are held by justices of the peace is unconstitutional. This rule is based on the fact that the statute does not require notice to the person said to be insane before final judgment and does not guarantee to such person an appearance in court.

State Board News.—Dr. T. Henry Davis, Richmond, who has been a member of the state board of health for twenty-two years, announces that he will not seek reappointment. —A committee of the state board was appointed to prepare a testimonial for Dr. Davis. —Dr. Charles B. Kern, Lafayette, has been appointed a member of the state board to succeed Dr. T. Henry Davis, the appointment to become effective May 6.

Personal.—Dr. James E. Weller, Richmond, who bruised his knee while working on his farm in Orlando, Fla., recently, developed septicemia and on April 12 it became necessary to amputate his right leg. —Dr. Paul E. Bowers, Michigan City, physician in charge of the Indiana State Prison for the last four years, has been reappointed medical superintendent of the Indiana Hospital for Insane Criminals, the medical and psychiatric work of which was organized by him in 1911-12. —Dr. Arthur R. Simon, La Porte, fractured both bones of his right arm while cranking his automobile, April 16. —Dr. William Palm, Harmony, health commissioner of Clay County, fractured his clavicle and sustained other injuries in a collision between automobiles at Brazil, April 7.

MARYLAND

New Building for Hebrew Hospital.—The Hebrew Hospital will have another handsome and substantial new building added to its group through the beneficence of Mr. and Mrs. Morton Samuels, as a memorial to Mrs. Samuel's parents. The building will be for a general dispensary.

Hospital Building Opened.—A public inspection of the maternity building of the Hebrew Hospital group took place on April 18. The equipped building is the gift of Abraham Mendels as a memorial to his brothers. It is three stories high and measures 44 by 100 feet. A Roentgen-ray room is one of the main features. A new isolation ward at the hospital has been completed and was also opened for inspection on the same date.

Personal.—Dr. Archibald C. Harrison was successful in the suit recently brought by Thomas J. Copeland for neglect in the treatment of an injured ankle. —Dr. George H. Hocking, Govans, has been appointed a member of the Maryland State Lunacy Commission, to succeed Dr. Thomas H. Brayshaw, Glenburnie, whose term of office has expired. —Dr. John Howland, Baltimore, with his brother and sister has given \$15,000 to Yale University as a memorial to their father who was a member of the corporation of Yale. The gift is to be awarded as a prize to some citizen of this country in recognition of sole achievement of marked distinction in literature or fine arts or the science of government.

MASSACHUSETTS

State Medical Inspection Urged.—In a special message sent to the legislature April 16, Governor Walsh recommended to the legislature authorities, the appointment of a state medical inspector to supervise the work of the medical inspectors in public schools of the state.

Creel to be Health Officer.—The mayor of Boston announces that he has received information which leads him to believe that he will secure the services of P. A. Surg. Richard H. Creel, U. S. P. H. S., as health officer of Boston. It is now believed that Dr. Creel will be given a leave of absence, May 15, that he may accept this position.

Personal.—Dr. Edmund W. Wilson has been appointed assistant superintendent of the Boston City Hospital, succeeding Dr. Frank H. Holt, resigned.—Dr. Lewis Fish, Fitchburg, has been appointed assistant district health officer, vice Dr. Frank L. Morse, Somerville, resigned.—Dr. Edmund R. P. Fournier, Waltham, was painfully injured in an automobile accident, April 7.

Septic Sore Throat.—It is reported that more than 100 cases of septic sore throat occurred in the Upham's Corner and Centre Street stations of Dorchester and have been reported to the Boston Department of Health. A prompt investigation was instituted and the source traced to a man employed by a dairy in Milton from whom a milk distributor in Dorchester bought a part of his supply. Prompt and vigorous measures were adopted and carried out, and it is believed the further spread of the disease will be prevented.

Health Conference.—A convention of health officials and others interested in public health was held in Boston, April 29, under the auspices of the commissioner and council of the State Department of Health and the Massachusetts Association of Boards of Health. The convention was presided over by Dr. Allen J. McLaughlin, Boston, state commissioner of health, and addresses were made by the governor, President Eliot of Harvard University, Dr. William T. Sedgwick, president of the American Public Health Association and Prof. Irving W. Fisher of Yale University. At the luncheon of the Massachusetts Association of Boards of Health, the addresses were made by Dr. Eugene R. Kelley, director of the division of communicable diseases and several of the recently appointed district health officers and by representatives of local boards of health.

NEW YORK

Single Head for Hospitals.—The Sage bill, which substitutes for the present state hospital commission the appointment of a single state hospital commissioner with a salary of \$10,000 a year, passed the senate, April 13.

Doctor Biggs Will Continue in Office.—Governor Whitman has set at rest the repeated reports that the republican organization would cause the resignation of Health Commissioner Hermann M. Biggs by making the statement that as long as he was governor Dr. Biggs would be retained.

Personal.—Dr. Albert L. Beahan, Canandaigua, was the guest of honor at a reception given by the physicians of Cortland and Homer, April 12. The reception followed an address delivered by Dr. Beahan on "The Advantages to Communities of Moderate Priced Hospitals," before the Homer Hospital Society.

Medical Assistant for District Attorney.—Governor Whitman has signed the Mills bill, authorizing the district attorney of New York to appoint a medical assistant whose duty it shall be to report on all cases of suspicious death or injury coming under the jurisdiction of the district attorney. The salary is to be fixed by the district attorney.

Dispensary Opened.—An obstetrical dispensary was opened in Buffalo, April 13, under the management of the Bureau of Hygiene of the Department of Health. In addition to the dispensary, a bureau is to be conducted in connection with child hygiene work at the health center, where mothers will be taught by competent instructors, how to care for their babies.

Spring House Cleaning in State.—Dr. Hermann M. Biggs, commissioner of the State Department of Health, has asked the presidents of local health boards throughout the state to organize a state-wide "clean-up week." Instructions are given for the cleaning of houses, especially cellars, and for cleaning up the premises in general. Special emphasis is laid on the fact that this is the breeding season of the house fly and that every fly killed now means many thousands of flies less next August.

Vigorous Protest Against Antivaccination Bill.—The Kings County Medical Society, through the chairman of its legislative committee, is using every effort to have the governor veto the Tallet-Jones antivaccination bill, which was recently passed by the senate. He points out that if this bill becomes law it will mean that 50,000 schoolchildren will not be vaccinated next year and that that will mean that in a few years the majority of the people in this state will be unvaccinated. The State Medical Society and other medical organizations are unqualifiedly against the bill.

New York City

Personal.—Dr. Andrew Hunter has accepted the professorship of pathologic chemistry in the University of Toronto.—Dr. Herman T. Radin has been appointed physician to Bronx County Jail.

Fever Suspects Detained.—The quarantine officials of New York City removed eighty-six passengers from the steamer *Themistocles* from Piraeus, Greece, and transferred them to Hoffman Island for observation and treatment.

Teacher Mothers Get Leave of Absence.—In accordance with the resolutions recently adopted by the board of education, providing that married teachers expecting to become mothers must ask for a leave of absence of two years, eighteen teachers have asked for this leave of absence and the board of education has granted it.

Guarding Against Typhus.—Dr. Joseph H. O'Connell, health officer of the port of New York, has notified the steamship companies that "The epidemic outbreak of typhus fever in countries affected by the present war makes it desirable that steamship companies carrying steerage passengers from infected districts shall take precautions at ports of embarkation to prevent the importation of this disease into the United States."

Dedicate Children's Division of German Hospital.—The Dr. Abraham Jacobi Division for Children of the German Hospital was dedicated a few days ago. This division has been housed in the old private ward building of the hospital which has been thoroughly renovated and remodeled. Accommodations have been made for sixty-five beds, with a roof garden, play room and all the other adjuncts of a children's hospital. The children's division is the gift of Mrs. Anna Woerishoffer who has contributed in all \$150,000 for this purpose. Dr. Jacobi made the principal address.

Special Children's Classes at the Tuberculosis Clinics.—The department of health announces that special classes for children will be conducted on Saturday mornings at the Lower East, Lower West, Harlem Italian and Southern Italian clinics in Manhattan; at the Northern and Southern clinics in the Bronx, and at the Main, Brownsville, Germantown and Eastern District in Brooklyn. Instruction in these classes is paid for by the Woman's Auxiliary and nourishment in the form of milk or some articles of food is served to the children. Arrangements are being made to open similar clinics in the Corlears and Middle East clinics and to increase the number of night clinics in the Borough of Brooklyn.

Certificates of Contagious Disease.—In view of the theories at present held that the transmission of contagious disease rarely occurs through a third person and that it is unnecessary to exclude from school children in a family in which the patient is properly isolated who have previously gone through an attack of that particular disease, and since the methods of determining such immunity have hitherto been unsatisfactory, the health department now proposes to issue a certificate to each child reported to be suffering from diphtheria, scarlet fever, or measles, on the termination of the case. By this means all immune schoolchildren brought up in this city would be in possession of a health passport. It is believed that in addition to the benefits that such a certificate would confer on the holder, it would bring about a more general and voluntary compliance by both physicians and parents with the requirements of the sanitary code regarding the reporting of cases of infectious diseases.

Health Conditions in Private Schools.—A special committee appointed by the health commissioner to investigate the private Jewish schools conducted in tenement houses has reported recently on nineteen such schools with recommendations for the improvement of sanitary conditions. These schools are located in tenements, loft buildings, over stables and in all sorts of unsuitable places, with wretched ventilation and light conditions, many of them filthy, with defective toilet facilities, and so situated and equipped as to be veritable fire traps. The committee recommends that all such schools register with the department of health at regular intervals, and that they be required to conform to all sanitary and hygienic requirements, with frequent inspections by the health and fire departments and be made to comply with the regulations regarding fire hazards. It is said there are 500 of these schools in New York.

Medical Quacks Raided.—On the afternoon of April 21, fifty policemen, acting simultaneously, raided twenty-four "Medical Museums" in New York City and arrested forty-three alleged medical quacks. The Bureau of Industries

and Immigration of the State Labor Department and the New York County Medical Society had been working for months perfecting a case against each defendant before this action was taken. It is reported that when the evidence is given out it will show a nation-wide system of extorting money through quacks who persuade their victims that they are affected with tuberculosis or cancer and offer to effect cures for sums ranging as high as \$500 or \$1,000, according to the circumstances of the patient. It is estimated that within eight months since these medical institutes and museums have been under the observation of the police they have taken from victims, mostly foreigners, more than \$500,000. The prisoners were held in bail ranging from \$500 to \$1,000.

NORTH CAROLINA

Society Reorganized.—The Catawba County Medical Society was reorganized at Newton, April 13, with every physician in the county except one on its list of members. Dr. George H. West was elected president and Dr. George W. Shipp, secretary-treasurer, both of Newton.

State Sanatorium to be Enlarged.—Plans are being considered for the enlargement of the State Sanatorium, Montrose, for which about \$50,000 is now available. A new receiving department is to be created and a building for those seriously ill and a new power and steam heating plant is also being considered.

Sanitation Campaign for Orange County.—At a conference of officials of the State Board of Health and the United States Public Health Service, Orange County has been selected as the next county in the state in which the federal government will cooperate with the state and local authorities in a campaign for sanitation. The work will extend from May to October.

Personal.—Dr. William P. and Charles R. Reaves, Greensboro, have begun the erection of their new private infirmary building.—Dr. George M. Cooper, Clinton, formerly president of the North Carolina State Health Officers' Association, has been appointed chief of the Bureau of Rural Sanitation of the State Board of Health.—Senior Surgeon James B. Stoner, U. S. P. H. S., recently in charge of the United States Marine Hospital at Pittsburgh, has been placed in command of the service at Wilmington, succeeding Dr. Ernest W. Scott, temporarily in command during the absence of Dr. Charles Wardell Stiles.—Dr. Milton T. Greenville Edgerton, Jr., Freemont, has been elected whole-time health officer of Pitt County.—Dr. John A. Dowd, Biscoe, is reported to be critically ill with pneumonia.

OKLAHOMA

New Hospital.—There has already been subscribed \$2,100 toward the \$2,500 required for the construction of a building for a hospital at OKeene.

Health Commissioner's Office Transferred.—Dr. John W. Duke, Guthrie, State Commissioner of Health, has transferred his office from Oklahoma City to Guthrie.

Deaths in Asylum Fire.—It is reported that two patients of the State Insane Hospital, Fort Supply, were burned to death in a fire which destroyed a wing of the building, March 30.

State Board Appointments.—Governor Williams on April 17, reappointed the following members of the state board of medical examiners: Drs. LeRoy Long, McAlester; Melvin Gray, Mountain View; and W. LeRoy Bonnell, Chickasha; and appointed Drs. B. L. Denison, Garvin; Ernest B. Dunlap, Lawton; Ralph V. Smith, Tulsa; William T. Ray, Gould; H. C. Montague, Muskogee; and Orion R. Gregg, Alva, members of the board.

Personal.—Dr. William A. Kendall, Crescent, who has been laid up with a bad sprain of the ankle, is convalescent.—Dr. George R. Norman, Luther, has recovered from an attack of pneumonia.—Dr. William G. Kiebler, Goltry, who fractured his arm recently, is now able to attend to his practice.—Dr. Robert H. Harper, Afton, was recently operated on for gastric ulcer.—Drs. Charles D. F. O'Hern and Walter E. Wright, announce that they have purchased the Physicians and Surgeons Hospital of Tulsa.

PENNSYLVANIA

Antivaccination Bill Defeated.—The antivaccination bill was defeated in the House April 14 by a vote of 106 to 41.

Free Wassermann Test.—The State Department of Health Laboratory announces that it will hereafter make Wasser-

mann tests for physicians of the commonwealth, free of charge.

House Warming.—Medical Hall, 429 Walnut St., Reading, the new home of the Berks County Medical Society was formally opened with special exercises and a banquet April 13.

Personal.—Dr. Jacob H. Sieling, York, who has been ill for several weeks, was removed to his summer home in Hopewell Township, April 17.—Dr. William P. Ahearn, Susquehanna, has returned from work with the American Red Cross in Serbia.

Proposed Resolution for the Care of Insane.—Representative Dunn, of Philadelphia, introduced in the house, April 6, a resolution requiring the state Board of Charities to give a report to the next session of the legislature, a plan whereby the state can take over and support all its dependent insane. This measure is backed by charity associations.

Philadelphia

Physicians Favor Local Option.—More than 700 physicians both men and women have signed petitions to the legislature asking the passage of the local option bill.

Cancer Hospital Wing Dedicated.—The new wing of the American Oncologic Hospital, erected at a cost of \$21,000, was formally dedicated April 17. The building is two stories in height and of fireproof construction throughout. Provision has been made for the eventual erection of a third story on this building and it is expected that a similar wing will be put up on the opposite side of the central building.

Rules for Infants' Homes.—The members of the Board of Health have drawn up twenty-two rules for conducting homes for children providing for the present care of the children as well as for their physical surroundings. The head of every licensed boarding house for infants must keep a record of each of the children admitted, the names of parents, etc., and the homes must be inspected every two weeks.

Civil Service Examination.—The Civil Service Commission of the City of Philadelphia has the following medical position on its present schedule: resident physician, the examination for which will be held on June 2 in the City Hall, Philadelphia. Applications must be executed and sent to the Commission on the third day prior to the day of the examination. The examination is open only to citizens of the United States and residents of Philadelphia.

Physicians Favor Animal Experimentation.—An effort is being made by physicians of the city to promote the membership in the city and state of the Pennsylvania Society for the Protection of Scientific Research, whose object is to carry on an active campaign of education for the support of medical research, and animal experimentation. A resolution was adopted by the College of Physicians of Philadelphia, April 17, endorsing the program of the Society.

Women's Medical College News.—Announcement was made April 17, that nineteen of the thirty women who will graduate this year from the Women's Medical College of Pennsylvania, have been appointed resident physicians in local hospitals.—Moving pictures showing the work of the Women's Medical College will be exhibited in the Y. M. C. A. Building at the Panama-Pacific Exposition, San Francisco. The films take as their subjects the girl student as she enters college, following her through work and play to her graduation and then depicts the busy woman physician in some of the emergencies she is called upon to meet.

City Dredge in War Against Mosquito.—The municipal dredge of the department of wharves, docks and ferries, has begun to dredge away the bar at the entrance of the Swanson canal in south Philadelphia, that section of the city below Oregon avenue and between Broad street and the Delaware River. For the last year the bar has been growing and as all of the section is below the tide level, the blocking of the canal has caused it to be inundated. Realizing that these ponds of water would be a breeding place for germs and mosquitoes, the Bureau of Health and Department of Public Highways requested that the Dock Department dredge the entrance of the canal.

Correct Layettes for Infants.—Probably every physician has at one time or another realized the difficulty in having the new-born baby properly clothed. Physicians and nurses connected with the Child Federation of Philadelphia have carefully selected, as to quality, type of garment and price, three grades of layettes which will be known as The Child Federation No. 1 layette which will be sold at \$5; No. 2 layette which will be sold at \$6.50, and No. 3 layette at \$20,

and they will be on sale by the various department stores. The Child Federation will be glad to send to any physician cards which will call for any of these three layettes. The Federation believes in having these layettes prepared and backed by the medical members of the Federation that a great many mothers will be saved from foolish expenditure of money for extravagant and improper garments for the baby. The Federation asks for the cooperation of all the members of the Philadelphia County Medical Society in securing the promotion of this layette. Of course it is needless to say that the Federation has no financial interest in the plan.

VIRGINIA

Personal.—Dr. Roy K. Flannagan, Richmond, has been appointed assistant commissioner of health of Virginia, succeeding Dr. Allen W. Freeman, Richmond, resigned to accept the position of epidemiologist in the United States Public Health Service.—The office of Dr. Joseph G. Bishop, Galax, was destroyed by fire, April 4.

Graduating Class Will Render First Aid.—Arrangements have been made by the chairman of the medical committee of University of Virginia that the entire graduating class of the Medical College of Virginia, Richmond, will form an ambulance corps and care for any of the Confederate veterans who may require first aid during their coming reunion.

Beriberi on German Vessel.—Under date of April 11 it was reported that on board the *Kronprinz Wilhelm*, the German converted cruiser and sea raider, which was compelled to put into Newport News, there were sixty-six cases of beriberi among the crew of 500 men. The vessel had been on the seas for more than eight months without touching at any port and was short of proper provisions.

Superintendents Reelected.—The general hospital board of the state, at its annual meeting at the State Epileptic Colony, Amherst County, April 15, reelected all hospital superintendents as follows: State Epileptic Colony, Dr. Albert S. Priddy; Southern State Hospital, Marion, Dr. John C. King; Central State Hospital, Petersburg, Dr. William F. Drewry; Eastern State Hospital, Williamsburg, Dr. George W. Brown, and Western State Hospital, Staunton, Dr. Joseph S. De Jarnette.

Sanatorium for Colored Consumptives.—The Negro Organization Society of Richmond is cooperating with the Virginia Antituberculosis Society to raise \$15,000 to build a sanatorium for colored sufferers from tuberculosis. It is proposed to buy a farm of 200 acres as a site for the sanatorium and during the summer to build at least two units accommodating forty patients. As the first step toward the raising of this amount, a tag sale was held in all cities, towns and hamlets of the state, March 27.

WISCONSIN

Hospital News.—The contracts for the construction of the Wisconsin Deaconess Hospital, Green Bay, has been awarded to the Appleton Construction Company for \$65,000.—Drs. Ansly D. and Floyd E. Shearer, Edgerton, have made plans for the erection of a hospital in that place.

Surgeons to Meet in Milwaukee.—The clinical session of the Wisconsin Surgical Association will be held at the Hotel Pfister, Milwaukee, May 5 to 7 under the presidency of Dr. Alfred H. Levings, Milwaukee. The afternoons are to be devoted to clinical work and papers and reports of cases will be read in the evenings. The annual banquet will be held on Thursday evening.

TENNESSEE

Building Given to Vanderbilt.—It is reported that the building formerly occupied by the medical department of the University of Nashville, has been purchased by Mr. William Litterer and has been donated to the Vanderbilt University. The building is said to represent, at a conservative estimate, about \$50,000. It is to be remodeled and used for teaching and research work in bacteriology.

New State Association Officers.—At the eighty-second annual meeting of the Tennessee State Medical Association held in Nashville, April 13 to 15, the following officers were elected: president, Dr. Edward C. Ellett, Memphis; vice-presidents, Drs. Julian G. Price, Dyersburg, for western Tennessee; R. E. Lee Smith, Doyle, for middle Tennessee; and Joseph W. Johnson, Chattanooga, for eastern Tennessee; secretary, Dr. Olin West, Nashville; treasurer and trustee of the Association Journal, Charles N. Cowden, Nashville,

reelected; delegate to the American Medical Association, Dr. Jere L. Crook, Jackson; alternate, Dr. J. McC. Hogshead, Chattanooga, and councilors, Drs. Samuel M. Miller, Knoxville; W. Scott Farner, Cookeville; Joseph F. H. Gallagher, Nashville; Alexander B. Dancey, Jackson, and James L. Andrews, Memphis.—A new department of ophthalmology was created and Dr. Gies C. Savage, Nashville, was elected president; Dr. Newton C. Steele, Chattanooga, vice-president, Dr. Octavius Dulaney, Dyersburg, secretary. Knoxville was selected as the next place of meeting.—On Wednesday evening the annual banquet was held at the Tulane Hotel, and was unique in that there was no toastmaster nor were there any after dinner speakers.

CANADA

Hospital Fire.—The Lakeside Home or Hospital for the Sick Children's Hospital, situated on Toronto Island, was destroyed by fire on April 23. The loss is estimated at \$100,000; insurance \$35,000. The summer home was a gift to the Sick Children's Hospital by Mr. John Ross Robertson. It is stated that the hospital will be rebuilt immediately.

Fraternalists Meet.—At the annual meeting of the Canadian Fraternal Association in Toronto, April 22 and 23, Dr. John Ferguson, editor of *The Canada Lancet*, Toronto, officiated as president, and made the presentation of a suitable testimonial to the past president, Dr. John H. Bell, Hamilton. Dr. William S. Harrison, Toronto, was elected president, and Dr. George Elliott, Toronto, chairman of the medical section.

Hospital News.—The physicians of the Medical Society of Peterboro, Ont., have completed the details of the organization of a base hospital unit for the front in any part of Europe where needed, including Serbia, with nine physicians and one dentist, that being the number of qualified physicians in that city for the army medical corps. Fifteen trained nurses have offered their services. The Canadian government has accepted the offer of this hospital. The physicians remaining at home will pay \$50 per month, the lawyers a similar sum and the balance will be contributed by the citizens for the equipment of this hospital.

GENERAL

Warning.—Dr. J. E. Jorris, Minneapolis, has reported to the police that a well-dressed man purports to be a member of an organization of locomotive firemen and visits physicians' offices with notification of the appointment of physicians as examiners for his trade union. He asks a loan and is also said to have stolen small articles from the physicians' offices.

Grenfell's Work in Labrador.—At the annual meeting of the International Grenfell Association held in New York, April 13, a broadening of the scope of the mission work among the fishermen of Labrador was indicated. During the last year the hospitals and missions of the association treated 7,345 patients, and \$66,839 was expended for medical and mission work.

To Investigate Diseases in the Far East.—Dr. Samuel T. Darling, Ancon, C. Z., for ten years a member of the medical staff of the Panama-Canal Zone, has resigned as chief of the laboratory to investigate disease in the Far East for the Rockefeller Foundation International Health Commission. Dr. Darling sailed from New York on the *Adriatic*, April 21, for Liverpool on his way to Singapore.

Urologists Elect.—At the fourteenth annual meeting of the American Urological Association held in Baltimore, April 13-15, St. Louis was determined on as the next place of meeting and the following officers were elected: president, Dr. Edward L. Keyes, Jr., New York City; vice-president, Dr. E. Otis Smith, Cincinnati; secretary, Dr. Henry L. Stanford, Cleveland, and treasurer, Dr. James A. Gardner, Buffalo, N. Y. (reelected).

Bequests and Donations.—The following bequests and donations have recently been announced:

Medical College of South Carolina, Charleston, a donation of \$1,000.00 by Mrs. Salina Huger, Charleston, in memory of the late Dr. William Harleston Huger.

Long Memorial Hospital, Indianapolis, an additional gift of \$10,000. by Dr. and Mrs. Robert W. Long, Indianapolis, making their entire donation up to date, \$240,000.

Boone County, Ind., Hospital, a donation of \$15,000. by Mr. F. J. Witham and the Board of County Commissioners of Boone County, \$15,000.

White Plains, N. Y. Hospital, St. Luke's Hospital and German Hospital and Dispensary, Manhattan, and White Plains Nursing Association, each \$1,000.00 by the will of Henry Ungrich.

Association of Medical Museums Meeting.—The eighth stated meeting of the American Section of the Association of Medical Museums was held at Washington University Medical School, St. Louis, April 1, under the chairmanship of Dr. Aldred S. Warthin, Ann Arbor, Mich. The program of the meeting was included under the heads of "Museum Technique," "Microscopic Technique," "Illustrative Medical Teaching" and "Museum Research." A number of special exhibits was also demonstrated.

Sanitary Equipment at the Panama Exposition.—Under the direction of Surgeon Claude C. Pierce, U. S. P. H. S., in charge of the sanitary supervision of the Panama exposition at San Francisco a census of the employees and a sanitary survey of the grounds and buildings have been made. There are 199 buildings and 401 employees under sanitary supervision, exclusive of the guards. Up to March 31 most of the employees had been inoculated against typhoid fever. The water plant of the grounds consists of pumps for pumping ground water into wooden reservoirs above the ground, and from these the water passes through sand filters and is afterward treated with chlorin. The water is then pumped to the reservoir from which it is distributed to the grounds and buildings. Cases of communicable diseases are promptly isolated. Measures against flies consist in treating all material in which flies might breed with a mixture of phenol, resin and caustic soda and their removal at short intervals. Restaurants are provided with garbage cans with tight covers which are taken away every night and the garbage incinerated. Special attention is given to food sold on the grounds to see that it is of wholesome quality.

FOREIGN

Honors for Dr. Kinnear.—Dr. Hardman N. Kinnear of the hospital at Foochow, China, conducted by the American Board of Foreign Missions, who is now in America on furlough, has been given a medal and the decoration of the Sixth Order of Chia Ho by President Yuan on behalf of the Chinese government "in recognition of valuable services in connection with relief work during the revolution." The hospital has 100 beds and the staff consists of two American physicians, one American nurse and six Chinese assistants. During the last year the surgical operations were 900 major, 95 minor; 34,915 treatments were given in the dispensary and 5,241 new patients were attended. The station was opened in 1847. Dr. Kinnear has been at the Foochow hospital since 1889.

WAR NOTES

Wheat Starch in Prescriptions.—Unna's *Dermatologische Wochenschrift* appeals to the patriotism of German physicians, and especially the dermatologists, to refrain from ordering wheat starch in prescriptions for external use. It gives formulas in which the usual wheat starch is omitted in favor of talcum, saying that hundreds of pounds of wheat will thus be saved to the country.

The Flood of "Experiences at the Front."—The *Deutsche medizinische Wochenschrift* warns the 20,000 medical men in army work that its capacity is limited, and that it is impossible to publish the hosts of articles being sent in on "trench foot," "skull wounds," etc. Even if space permitted, the supply of ink would soon run out, to say nothing of paper. The space in the weeklies has been much reduced, and publication even of extremely timely articles may have to be delayed unless all are cut down to the shortest limits.

Russia Appeals for More Physicians.—According to a communication in the *Frankfurter Zeitung*, the president of the Russian Red Cross has telegraphed to the presidents of the Swedish and Norwegian Red Cross asking whether they could not send physicians to Petrograd to serve in the military hospitals. The replies stated that no army or navy medical officers could be detailed for the purpose. A German exchange states further that all Russian physicians now serving under the Red Cross outside of Russia have been summoned home.

Contributions to British Journals Short.—The *Journal of Obstetrics and Gynecology* of the British Empire has just issued a quarterly number, covering the months of October, November, and December, 1914. In an editorial it states that "The war has brought about such a great falling-off in the material for publication that the editor has been compelled to issue the present quarterly number, instead of three separate numbers. He hopes that this falling-off has been only

of a temporary nature, and intends to make every effort to publish in full the usual monthly numbers." In discussing the reasons for this action, he says: "It is not a time when members of the profession, in whatever capacity, are able to settle down to reflective scientific work and to write original articles. It is interesting to note that a number of journals are publishing articles by American writers in somewhat greater profusion than has been the case in the past. And judging from some of the material the editors have not been overly strict in making their selections."

Aid for Belgian Physicians.—The report of the treasurer of the committee of American physicians for the aid of the Belgian profession, for the week ending April 24, 1915, lists the following contributions:

Dr. George Crile, Cleveland, Ohio.....	\$ 100.00
Salt Lake County Medical Society, (Third contribution), Salt Lake City.....	21.00
Dr. C. P. Thomas, Los Angeles, Cal.....	5.00
Portland Medical Club, Portland, Me.....	25.00
Dr. C. H. Henninger, Pittsburgh, Pa.....	5.00
Dr. J. J. Buchanan, Pittsburgh, Pa.....	25.00

Receipts for the week ending April 24th.....\$ 181.00
Previously reported receipts.....6,324.50

Total receipts.....6,505.50

Disbursements for the week ending April 24—

80 Standard boxes of food at \$2.30.....\$ 184.00

Previously reported disbursements—

1,625 Standard boxes of food at \$2.20.....\$3,575.00

1,194 Standard boxes of food at \$2.30.....2,746.20

Total Disbursements.....6,505.20

Balance\$ 0.30

Through an error in the report of April 17th, the contribution of the Bennington County Medical Society, Bennington, Vt., was credited to the secretary, Dr. Lucretius H. Ross.

F. F. SIMPSON, M.D., Treasurer,
5 Jenkins Arcade Bldg., Pittsburgh, Pa.

The "Deathbed of the Tabloids."—Under this heading, *Am Totenbett der "Tabloids,"* the *Therapeutische Monatshefte* comments on the efforts in Germany to discontinue the use of British proprietaries and especially of the "erstwhile so popular English miniature tablets." The Apotheker-Verein offers its services to physicians to help them to select equivalents, made in Germany, for foreign proprietaries, and has published lists of available substitutes. Our exchange continues: "This movement is a political as well as a patriotic necessity. But the same patriotic motives can scarcely be ascribed to the numerous German manufacturing chemists who, swimming stoutly with the tide, have sought protection for and registered an equal number of trademark names. Instead of the single term 'tabloids' eight new names have been registered, 'comprets,' 'primoids,' 'puroids,' 'tablettidae,' 'tablonettes,' 'trochoids,' 'tabletten marke Hageda' and the tablets put out by a syndicate with the initials of the firm composing it, 'M. B. K.' The *Pharmazeutische Zeitung* offers still another term 'piluloids.'" The editorial continues: "Hence the otherwise gratifying crowding out of a foreign-made pharmaceutical leaves us little to rejoice over, as it brings with it these disagreeable side-issues. At the same time, it may be as well that institutions which lead to such consequences are thus carried to ridiculous extremes. The suggestion that the fancy names 'amphiols' or 'amploid' be used instead of the term 'ampule,' is another step in the same direction."

An Appeal for Surgical Aids for Provincial Hospitals in France.—The presence of 500,000 wounded, scattered not only through the great hospitals in larger cities, but also throughout the provinces in many country towns and villages of France has necessarily placed an intolerable strain on the medical resources of these little places. The hospitals, situated often in a school, hotel or factory, usually are furnished with beds by the neighboring population. The government provides some twenty-five cents a day for the food of each wounded man and leaves them to the mercy of communes. These "hospitals" are usually found to be practically destitute of all medical supplies, except perhaps a small quantity of rough cotton and anesthetics. Untrained women of all classes form the nursing staff with local chemists or practitioners in charge. A military surgeon visits them at varying intervals; should any operation be necessary in his absence it is usually done by the superintendent or a medical student with any instruments to hand. There are stories of the use of jack-knives and even automobile tools, and these appear by no means incredible to anyone who has seen the appalling condition of many of these crowded hospitals.

The French Wounded Emergency Fund has been started to provide for the needs of these poorer temporary institutions. It is already sending supplies by a system of service—motor transport—sending supplies to over 225 hospitals in Normandy and Brittany, and it is proposed that an American branch should take in hand a similar organization for the Southern and Southwestern provinces, operating from Bordeaux as a base.

Surgical dressings are constantly needed and also surgical instruments of all the commonest and most useful kind. The French Wounded Emergency Fund therefore appeals to all surgeons and surgical hospitals throughout America for any recently discarded instruments that would prove a godsend to the hospitals that have none.

Cases should be sent to the local chapters of the Red Cross Society, addressed for the French Wounded Emergency Fund, and they will ship them to New York; or to the same name at 38 West 39th Street, New York.

FROM SIR WILLIAM OSLER

OXFORD, APRIL 9, 1915.

Medical Notes on England at War

THE VOLUNTEER ARMY

For England the war has hardly begun. There is but little fighting at sea, and her armies are only in training. The material is first-class, as the average Englishman is of the bull-terrier type and a born fighter. All he needs is instruction in modern methods. The whole country is in khaki—soldiers everywhere. It is wonderful what six months' training has done for the men. We have had an average of from 6,000 to 7,000 in Oxford, and I have had many opportunities to watch the development of a body of strong citizen soldiers. The transformation makes one realize how much compulsory service would stiffen and strengthen the physique of men, but it is never likely to be a popular measure in this country. To have raised voluntarily an army of 2,000,000 is itself a tribute to the democratic spirit and to the individualism which is so characteristic of British civilization. Billeted in houses and carefully looked after, the sickness rate has been low, in spite of an exceptionally bad winter.

The colleges here and at Cambridge are depleted. Last term there were scarcely 1,000 in residence out of more than 4,000; this term there will not be 500. And the heavy toll of young lives is beginning. Already we have lost at Christ Church, my college, twenty out of a student body of about 280. Irrespective of nationality, we may

Salute the sacred dead
Who went and who return not.

But there is a singular pathos in the loss of the bright young lives of the undergraduate band—a pathos which inspired Lowell in his famous ode, well called the high-water mark of American poetry:

I see them muster in a gleaming row,
With ever-youthful brows that nobler show;
We find in our dull road their shining track;
In every nobler mood
We feel the orient of their spirit glow,
Part of our life's unalterable good,
Of all our saintlier aspirations;
They come transfigured back,
Secure from change in their high hearted ways,
Beautiful evermore, and with the rays
Of morn on their white Shields of Expectation.

THE AMERICAN HOSPITAL, PAIGNTON

A week at Paignton enabled me to see thoroughly the work of the hospital, which is first class. A beautiful new ward for between sixty and seventy beds has been opened in the circular riding school, and a laboratory has been organized in charge of Dr. W. B. Crumley from the Mayo Clinic. The hospital has been opened for just six months. Dr. Beal, the surgeon-in-chief, has given me the following statement:

Number of cases admitted	1,060
Number of deaths (0.3 per cent.)	3

(The first was from a wound of the spine, the second a shell wound of the scalp, and the third acute Bright's disease.)

Number of gunshot wounds	225
Number of shrapnel and shell wounds.....	203
Number of fractures	115
Number of frost-bites	153

The thigh was the part of the body most frequently injured; there were twenty-nine gunshot and shrapnel wounds of the chest, ten of the abdomen and ten of the skull.

It is interesting to note that there were only three bayonet wounds.

Among medical infections there were five cases of pneumonia, two of typhoid and two of tetanus, and all the patients recovered.

So far as England is concerned, the most remarkable feat of the war has been the transportation, the organization of which has been thorough and efficient. A just tribute was paid to it in the House of Commons recently, when emphasis was laid on the fact that thousands, now hundreds of thousands, of troops have been moved silently and quickly without loss of life across the channel and from distant parts of the empire. The transport of the wounded has also been very thoroughly arranged, and I was glad during my visit to witness the arrival of a new group of patients. Word came that the Red Cross train was due at Paignton station about 3:30. On the platform the ambulances for the cot cases and various conveyances for the others were in attendance. A group of Boy Scouts arranged the stretchers and a detachment from the Royal Army Medical Corps, in training near by, was lined up to act as bearers. Nothing could be more admirable than the ease with which the wounded were handled. Within an hour from the arrival of the train all the patients were in bed, though among them were thirty cot cases requiring careful treatment. The men had come from the battles about Neuve Chapelle and had been transferred through Boulogne and Southampton.

The personnel of the hospital has changed slightly since my last letter. Dr. Eastman has gone to a hospital at Pau, France, and Dr. Shaw and Dr. Leonard have returned to America. Dr. Hinds, who is second in charge, is leaving shortly for the queen of the Belgians Hospital, Lapanne. The present staff is: Dr. Howard Beal of Harvard and Worcester, Mass.; Dr. R. W. Hinds of Harvard and Buffalo; Dr. Fitzsimons, New York and Kansas; Dr. W. G. Crumley of Rochester, Minn. (Mayo Clinic); Dr. Gilcreest of Gainesville, Texas, and of the Johns Hopkins; Dr. Stowers of Millersburg, Mo., of the John Hopkins, and of the Royal Victoria Hospital, Montreal, and two new men are expected, Dr. Dykes from Georgia and Dr. Lange from Rhode Island.

CHEST WOUNDS

The next day I had a unique experience, examining in succession, nine wounds of the chest, seven complete perforations with bullets, one shrapnel bullet lodged in the lung, and one fragment of a shell which had also penetrated the lung. They illustrated the inefficiency of the modern rifle as a weapon of war. These men had been wounded within a fortnight, yet all were up and about, without fever, practically without cough or other symptoms, and with very few physical signs! The wound of entrance in all was small and healed; the wound of exit a little larger and healing. In one, the bullet entered the sternum half an inch from the junction of the third right costal cartilage, and from the position must have gone through the right auricle, and the exit was through the lower end of the scapula. The man had hemoptysis and an irritating cough for some days, but these gradually disappeared. There was impaired resonance at the right base, but no fever, and he said he felt perfectly well. In another case the bullet entered the right clavicle 1½ inches from the sternum, passed obliquely upward through the neck and came out at the fold of the left trapezius. He had a little difficulty in swallowing for a couple of days, but has since had no symptoms. It is marvelous how it could have escaped the great vessels and the windpipe. In the shrapnel case the fluoroscope showed the bullet lodged in the left lung, and there was a difference in its position between deep inspiration and forcible expiration of at least 3 inches. He, too,

had no symptoms, and only signs of slight impairment of resonance and feeble breath sounds. Of the twenty-nine cases of bullet or shrapnel wounds of the chest, there was recovery in all. Only one patient had acute pleurisy—a man with a very severe shrapnel wound with fracture of the ribs in exit. When I saw him on my first visit he had high fever, foul septic pleurisy and evidence of a wound of the esophagus, as portions of food had been coughed out through the opening in the chest. He looked in a desperate condition, but with drainage and irrigation he gradually recovered. The wound has now healed and he has gained 15 or 16 pounds in weight and is ready for discharge. Only two of the cases had extensive hemothorax requiring aspiration. One had 1,000 c.c. of blood drawn off, and the other 500 c.c. at one and 900 c.c. at a second tapping. Several of the cases had slight temperature for a week or ten days. In the nine cases examined it was interesting to note the uniform character of the physical signs—slightly defective expansion with impairment of percussion note on the affected side; diminished breath sounds; in all but one tactile fremitus was present, though less marked than on the normal side; in no instance was there pleural friction, and neither pneumothorax nor acute pleurisy had followed. The contrast between gunshot wounds in the recent and former wars is very striking. In the Civil War the death rate was more than 62 per cent., and in the Crimean War above 80 per cent., even in the Spanish-American War it was 27 per cent., while in the Japanese War in 945 cases it was only 3.67 per cent. The mortality in the present war may be still lower.

ARTERIOVENOUS ANEURYSM

There are great opportunities in this war for the new vascular surgery, as wounds of arteries are common. Arteriovenous aneurysm is a rare affection in civil life. At Philadelphia and Baltimore I saw only five cases of the external vessels, and now within a period of a few months I have seen an equal number: Two at Paignton, in one of which Dr. Beal did an Antyllus operation; one at Chester with Mr. Wright, and the other day I held a symposium with some members of the staff of the Base Hospital on two cases at the Radcliffe Infirmary. The Chester case presented a physical sign that I cannot find noted, namely, a palpable and audible pistol-shot sound, such as one hears and feels in aortic insufficiency. The bullet entered the lower end of the popliteal space, and in addition to the thrill and loud machinery murmur, the slightest touch over the tumor felt the shock of the sound, and the same could be heard not only over the area of pulsation, but widely spread up the femoral vessels. There was no aortic insufficiency. At operation it turned out to be a simple aneurysmal varix, and Mr. Wright ligatured the artery above and below and sutured the orifice into the vein. The rapidity with which the collateral circulation is established is illustrated by the second Paignton case, also popliteal. Less than two months after the injury the femoral artery on the affected side could be felt to be much larger and with a much more forcible pulsation, and while there was no pistol-shot sound over the aneurysm itself, it was marked along the femoral and could be heard without any pressure above and below Poupert's ligament. An Esmarch bandage was applied above the knee and the femoral artery, then compressed in Hunter's canal; the anemia of the skin of the leg and foot was completely abolished within a minute, while on the same leg with the same procedure, the anemia did not disappear until just three minutes. While arteriovenous aneurysm of the vessels of the neck and arm may last for years without serious trouble, in the leg the effects of stasis become serious and the venous engorgement leads to progressive disability. With the great improvement in the modern technic, the risk of thrombosis—the chief menace of the surgeon—should be reduced to a minimum.

SOLDIER'S HEART

The irritable heart, so well described by Da Costa in the Civil War, has not been very common. The symptoms are very characteristic—palpitation, pain, particularly on exer-

tion, slight shortness of breath; the physical signs—diffuse apex beat, systolic murmur heard at apex and along the left sternal border, loudest at the pulmonic area, lessening or disappearing entirely in the erect posture, and often associated with marked vasomotor disturbances. The condition is brought about by overexertion, combined with too much tobacco, and very often sexual excesses. In many instances it is the simple neurasthenic heart, and the cases recall the many struggles I have had at Washington with the Army and Navy departments on behalf of perfectly good lives turned down for just such signs as I have mentioned. I remember once the secretary of the Navy saying to me: "But, professor, you say there is a murmur. That settles it. We cannot have an officer who has trouble with his heart, however slight."

There have been reports of remarkable cases of men with organic disease standing the heavy work of the campaign and the trenches. But there is another side. I have seen two old soldiers with aortic insufficiency knocked out completely who never should have been taken from the reserve. An officer whose case I have followed for some years was rejected five years ago—and quite rightly—by an army board for aortic insufficiency, but has remained so fit that at the outbreak of the war he was given a command. He was able to do a hard day's work and his physical condition was excellent; but three months later I saw him with chronic infectious endocarditis, and he is now in the fourth month of his fever.

TYPHOID FEVER

It is very gratifying to have got through seven months of the war without a single serious outbreak of typhoid fever. There has been very little in the camps in England, and the entire cases abroad have never been more than from 150 to 200 at a time in the entire force. There has been a constant fight with the "anti's," who have been very active in circulating most pernicious literature, but in spite of their efforts 99 per cent. of the men have been vaccinated. It is interesting that a number of cases returned from the front have been paratyphoid, and I would like to refer bacteriologists interested in the subject to the papers by Dreyer and his colleagues at the Oxford Pathological Laboratory, which appeared in the *Lancet* of this year, in which they describe certain new methods for the detection and identification of the typhoid and paratyphoid bacilli.

CEREBROSPINAL FEVER

The outbreak has followed its usual course: numerous small foci throughout the country, nowhere an extensive epidemic. The region of Salisbury, which has suffered most severely, had only about fifty cases in the civil population. The type has been severe, and it is evident that the serum used has not been efficient. I am glad to hear from Dr. Flexner that he is forwarding a special supply, as there is no question as to the satisfactory results obtained, particularly in Belfast, during the last epidemic. The question has not yet been settled as to the responsibility of the Canadian troops for the outbreak. I hear from Dr. Robb of Belfast that there were certainly cases in that neighborhood in which no contact of the patients could be traced either with Canadian soldiers or with those who had been in contact with them. After all, the sporadic disease is always present, and the conditions during the winter have been ideal for the outbreaks.

LONDON LETTER

LONDON, APRIL 10, 1915.

The War

THE MEDICAL NEEDS OF THE ARMY

The War Office is finding some difficulty in obtaining the large number of surgeons required for the new army, although many responses have been received to the director general's appeal to all who are willing and able to serve their country at this crisis. Of course, it is not possible for more than a certain proportion of physicians to give up their work. The suggestion has been made in several

quarters, and by the British Medical Association in particular, that many men engaged in civil practice which they could not relinquish would be quite willing to devote some hours daily to army work. Such part-time service would certainly have the advantage of releasing for active service army surgeons employed at the depots in this country. At a meeting of the special committee of chairmen of standing committees of the British Medical Association, Sir Alfred Keogh, director general of the army medical service, made the following important statement: The civil medical profession has given the army so much generous and self-sacrificing assistance since the outbreak of the war that he regretted to be compelled to make further demands on it. But it is necessary to look ahead and make adequate provision to safeguard the health of the home army when the expeditionary force is increased in strength to such an extent that every commissioned medical officer fit for active service will be required on the continent. It is anticipated that this increase will take place in the course of the next three or four months, so that the call on medical resources is urgent. Sir Alfred Keogh suggested the following means by which the civil practitioner could come to the aid of the army: He urged all those under 40 who were fit for active service to apply for temporary commissions in the army if their civil obligations would allow this. Such men would have an opportunity of seeing active service on the continent or elsewhere where we have fighting armies. The army is especially in need of young general practitioners who are willing to go anywhere and do anything in the way of duty with troops or with medical units. There are also vacancies for men who have specialized in surgery, bacteriology, medicine, Roentgen-ray work and ophthalmic surgery. They would probably eventually be appointed to the large hospitals of 1,040 beds each which are being fitted out for service with the expeditionary force, but they would be required to do a certain amount of work in a military hospital in this country first, so as to become familiarized with the routine of a military hospital. Men over 40 are not being sent abroad at present, but their services will be of the greatest value to the military authorities in this country, and many of them would probably go overseas for hospital work later on. Men who on account of age, health or local obligations are unable to accept these larger responsibilities he divided into three classes. 1. Those who can give so many hours a day to military work and give a certain fixed time on each day. These men would be a great help in doing work in military hospitals, seeing men in combatant units reporting sick with minor ailments, and looking after sanitation of camps, barracks and billets. 2. Men who could not devote a specific time to military work, but who would be willing to attend the wives and children of officers and soldiers as part of their general practice at good rates of pay. 3. Men who could arrange to help the neighboring practitioners who have undertaken military duties, and who would do so without encroaching on their practices, and under terms which would have to be settled by mutual agreement.

THE DRINK PROBLEM

The difficulty of producing munitions of war, which is partly due to the drinking habits of a certain proportion of workmen who are earning unusually good wages, has been mentioned. The question has become a burning one. Following the offer made by the king, which I reported, he has now ordered that no wines, spirits or beer shall be consumed in any of his houses. Lord Kitchener, the war minister, has given similar orders in his household, and so have many public men. A memorandum on practical temperance reform has been sent to the Chancellor of the Exchequer, Mr. Lloyd George, signed by leaders of the medical profession, the churches, the universities and other prominent persons. It is pointed out that temperance reformers are agreed that the circumstances of the present war afford an unprecedented opportunity—and one that is not likely to recur—for pressing to a satisfactory conclusion proposals which, although they have, in one form or another, been before the public for many years, have never attracted the serious attention which they are receiving today. "Prohibition" has been looked on in the past as the visionary ideal of a group of well-meaning enthusiasts whose methods of urging their case have not always appealed to the business instincts of the practical man. It is now, however, beginning to be realized that too much importance has been attached to the plausible formula which declares that you cannot make men sober by act of parliament. Only eight months ago Russia, from being one of the most drunken nations in

Europe, automatically and at once became a people of almost total abstinence. It is prohibition—necessarily enforced by law—that has worked this miracle. This amazing fact, and the beneficent consequences which have resulted from it, have excited the admiration and fired the imagination of the British people, more especially since they have learned that since the czar decreed this great reform the prosperity of the Russian people has advanced by leaps and bounds. M. Bark, the Russian minister of finance, has declared that since the prohibition of vodka, the productivity of every class of workman in Russia has increased from 30 to 50 per cent., while crime had everywhere diminished, and in some districts had disappeared altogether; and that, notwithstanding the war, the excess of deposits over withdrawals in the savings banks amounted at the end of 1914 to twice the total of the preceding year. France, like Russia, has by prohibiting the sale of absinthe seized the occasion of the war to reform the habits of her people. Is it fair that when our allies are sacrificing so much we should hesitate to take steps essential for the fullest efficiency of our armies? Since the beginning of the war, representations have been made with ever-increasing insistence by societies, associations and by all sorts and conditions of men imploring our government to take advantage of the present party truce to induce parliament to do for Britain, as far as may be practicable, what the edict of the emperor has done for Russia. The only legislative response thus far vouchsafed by the government is represented by emergency measures giving certain discretionary powers to military and other authorities. These measures are admittedly inadequate, while lack of uniformity in their administration has rendered them practically useless for the protection either of our troops or of the civil population against temptations which are obviously even more disastrous in their consequences when the nation is at war than under ordinary circumstances. Total, immediate and universal prohibition is impracticable in this country, even at the present time; but an act making Sunday closing compulsory, with a uniform and rigorous curtailment on other days of the business hours of all saloons, the compulsory closing of such as are situated in the vicinity of military camps and barracks, and prohibiting the granting of new licenses during the continuance of the war would undoubtedly justify by its results the concession of compensation to the saloonkeeper for the loss of his means of livelihood. In the case of earlier closing, or later opening, the compensation would be strictly limited to the actual amount by which the average profits of the house were reduced as a direct consequence of the curtailment of its hours, while full compensation would be payable in respect of the entire closing of a house in the interests of the troops. It is generally admitted that the evil is principally due to the drinking of spirits, which unfortunately has been encouraged by recent war legislation.

In regard to the war taxes, they are mostly raised by increased income tax, which is borne entirely by the middle and upper classes. In order to throw a small part of the burden on the working class, the tax on beer was increased to the extent of 2 cents per pint. The increased cost of the beer has encouraged the drinking of spirits. So far the government has not come to any decision, but it is considered that all-round prohibition will be ruled out as impracticable and uncalled for at the very beginning, and that the measures adopted will take the form of (1) prohibition of wines and spirits; (2) encouragement of lighter beers by a compulsory reduction of strength, and (3) further restrictions on the sale of intoxicants in military areas and in districts in which munitions of war are being manufactured.

PARIS LETTER

PARIS, April 8, 1915.

The War

CHANGE IN THE UNIFORM OF ARMY SURGEONS

A recent ministerial circular modifies the uniform of army surgeons, particularly by suppressing the distinctive insignia which until now have distinguished army surgeons the same as officers of the line of equal rank. This circular is naturally displeasing to the medical corps, and the different professional groups are making an effort to obtain a suppression of the ministerial decree. At the last meeting of the Académie de médecine de Paris, Dr. Rouvillois rightly remarked on the fact that it may seem strange to desire a diminution of the respect and authority of military surgeons compared with

the army officers by introducing a modification in their uniforms which will have the effect of lowering them and putting them in a second class at a time when the regular military surgeons and the civil surgeons in the service are united at the front with the same thought and the same habits of duty and of patriotic self-sacrifice, giving the example of devotion pushed to the point of sacrifice. Like other officers, physicians are exposed to fire in battle. They are, besides, exposed to the most serious epidemics. They face, therefore, a double danger which produces for them a special risk of sickness and a mortality equal if it is not greater than that of the actual fighters. Facing equal risks, they are also equal in law; they ought therefore to be equal in fact, and to possess the privileges, prerogatives, honors, designations and distinctive insignia attributed to officers of the rest of the army.

DISCHARGE OF THE WOUNDED AND SICK FROM THE ARMY

Some deputies have had the singular idea of laying before the chamber of deputies a proposition requesting the government to authorize, by a general regulation, the daily discharge from the army of the wounded and sick who are being cared for in the medical institutions and hospitals with the single exception of those who are affected with contagious diseases. There is certainly reason to be astonished at such a proposition. This measure, if it were ever adopted, would have the effect of removing all authority from physicians, surgeons and directors of the hospitals. Aside from contagious diseases, there are wounded soldiers for whom a discharge might be extremely dangerous, and as Charles Benoist, one of their colleagues, remarked to the authors of this proposition, "You will not find a physician or surgeon of worth who will consent to continue his work for the wounded and sick if such a proposition is adopted." On the other hand, the minister of war replied that up to the present the regulations have authorized and determined the discharge of the wounded and sick, but these discharges are naturally subordinated at the same time to the opinion of the military authorities and, especially, to the advice of physicians. What the physician requests is done. It is impossible that it should be otherwise.

TREATMENT OF INFECTED AND GANGRENOUS WOUNDS

At one of the last meetings of the Société de chirurgie, Dr. Morcstin, agrégé professor of the Faculté de médecine de Paris and surgeon of the hospitals, drew attention to the great benefit to be obtained from the use of solution of formaldehyd mixed in equal parts with alcohol and glycerin in the treatment of septic wounds and gaseous gangrene. It is evident that in these cases the first indication is always a free opening, and the debridement of all the foci. Among the antiseptics that are then suitable to apply to these large septic wounds, solution of formaldehyd is incontestably the one which has the most energetic action. It constitutes a genuine embalmment of the tissues which permits, in the case of limbs that must be sacrificed, the delaying of the amputation to the moment when it can be done with the least danger. It is necessary, however, to state that the use of formaldehyd is not free from disadvantages. The application is painful and it produces the death of the tissues, which may render it dangerous, especially in the neighborhood of large vessels, if its contact with them is too intimate and too prolonged. It is necessary, therefore, to guard its use; but in spite of these disadvantages, solution of formaldehyd still remains a disinfecting agent of the first order.

On the other hand, at the meeting of the same society, Dr. Dionis du Séjour praised the good effects of a 15 per cent. aqueous solution of oil of turpentine on very infectious wounds where there is an abundance of necrotic tissue. The effects of oil of turpentine are manifested immediately following its application by an almost complete deodorization of the wound by a rapid disappearance of the gas which it contains and by a rapid fall in the temperature. In the days that follow, it is noticed that the necrotic parts (cellular tissue, muscles) are rapidly eliminated. Only the tendons and the fascia take a longer time for its elimination; moreover, it is a good plan to assist this elimination by cutting away with a scissors the parts that are most mortified. The employment of oil of turpentine has given its best results in cases of diffuse phlegmons. In gaseous gangrene, properly so called, in serious contused wounds with abundance of necrotic tissue, Dionis du Séjour could obtain not only the survival of the wounded but also the preservation of limbs badly compromised. Lavage with oil of turpentine has given excellent results in cases of infected joints and in emptying bone cavities in osteomyelitis.

THE MONUMENT TO REYMOND

I noted in a preceding letter the formation of a committee for the erection by a public subscription of a monument to Dr. Emile Reymond, who died a tragic death in the course of a reconnaissance in an aeroplane (*THE JOURNAL*, Nov. 21, 1914, p. 1868, and April 3, 1915, p. 1174). The subscription has already yielded more than \$1,600 (8,000 francs). The execution of the monument has been entrusted to the noted sculptor, Bartholomé.

PATHOGENESIS OF ANAL FISTULA

At the meeting of the Académie de médecine, March 30, Dr. Paul Reynier, surgeon of the hospitals of Lariboisière, commented on the dangers which result from a bad habit in infancy and continue to adult age of swallowing tracheal mucus. This habit, unfortunately, is more widespread than would be believed. It exists especially among fashionable women who regard spitting in public as an act of impoliteness. Now this mucus contains germs and too often tubercle bacilli. These bacilli are not destroyed by the gastric and intestinal juices. They may inoculate the tissues in their course and cause, for example, tuberculous enteritis and especially anorectal fistula. In Reynier's opinion, as well as that of many of his colleagues, anorectal fistula may be considered, in the majority of cases, as a lesion arising from tuberculosis. Among sixty-seven patients observed, he found in sixty the coexistence of pulmonary tuberculous lesions which had preceded the appearance of a fistula. On the other hand, by questioning all these patients, he established their bad habit of swallowing their sputum.

BERLIN LETTER

BERLIN, March 30, 1915.

The War

DEATH OF PROFESSOR CORNET

Typhus fever has again claimed from the German medical profession a valuable victim. The tuberculosis investigator, Professor Cornet, died in Berlin, March 27, aged 56, from an infection which he had incurred in a prison camp. In the spring of 1885 he devoted himself to tuberculosis, when he became assistant at the renowned Brehmer institute in Görbersdorf. Later he worked with the hygienic institute and from 1891 in the institute for infectious diseases under Robert Koch, under whose direction he succeeded in obtaining the evidence that tubercle bacilli are not unlimited in their distribution but are practically to be found only in the neighborhood of patients with open tuberculosis. This discovery has become of the greatest importance in the prophylaxis of tuberculosis. Of especial interest were his investigations regarding the distribution of tuberculosis among nurses in which the transmission of tuberculosis from one human being to another was considered. The same investigation was served by his works on tuberculosis in penal institutions. The results of all his studies and practical experience he included in two large monographs on tuberculosis and scrofulosis which appeared in Nothnagel's collection. Cornet practiced during the summer months at Bad Reichenhall.

TRAINING OF ONE-ARMED PERSONS

In connection with the care devoted in such large measures to those maimed by the war, the one-armed form a special class. The idea of founding a special school for one-armed persons arose in Vienna, where the architect, Grosselinger, soon after the outbreak of the war, came into public notice with this plan, and in the late autumn of 1914 opened his school in a reserve hospital. As for the last thirty years he himself has had only the left arm, and nevertheless since the completion of his university studies has followed his technical calling without hindrance, he well knew how to estimate the strength of will required to overcome oneself and to struggle against the prejudices of others. Thus the idea ripened in his mind of putting his experience at the disposal of the fatherland, by helping other one-armed persons to secure the possibility and comfort of carrying on a trade. In the German Empire one such school has been founded at Heidelberg. Similar arrangements have been planned in other places.

A school for the one-armed serves a double purpose. First, it is of assistance to these persons to reestablish themselves in daily life, and secondly, it enables them to carry on their trade as well as possible. When this is not to be expected,

it serves to furnish them with the knowledge and training which will prepare them for a change of occupation. In the school for the one-armed, the pupils are enjoined to manage independently all the affairs of daily life. They are expected to learn how to dress themselves, wash, shave and feed themselves. Further, physical exercises are provided to strengthen the stump and also to develop especial aptitude and strength in the sound limb. Fine and quick writing with the left hand is taught and training given also in spelling, arithmetic, stenography, typewriting, bookkeeping, drawing and other commercial arts. Most of those who are sent to these schools have lost their trained hand. They are still under medical care. Inasmuch as the preparation of the stump, and the fitting and preparing of the artificial limb require some time, the period of stay in the school (and the hospital for these cases is under the medical supervision of the Heidelberg orthopedist, Dr. Vulpius) is not exclusively devoted to instruction. The length of time they spend in the school will naturally be very different in different cases. Right-handed persons who are merely headworkers can learn in a few days the small manipulations of daily life and may then be discharged. Left-handed persons need a longer training for these simplest matters, but the dissimilarity of the life work makes a discriminating treatment necessary. Among manual laborers careful development and training is necessary.

The capability that a one-armed person with an early and energetic training can attain has been demonstrated in various places, particularly in Berlin, by the exposition of some of those maimed in the war in person or by films. That such exhibitions exercise a favorable influence on the wounded and incite them to imitation is easy to understand. In this respect, the exhibition of a man deprived of both arms who was present a short time ago in one of the hospitals of this city produced a remarkable impression. He is the original of the armless artist, Stoss, described by Gerhart Hauptmann in so striking a way in his novel "Atlantis," which is well known in America. This man, whose real name is Unthan, was born without hands, being the son of an East Prussian teacher. Chiefly as the result of the iron will of his father, who methodically instructed him, while still a child, in the use of his feet, he has succeeded so well that now, at the age of 60, he plays the violin excellently, blows the trumpet, swims and carries out other very difficult manipulations. He gave trials of his ability and skill to the highest astonishment of the inmates of the hospital. With great dexterity, he drew a cigaret case from his coat, lighted the cigarets with his toes, played cards with his feet, taking them up himself when they had fallen on the ground. To our surprise, he drew the cork from a wine bottle, using a cork-screw with his toes, and himself pushed and put chairs and tables together in order to empty the glass and play cards with a wounded man who accompanied him on the piano. Finally, he wrote on a typewriter with astonishing facility and distributed samples of his writing among the patients.

Marriages

MARTHA GURINE THORWICK, M.D., San Francisco, and Count Niso Giannini of Milan, Italy, in San Francisco, April 5.

WALTER FREDERICK PLASSMAN, M.D., Golden Valley, N. Dak., to Miss Frances Brill of Centralia, Ill., April 8.

FRANK DWIGHT BOODY, M.D., Chandler, Ariz., to Mrs. Luen R. Boody of Algona, Ia., in Hampton, Ia., recently.

OLIVER T. BATCHELLER, M.D., Spokane, Wash., to Mrs. Anna C. McKay of Minneapolis, April 15.

JAMES EARLE ASH, M.D., Boston, to Miss Esther Marguerite H. Brown of Montreal, April 16.

GROVER CLEVELAND EMERY, M.D., to Miss Eleanor F. Reilly, both of New York City, Nov. 25, 1914.

HAROLD T. LOW, M.D., to Miss Estella Josephine Fariello, both of Pueblo, Colo., March 31.

WILSON RUFFIN ABBOTT, M.D., Chicago, to Miss Ruth Webb of La Grange, Ill., April 15.

J. ROWAN MORRISON, M.D., to Miss Lucinda Trabue, both of Louisville, Ky., April 29.

IRA FRANK, M.D., Chicago, to Miss Sylvia Simon of Minneapolis, April 6.

Deaths

Richard Potts Daniel, M.D. University of Pennsylvania, Philadelphia, 1851; a Fellow of the American Medical Association; passed assistant surgeon, U. S. Navy from 1854 to 1859; surgeon of the Eighth Florida Infantry, C. S. A. during the Civil War; first president of the State Board of Health of Florida, holding that office for several years; president of the Florida Medical Association and Duval County Medical Society for many years, and honorary president of both of these organizations at the time of his death; one of the heroes of the yellow fever epidemic of 1888 in Jacksonville, where he remained at his post throughout the epidemic; said to have been the oldest practitioner of Jacksonville; died at his home in that city April 10, aged 86.

George William Marshall, M.D. Jefferson Medical College, 1876; a Fellow of the American Medical Association and American Academy of Medicine; formerly secretary and president of the Delaware State Medical Society, trustee of Delaware College and treasurer of the Board of Trustees of the State College for Colored Students; surgeon to the Milford Emergency Hospital; formerly insurance commissioner of Delaware, state senator and president pro tem. of the Senate; one of the reorganizers of the Delaware State Militia and colonel in the Delaware National Guard; died at his home in Milford, April 18, from influenza, aged 60.

Chester Alfred Mayer, M.D. New York Homeopathic Medical College, New York City, 1881; for several years a member of the Kentucky State Board of Health; a member of the Board of Trustees of the Louisville Free Public Library, and medical advisory board of the Kentucky State Confederate Home, Pewee Valley, professor of theory and practice of medicine in the Southwestern Homeopathic Medical College, Louisville; died in the Russell Sanatorium, Louisville, April 10, from cerebral hemorrhage, aged 57.

Thomas Mort Koon, M.D. Rush Medical College, 1894; formerly a Fellow of the American Medical Association; a member of the Michigan State Medical Society; formerly health officer of Grand Rapids; a member and at the time of his death vice-president of the Michigan State Board of Health; a specialist in diseases of children; who had been ill for a year with nephritis; died in a sanitarium in Minneapolis, April 11, from pneumonia, aged 45.

Horace W. Nicholson, M.D. College of Physicians and Surgeons, Baltimore, 1906; of Baltimore; a member of the Medical and Chirurgical Faculty of Maryland; visiting eye, ear, nose and throat surgeon to the General Marine Hospital, Crisfield, Md.; assistant in the nose and throat department of the University of Maryland and Mercy Hospitals, Baltimore; died at the home of his father in Chestertown, Md., April 14, from angina pectoris, aged 34.

John Parsons, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1864; Northwestern University Medical School, Chicago, 1868; Bellevue Hospital Medical College, 1875; a Fellow of the American Medical Association; for thirty years connected with the Board of Health of New York City; a veteran of the Civil War, in which he served in the medical department; died at his home in Kingsbridge, New York City, April 17, aged 73.

Thomas J. Bell, M.D. Missouri Medical College, St. Louis, 1877; a member and once first vice-president of the State Medical Association of Texas; local surgeon at Tyler, Tex., for the St. Louis Southwestern and International and Great Northern railways; vice-president of the State Board of Medical Examiners from 1905 to 1907; died at his home in Tyler, January 9, from angina pectoris, aged 66.

Charles E. Farnum, M.D. Hahnemann Medical College; College of the Pacific, San Francisco, 1878; a Fellow of the American Medical Association; of San Francisco; formerly professor of anatomy in Cooper Medical College, San Francisco, and a member of the Board of Examiners of the Medical Society of the State of California; died in St. Mary's Hospital, San Francisco, April 14, aged 60.

James Brainerd Field, M.D. Harvard Medical School, 1884; a Fellow of the American Medical Association; surgeon to the Lowell Hospital and Lowell General Hospital; for twenty years treasurer of the Association of Massachusetts Boards of Health; for nine years chairman of the Lowell Board of Health; died at his home in Lowell, April 15, from pneumonia, aged 56.

Michael A. Hughes, M.D. University of Wooster, Cleveland, Ohio, 1875; oculist and aurist of the Denver and Rio

- Grande Western Railroad at Salt Lake City, Utah; chief of staff of the Holy Cross Hospital and formerly president of the Salt Lake County Medical Society; died at his home in Salt Lake City, April 9, from cerebral hemorrhage, aged 64.
- Daniel Francis Lee, M.D.** Omaha (Neb.) Medical College, 1902; associate professor of materia medica in his Alma Mater; a member of the Nebraska State Medical Association; formerly physician of Douglas County and assistant city physician of Omaha; died in St. Catherine's Hospital in that city, April 13, from heart disease, aged 36.
- Max Johannes Walter, M.D.** University of Pennsylvania, Philadelphia, 1912; a Fellow of the American Medical Association; a specialist in physiologic therapeutics and medical director of the Pennsylvania Orthopedic Institute and Sanatorium, Philadelphia; died suddenly in that institution, April 17, from cerebral hemorrhage, aged 41.
- John Joseph Hector McAllister, M.D.** Harvard Medical School, 1903; a Fellow of the American Medical Association; a specialist on diseases of the skin of New Bedford, Mass.; a member of the staff of the Tuberculosis Sanatorium, Sassaquin, Mass.; died at his home in New Bedford, April 16, from disease of the kidney, aged 37.
- Victor Hawthorne Smith, M.D.** Bellevue Hospital Medical College, 1892; of Portland, Ore.; for a time surgeon on steamers plying between Portland and Japan; died at his home in Portland, April 2, from heart disease, aged 45.
- Alexander Pourie McLaren, M.D.** Trinity Medical College, Toronto, 1892; a practitioner and druggist of Rainier, Ore.; died in the Good Samaritan Hospital, Portland, Ore., March 29, from hemorrhage of the stomach, aged 46.
- Thomas Wesley Mills, M.D.** McGill University, Montreal, 1878; formerly professor of physiology in his alma mater, but of late years a resident of London, England; died at his home in England, recently, from angina pectoris.
- John D. Dickerson, M.D.** Baltimore Medical College, 1892; a Fellow of the American Medical Association; and a well-known practitioner of Stockton, Md.; died in Wilmington, Del., Dec. 25, 1914, from heart disease, aged 57.
- John Walter McBeth, M.D.** Penn Medical University, Philadelphia, 1879; of Kansas City, Mo.; at one time inspector in the Kansas City Health Department; died in the Kansas City General Hospital, April 1, aged 62.
- Robert K. Kneass, M.D.** Hahnemann Medical College, Philadelphia, 1873; of Baltimore, Md.; consulting physician to St. Luke's Hospital, Baltimore; died in New Haven, Conn., April 3, from pneumonia, aged 60.
- John Joseph Kelley, M.D.** University of Pennsylvania, Philadelphia, 1888; a member of the Medical Society of the State of Pennsylvania; died at his home in Archbald, Pa., April 3, from pneumonia, aged 56.
- William Ellis Nichols, M.D.** Eclectic Medical Institute, Cincinnati, 1906; a member of the Kentucky State Medical Association; died at his home in Fullerton, Ky., April 1, from heart disease, aged 38.
- William H. Christopher, M.D.** Starling Medical College, Columbus, Ohio, 1879; a member of the Ohio State Medical Association; died at his home in London, Ohio, April 2, from heart disease, aged 59.
- W. H. Orr, M.D.** Kentucky School of Medicine, Louisville, 1881; editor and publisher of the Corpus Christi (Tex.) *Crony*; died at his home in Corpus Christi, March 3, from acute gastritis, aged 58.
- Thomas Jensen, M.D.** Eclectic Medical Institute, Cincinnati, 1874; for forty-two years a resident of Houston County, Minn.; died at his home in Spring Grove, Minn., about April 8, aged 74.
- Wendell Holmes Adams, M.D.** Medical School of Maine, Brunswick, 1881; formerly a member of the Massachusetts Medical Society; died at his home in Kingston, Mass., January 1, aged 61.
- Henry Osthues, M.D.** Niagara University, Buffalo, N. Y., 1894; afterward professor of anatomy in his alma mater; died at his home in Brooklyn, April 4, from bronchopneumonia, aged 46.
- James W. Brown, M.D.** Northwestern University Medical School, Chicago, 1877; for twenty-five years a practitioner of Grass Valley, Cal.; died at his home, April 5, from pneumonia.
- Charles F. Clark, M.D.** Hahnemann Medical College, Chicago, 1881; for many years a practitioner of Woodland, Cal.; died in the Livermore (Cal.) Sanitarium, April 3, aged 57.
- Albert Keidel, M.D.** University of Goettingen, Germany, 1878; a member of the State Medical Association of Texas; died at his home in Fredericksburg, Tex., Dec. 21, 1914, aged 62.
- Justin C. Elliott, M.D.** University of Buffalo, N. Y., 1851; formerly of Springville, N. Y., and New Brighton, Pa.; died at the home of his daughter in Ardmore, Pa., April 8, aged 87.
- Joseph E. Boylan, M.D.** Medical College of Ohio, Cincinnati, 1884; of Roslyn, L. I., N. Y.; died in the Roosevelt Hospital, New York City, April 6, from cerebral hemorrhage.
- Henry Kolb, M.D.** New York Homeopathic Medical College, New York City, 1882; died at his home in New York City, April 6, from cerebral hemorrhage, aged 54.
- J. N. Doyle** (license, Tennessee, 1889), for many years a practitioner of Centerville and Bon Aqua, Tenn.; died in the latter place, April 7, from influenza, aged 80.
- Loda W. D. Jerman, M.D.** Medical College of Ohio, Cincinnati, 1879; of New Point, Ind.; died in the Deaconess Hospital, Indianapolis, January 3, aged 77.
- Albert C. Brown, M.D.** University of Pennsylvania, Philadelphia, 1870; for forty years a practitioner of Osage City, Kan.; died at his home, April 4, aged 81.
- William Joseph Dougherty, M.D.** Baltimore Medical College, 1907; of Beverly Farms, Mass.; died at the home of his mother in that place, April 6, aged 33.
- Berryman S. Rice, M.D.** Medical College of Ohio, Cincinnati, 1872; a Confederate veteran; died at his home in Catlettsburg, Ky., January 6, aged 76.
- Henry E. Lubbinga, M.D.** Rush Medical College, 1896; also a druggist; died in his drug store in Chicago, April 5, from influenza, aged about 48.
- George G. Nunn, M.D.** Hospital College of Medicine, Louisville, Ky., 1891; died at his home in Joplin, Mo., April 2, from pneumonia, aged 53.
- J. H. Turner, M.D.** University of Maryland, Baltimore, 1840; died at his home in Martinsville, Va., April 1, from senile debility, aged 89.
- Daniel H. Foster** (license, New York), a practitioner for more than forty years; died at his home in Scottsburg, N. Y., January 31, aged 79.
- Josiah Brower, M.D.** Eclectic Medical Institute, Cincinnati, 1878; a veteran of the Civil War; died at his home in Gilead, Ind., April 6.
- Orin Stevens, M.D.** Medical School of Maine, Brunswick, 1869; also a druggist; died at his home in Oxford, February 5, aged 89.
- Charles Fessenden Nichols, M.D.** Harvard Medical School, 1870; died at his home in West Roxbury, Boston, April 5, aged 69.
- William H. Siple, M.D.** College of Physicians and Surgeons, Baltimore, 1890; died at his home in Petersburg, W. Va., April 4.
- Edgar L. Hawley, M.D.** Louisville (Ky.) Medical College, 1881; died at his home in Hapeville, Atlanta, Ga., March 26, aged 50.
- James Belt Chesley, M.D.** University of Maryland, Baltimore, 1868; died at his home in Forest Glen, Md., April 7, aged 71.
- John H. Duncan, M.D.** Eclectic Medical Institute, Cincinnati, 1878; died at his home in Harrison, Ohio, April 4, aged 70.
- Harvey Collins Summers, M.D.** Medical College of Ohio, Cincinnati, 1878; died at his home in Amo, Ind., January 11, aged 65.
- Hattie C. Brown, M.D.** Woman's Medical College of Cincinnati, 1892; of Cincinnati; died at her home, April 4, aged 51.
- James Might, M.D.** New York University, New York City, 1851; died at his home in Port Hope, Ont., January 26, aged 84.
- Herman T. J. Howe, M.D.** University of Vermont, Burlington, 1877; died at his home in Waitsfield, Vt., January 22, aged 64.
- D. C. Dickey** (license, Tennessee, 1889), of Chaseville, Tenn.; died in Jackson, Tenn., February 11, from nephritis, aged 88.
- William H. Bunn, M.D.** University of Pennsylvania, Philadelphia, 1861; died at his home in Philadelphia, April 1.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

SECRETOGEN

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report dealing with two internal secretion specialties—Secretogen Elixir and Secretogen Tablets—to call attention to the unfounded and extravagant claims made for this class of products.

W. A. PUCKNER, Secretary.

Test tube experiments show that pepsin hydrolyzes proteins in acid solutions; that pancreatin digests protein in alkaline liquids, and that diastase converts starch into sugar. Based on these facts, it was assumed that these ferments would aid digestion. This assumption was correct if limited to certain cases of dyspepsia in which it can be shown that certain ferments are absent or deficient. But this limitation was not realized or remembered; on the contrary, the indiscriminate use in all kinds of cases of indigestion became widespread and still continues, although to a less extent. Herein lies the great disappointment that has followed the use of digestive ferments.

More recently hormones were discovered, and while their importance has not been fully worked out, it has been assumed that they are responsible for the secretion of digestive ferments, and that in their absence this secretion fails. Without waiting for proof of this assumption, that is, that digestive failure is due to lack of hormones, proprietary medicine promoters are already placing on the market various secretion specialties.

As an example of this new class of specialties and of the unfounded claims made for them, your referee presents the following report on Secretogen Elixir and Secretogen Tablets offered to physicians by the G. W. Carnrick Company.

Secretogen Elixir is said to contain pancreatic secretin obtained from the duodenum with $\frac{1}{40}$ of 1 per cent. of hydrochloric acid. Secretogen Tablets are said to be prepared from pure secretin and succus entericus obtained from the epithelial cells of the duodenum. The claims for Secretogen are based on the physiologic action of secretin as described by various observers. To determine whether these claims are justified it becomes necessary to review the evidence advanced to prove that secretin stimulates the digestive glands.

Secretin is a hormone, a chemical substance produced by the action of hydrochloric acid on a previously formed substance, "prosecretin," contained in the cells of the intestinal mucous membrane, especially of the duodenum. Secretin is absorbed by the blood and carried to the pancreas, liver and intestinal mucosa, which are thereby stimulated to produce their characteristic secretions, namely, bile, pancreatic juice and succus entericus. When secretin is injected into the blood, it causes an increase in the flow of these secretions. Some observers have claimed that secretin is absent in cases of diabetes in which the pancreas is still found normal. Wentworth¹ reported several cases of marasmus in which he found no evidence of prosecretin. This deficiency, he believes, is the cause of this disease.

The Carnrick Company, adopting the foregoing views, namely, that secretin is necessary to secure the normal action of pancreas, liver and intestine, as proved, placed on the market their specialty "Secretogen," to take the place of the missing secretin.

The foregoing conclusion cannot, however, be sustained. There are numerous cases in which no hydrochloric acid is produced in the stomach and hence—as it is produced by the action of hydrochloric acid—no secretin can be produced in the intestine. Yet in these cases the pancreatic juice and bile are secreted in normal amounts and digestion goes on normally after the food leaves the stomach. In such cases the pancreas and liver must be stimulated to secretion by some other mechanism than secretin.

The proof that the absence of secretin is characteristic of diabetes or of marasmus is not yet available. Sweet and Pemberton² found that many circumstances interfered with the extraction of secretin, so that the mere failure to obtain it in a given case is not proof of its absence, unless the various inhibiting influences are given due consideration. The conclusions reached by these authors are that "the evidence so far adduced that secretin is absent in some varieties (of diabetes) does not seem conclusive," and that "the specific absence or deficiency of secretin in marasmus seems to remain as yet unproven."

The favorable reports of Moore³ in regard to the use of secretin in diabetes are not confirmed by the experience of Foster⁴ in five cases, or by the case reported by Dakin and Ransom.⁵

In regard to the use of secretin in intestinal disorders, the G. W. Carnrick Company refers to an article by J. W. Beveridge.⁶ An examination of this article shows it to be unscientific and uncritical. The author presents four cases to "demonstrate the peculiar potency exercised by secretin." Of the first he says:

"Stomach was dilated, food delay, seventy-two hours; hyperacidity, vomiting daily, five to twelve times, urine high specific gravity, over 3 per cent. urea, trace albumen."

The patient improved somewhat after gastro-enterostomy with removal of the gallbladder; the vomiting ceased, but the stools continued clay-colored and the high urea output still kept up. Secretin was given, and after this the report continues:

"The stools became normal in color at the end of the second month, weight gradually increased until 122 $\frac{3}{4}$ pounds was reached and the urea is now normal, averaging about 1 per cent."

This case is offered to prove the absence of secretin and its effect when given by the mouth. As evidence of hepatic insufficiency the author apparently relies on the color of the stools, and for pancreatic insufficiency he cites the high urea output. He claims that when the pancreas does not furnish an efficient secretion, the proteins of the food fail to be converted into amino-acids, and instead, raise the percentage of urea. Consequently, he concludes that a high percentage of urea indicates the absence of secretin. It is usually held that a high percentage of urea depends on two factors, ingestion of a large amount of protein and concentration of the urine. The author gives no data as to the amount of albuminous food, the amount of urine, or whether the percentage of urea was learned by examining a single specimen or the total quantity for twenty-four hours. The mildest judgment that can be passed on such clinical data is that they are totally inadequate. Without doubt the percentage of urea could have been reduced to "normal" by causing the patient to drink water freely. The remaining cases show similar hasty conclusions from insufficient data, rendering them worthless as evidence.

The G. W. Carnrick Company introduces a number of testimonials as to the value of Secretogen. These testimonials are similar to all testimonials. They include no evidence of careful diagnosis, and present an uncritical estimate of the results. They show that the writers have given Secretogen Elixir or Tablets indiscriminately in almost the

2. Sweet, J. E., and Pemberton, R.: Experimental Observations on Secretin, Arch. Int. Med., February, 1908, p. 231.

3. Moore, Edie and Abram: Biochem. Jour., 1906, i, 28; *ibid.*, i, 446.

4. Foster, N. B.: Cases of Diabetes Treated with Secretin, Jour. Biol. Chem., January, 1907.

5. Dakin, H. D., and Ransom, C. C.: Treatment of Case of Diabetes with Secretin, Jour. Biol. Chem., January, 1907.

6. Beveridge, J. Wallace: Secretin, Am. Jour. Gastro-Enterology, April, 1914, p. 170.

1. Wentworth, A. H.: The Cause of Infantile Atrophy, Deduced from a Study of Secretin in Normal and Atrophic Infants, THE JOURNAL A. M. A., July 20, 1907, p. 204.

whole range of digestive disorders, in nephritis, neuralgia, liver disease and gallstones, exophthalmic goiter, neurasthenia, epilepsy, etc. As dependable evidence, these testimonials are not worthy of consideration.

A rational basis for the therapeutic value of Secretogen is lacking for the following reasons:

1. No evidence has been presented that the absence of secretin is a cause of gastro-intestinal diseases. It is usually present, and if not present, as in achylia gastrica, there is evidently some compensating arrangement by which the pancreas is stimulated to perform its regular functions.

2. There is no evidence that secretin in any form is physiologically active when administered by the mouth.

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Correspondence

Hexamethylenamin as Disinfectant for the Urinary Apparatus

To the Editor:—My contention in regard to the action of hexamethylenamin in the urine has been either misunderstood or misquoted in an abstract (THE JOURNAL, March 27, 1915, p. 1118) of an article by Dr. H. F. Høst. Inasmuch as Dr. Høst's work is essentially in agreement with my own conclusions, this misstatement should be corrected. To quote the review, Høst "states in conclusion that his research has demonstrated that F. Hinman was wrong when he said (THE JOURNAL, Nov. 1, 1913, p. 1601) that neutral or feebly alkaline urines are unable to split off formaldehyd. He adds that Hinman's mistake was that he did not heed the temperature in testing for formaldehyd, as this is a reversible reaction and should be carried out at 37 C." In my study I found formaldehyd in some amount in every urine tested, irrespective of alkalinity or acidity, but only 36 per cent. of the urines had formaldehyd in a strength of 1:30,000 or better, and over 90 per cent. of these had a urinary acidity of 2 c.c. or more of tenth-normal sodium hydroxid to 10 c.c. of urine and none of these urines were neutral or alkaline. Therefore, I concluded that neutral or alkaline urines are unable to split off formaldehyd in antiseptic amounts. However, I did not state that "neutral or feebly alkaline urines are unable to split off formaldehyd" in any amount, as is the inference of Høst. As stated, I found some formaldehyd in every urine, and, as shown in a paper read as early as May, 1913, before the American Urological Association in Washington, and published in the *Transactions* of that meeting, the great instability of the reaction was recognized. I stated that "formaldehyd, CH_2O , is a colorless gas, an oxidation product of methyl alcohol, CH_3OH . It is readily soluble in water, and liquor formaldehydi is the name given to a solution of the gas. It readily combines with many inorganic and organic substances. When treated with an excess of ammonia it will combine to form hexamethylenamin, according to the equation: $6 \text{CH}_2\text{O}$ plus 4NH_3 equals $(\text{CH}_2)_6\text{N}_4$ plus $6 \text{H}_2\text{O}$. Contrariwise, if hexamethylenamin is treated with an acid it is reconverted into liquor formaldehydi. These changes, however, are, as a rule, of gradual occurrence, and depend largely on the degree of acidity, or of alkalinity, of heat, etc., and on the percentage concentration. A strong solution of hexamethylenamin, neutral in reaction, will break down to

some extent even at room temperature, as shown by examining the stock solutions of hexamethylenamin in the wards of the hospital, some of which, that had stood several weeks, showing a liquor formaldehydi content of about 1:8,000. Liquor formaldehydi and hexamethylenamin, therefore, are very unstable chemical compounds, and particularly so toward acids and alkalies."

FRANK HINMAN, M.D., San Francisco.

Ancylostoma, not Ankylostoma

To the Editor:—I have been interested in the correspondence in THE JOURNAL, April 18, as well as in the Current Comment, March 27, that called it forth. The reason for the spelling "ancylostoma" instead of "ankylostoma" is obvious to those who have a knowledge of Greek and Latin. All scientific names of animals are Latin words or in as near Latin form as the inventor of the names can make them. As Dr. Huffman says, if the inventor of the name makes an obvious typographic error or a wrong Latin transcription from Greek roots, according to Article 19 of the International Code of Zoological Nomenclature, the name should be correctly written or transcribed. Ancylostoma is derived from the Greek words ἀγκύλος, στόμα. The Latin transcription of ἀγκύλο- is obviously ancylo-. As Dr. Stiles has bestowed on the hookworm commonly found in the United States, the simple, euphonious and expressive term "necator," the new and correct spelling of the Old World hookworm will not give American physicians much concern.

A good many persons probably objected to the change of Acidum Carbolicum to Phenol, but I presume most physicians are accepting the official form of the word now. In a short time doubtless all will be accepting the internationally official spelling of the Old World hookworm, ancylostoma.

Those who prefer ankylostoma ought in strict consistency to spell leukocyte leukokyte from the Greek λευκός, κύτος, and cytolysis, kytolysis, and so on, for every word with the commonly used root cyto. Those who find no difficulty in saying micrococki for micrococci can easily give the pronunciation of k to the letter c in ancylostoma, while others who use the pronunciation micrococsi will pronounce ancylostoma with the c of the word soft, as Dr. Hirshberg suggests.

C and k in English words, particularly in technical words, are extremely awkward letters. It is unfortunate that we have no system of slipping in an h as the Italians do when c is hard before e, i, and y, and as is actually, but incorrectly, done in writing anchylosis for ankylosis or ancylosis. A still better plan would be to eliminate c entirely and use s when it is soft and k when hard, as is done by the English Simplified Spelling Society.

A strict Latinized form of certain common words would make many interesting changes and many words scarcely recognizable, such as leucaemia (which is sometimes seen) for the usual leukaemia. Kinetic energy and kinesthetic sense would become cinetic energy and cinesthetic sense, forms which I have never seen. Cinematograph, however, is probably familiar to all.

A large part of the differences in spelling of words containing c and k perhaps depends on the classical training of the person who first invented the terms and on the language which first placed the word in science, k being conspicuous in German words and c in French.

M. W. LYON, JR., M.D., PH.D., Washington, D. C.

Uniformity in Labels of Tubes Containing Hypodermic Tablets

To the Editor:—Some makers of hypodermic tablets label the tubes to read toward the cork, and some toward the bottom of the tubes. This causes annoyance and delay in selecting tablets; often one is in a big hurry to give a hypodermic. Why not ask the manufacturers to label all one way, preferably toward the cork, for that puts the tube into the left hand and the cork into the right?

A. W. BAIRD, M.D., New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

POISONOUS PROPERTIES OF CARBON TETRACHLORID

In reply to an inquiry concerning the properties of carbon tetrachlorid, we stated in this department (April 10, 1915, p. 1267) that "we find no description of its toxic action, but it is probable that its action in this respect would be similar to that of chloroform."

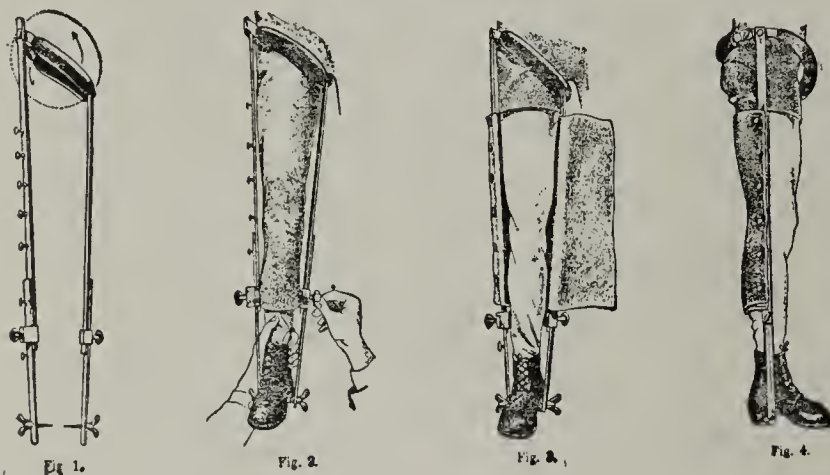
Our attention has been called to two recorded cases of poisoning from the use of this substance in shampoos. Colman in the *Lancet*, June 22, 1907, p. 1709, warned against the use of carbon tetrachlorid in hair dressing as it had come into use as a "dry" shampoo in some English cities. Colman believes that its action resembles that of chloroform, the differences being explicable to a large extent by differences in physical characters (vapor pressure, solubility in water, etc.). It is important to note that all observers have found carbon tetrachlorid to be more toxic than chloroform. It is more irritant to mucous membranes, and is much more depressant to the circulatory and respiratory systems. During its inhalation, cardiac weakness, headache and mental and bodily exhaustion have been noted. Anesthesia is less easily produced and is slower in appearing than that by chloroform, owing to the lower vapor pressure of carbon tetrachlorid (boiling point of chloroform from 60 to 62 C., of carbon tetrachlorid 76.5 C.), but it also disappears less quickly. The second case was noted in *THE JOURNAL*, July 31, 1909, p. 392.

THE ENGELMANN SPLINT

To the Editor:—Please tell me where I can obtain the Engelmann splint, mentioned in an abstract in *THE JOURNAL*, April 3, 1915, p. 1201.

C. S. H.

ANSWER.—The Engelmann splint consists of two strips of metal connected with a ring at the top which fits over the thigh as high as it can be pushed up against the crotch. It is fastened at the lower end with a spike on each side which



The Engelmann splint.

is driven into the shoe between the sole and the upper, close to the heel. A slide and thumb screw on each strip adjust it to the proper length. The trouser leg is slit and cut across above and below the lesion so it can be turned back and buttoned across the back. Dr. Engelmann's address in 1914 was Rathausstrasse 7, Vienna.

LANDAU COLOR TEST FOR SYPHILIS

To the Editor:—Kindly give me the reference to the second article of Landau on his color test for syphilis. In the references thereto in the Department of Queries and Minor Notes of April 3, 1915, p. 1182, and elsewhere, no reference to the second article is given.

A. W. STILLIANS, M.D., Chicago.

ANSWER.—His latest (unpublished) work was described in the *Presse Médicale*, May 2, 1914, p. 335. The most recent article on this subject is by Kolmer, this issue, p. 1461.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Regular, Little Rock, May 11-12. Sec., Dr. W. S. Stewart, Citizens Bank Bldg., Pine Bluff. Homeopathic: Little Rock, May 11. Sec., Dr. Scott C. Runnels, 900 Scott St., Little Rock. Eclectic: Little Rock, May 13. Sec., Dr. C. E. Laws, 712 Garrison Ave., Fort Smith.

GEORGIA: Atlanta and Augusta, June 2-4. Sec., Dr. C. T. Nolan, Marietta.

ILLINOIS: Chicago, May 13-15. Sec., Dr. C. St. Clair Drake, Springfield, Ill.

IOWA: Iowa City, June 10-12. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.

KANSAS: Kansas City, June 8-10. Sec., Dr. H. A. Dykes, Lebanon.

KENTUCKY: Louisville, June 8-10. Sec., Dr. A. T. McCormack, Bowling Green.

LOUISIANA: New Orleans, June 3-5. Sec., Dr. E. L. Leckert, 716 Machea Bldg., New Orleans.

MASSACHUSETTS: Boston, May 11-13. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

MICHIGAN: Detroit, May 27-29. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

MINNESOTA: Minneapolis, June 1-4. Sec., Dr. Thomas McDavitt, Lowry Bldg., St. Paul.

NEBRASKA: Lincoln, June 10-11. Sec., Dr. H. B. Cummins, Seward.

NEVADA: Carson City, May 3. Sec., Dr. S. L. Lee, Carson City.

NEW YORK: Albany, Buffalo, New York and Syracuse, May 25-28. Mr. Harlan H. Horner, Chief, Examination Division, State Education Bldg., Albany.

NORTH CAROLINA: Greensboro, June 8. Sec., Dr. H. A. Royster, Raleigh.

OHIO: Columbus, June 8-11. Sec., Dr. George H. Matson, Columbus.

PENNSYLVANIA: Philadelphia and Pittsburgh, June 1-3. Sec., Dr. Nathan C. Schaeffer, Harrisburg.

SOUTH CAROLINA: Columbia, June 8. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

TENNESSEE: Knoxville, Memphis and Nashville, May 3. Sec., Dr. A. B. DeLoach, 426 Scimitar Bldg., Memphis.

Alabama January Report

Dr. W. H. Sanders, secretary of the State Board of Medical Examiners of Alabama, reports the written examination held at Montgomery, Jan. 5-8, 1915. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 35, of whom 15 passed and 20 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Birmingham Medical College....	(1913) 78; (1914) 75.4, 76.5, 78.4, 81		
Atlanta Medical College.....	(1914)		75
Tulane University of Louisiana.....	(1914)		80
Columbia University, College of Phys. and Surgs.....	(1914)		80
Columbus Medical College.....	(1888)		81
Western Reserve University.....	(1913)		76.1
University of Pennsylvania.....	(1914)		86
Memphis Hospital Medical College.....	(1903)		84
University of Tennessee.....	(1914)		75, 76.4
Vanderbilt University	(1914)		82.3

College	FAILED
Birmingham Medical College.....	(1913) 68.6, 71.1; (1914) 60.2, 63.6, 67.1, 67.6, 69.7, 70.3, 71
Atlanta Medical College.....	(1914)
Southern Medical College.....	(1885)
Chicago College of Med. and Surg.....	(1914)
Hahnemann Medical Coll. and Hosp., Chicago.....	(1899)
Mississippi Medical College.....	(1912) 51.3; (1910)*
Memphis Hospital Medical College.....	(1912) 71; (1913)
Universities of Nashville and Tennessee.....	(1911)
Vanderbilt University	(1914)

*No grade given.

Connecticut Homeopathic March Report

Dr. E. C. M. Hall, secretary of the Connecticut Homeopathic Medical Examining Board, reports the written examination held at New Haven, March 9, 1915. The total number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. One candidate, a graduate of the New York Homeopathic Medical College and Flower Hospital, 1913, was examined and passed with a grade of 85. One candidate, a graduate of the New York Homeopathic Medical College and Flower Hospital, 1913, was licensed through reciprocity with New York.

Book Notices

DISEASES OF THE BRONCHI, LUNGS AND PLEURA. By Frederick T. Lord, M.D., Visiting Physician, Massachusetts General Hospital. Cloth. Price \$5 net. Pp. 605, with 96 illustrations. Philadelphia: Lea and Febiger, 1915.

In the preface the author states that "the aim has been to present current knowledge, founded on the literature and the experience gained in the wards and pathologic laboratory of the Massachusetts General Hospital, in such form as to be of value to students and practitioners and also to provide a basis for further research. References are given to the most important original articles in order that the literature may be readily available to those who wish to go more fully into particular problems. Pulmonary tuberculosis is not considered under a separate heading, but special attention is given to conditions which simulate pulmonary tuberculosis and their differential diagnosis." Dr. Lord has followed this aim with fidelity and has been successful in presenting the present-day knowledge on the subject. He has covered practically every disease of the main respiratory organs excepting pulmonary tuberculosis, and it was probably not unwise to omit it from special consideration. Both the practitioner and the student will find this an excellent work in which the views of authorities on etiology, pathology and prognosis are clearly stated, and the conventional methods of diagnosis and treatment are sufficiently amplified. The book is well printed and well illustrated, including microscopic and Roentgen-ray findings. The style is clear and concise.

NEUROLOGISCHE SCHEMATA FÜR DIE ÄRZTLICHE PRAXIS. Textband und Formulare in Mappe. Von Edward Flatau. Cloth. Price, 4.80 marks. Berlin: Julius Springer, 1915.

The author has arranged the various neurologic schemata used in neurologic practice in a manner convenient for practical application. The main brochure contains the text and tables indicating nervous innervation of skin, mucous membranes and muscles, as well as their functions. In addition, brief mention is made of the various paralyses resulting from disturbed innervation of muscles. Accompanying pamphlets contain schemata for electrical motor points and distribution of peripheral nerves, and printed blanks for the sensory segmental distribution of the spinal cord. The frequent reference to these schemata and the correct filling in of neurologic findings should result in more exact neurologic diagnoses, as it will make unnecessary the mere trusting to memory in the matter of localizing certain nerve lesions.

THERAPEUTICS OF THE CIRCULATION. By Sir Lauder Brunton, Bt., M.D., D.Sc., Consulting Physician to St. Bartholomew's Hospital. Second edition. Cloth. Price, \$2.50 net. Pp. 536, with illustrations. New York: Paul B. Hoeber, 1914.

This edition of Brunton's monograph is much more carefully edited than the first, and can be commended accordingly. It covers much more ground than the title intimates. For example, the first 152 pages are devoted to a review of the physiology of the circulatory system. A chapter is also devoted to sphymography and cardiography, electrocardiography and other methods of examination. The next three chapters describe the pathology of the organs of circulation. The last 200 pages approximately are devoted to treatment, which is considered fully.

DISEASES OF THE SKIN. By James H. Sequeira, M.D., Lond., F.R.C.P., F.R.C.S., Physician to Skin Department at the London Hospital. Second Edition. Cloth. Price, \$8.00. Pp. 650, with 286 illustrations. Philadelphia: P. Blakiston's Son & Co., 1915.

Sequeira's book is written in simple outline form. It contains 238 black and white illustrations and about fifty fine colored plates. Many of the illustrations are of histologic and pathologic character, showing the microscopic changes in the skin layers. Treatment is not considered except in three appendixes devoted, respectively, to mineral waters, and internal and external treatment. The book is a valuable guide to the practitioner in diagnosing diseases of the skin.

Medicolegal

Duty of Employers as to Furnishing Emergency Treatment
(*Hunnicke vs. Meramec Quarry Co. (Mo.)*, 172 S. W. R. 43)

The Supreme Court of Missouri, Division No. 1, affirms an order granting the plaintiff a new trial after a judgment had been rendered for the defendant, which had been sued for damages alleged to have been caused by its negligence in failing to procure promptly a physician or surgeon to attend a severely injured employee. The court says that the jury was instructed that if, after the employee was injured, the defendant exercised ordinary care to secure for him medical and surgical aid, then the defendant had fully discharged its duty to him, and there could be no recovery in this case. This instruction assumed that the defendant owed to the employee the duty to furnish him emergency treatment. That was a correct statement of the law. But another instruction told the jury that if they were unable to determine whether the employee would have died from the injury received, even though proper medical assistance had been promptly furnished him, then they should find for the defendant. The effect of this instruction was to tell the jury that the defendant owed the plaintiff no duty whatever, unless the jury could determine an impossibility, namely, that the employee would not have died had proper medical attention been given him. God alone knew that fact, and no man or jury could determine that which no one knows, and which the evidence could not possibly reveal.

The law is that, just as soon as an injury of this character occurs, it then becomes the duty of the master to furnish medical treatment, and if he neglects to use reasonable efforts to do so, and the evidence shows that in all reasonable probability that failure was the proximate cause of the death, then the defendant is liable. In other words, in such a case, the court should have instructed the jury for the plaintiff that if they believed from the evidence that the negligence of the defendant in not furnishing medical treatment for the injured party was the direct and proximate cause of his death, notwithstanding the injury, then they should find for the plaintiff; but, on the other hand, the court should have instructed the jury for the defendant that, if they believed from the evidence that the injury the employee sustained was the direct or proximate cause of his death, then they should find for the defendant. Such an instruction would have eliminated from the case all metaphysical speculations, and have submitted to the jury which of the two acts mentioned caused the death.

In the opinion of this court there is no possibility of doubt that the law is that whenever one person employs another to perform dangerous work, and that, while performing that work, he is so badly injured as to incapacitate him from caring for himself, then the duty of providing medical treatment for him is devolved on the employer. This duty grows out of the fact that, when we get down to the real facts in all such cases, there is an unexpressed humane and natural understanding existing between them to the effect that, whenever any one is so injured that he cannot care for himself, then the employer will furnish him medical or surgical treatment, as the case may be. This is common knowledge. There is not an industrial institution in this country, great or small, where that practice is not being carried on today; and that has been the custom and usage among men from the dawn of civilization down to the present day, and will continue to be practiced in the future, just so long as the human heart beats in sympathy for the unfortunate and desires to aid suffering humanity. The same principle underlies all other avocations of life. Even armies, while engaged in actual warfare, observe and obey this rule when possible.

Food and Efficiency.—Good food is always trump in the game of life. Wherever you play it you strengthen your hand.—*Jour. Sociologic Med.*, April, 1915.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, SAN FRANCISCO, JUNE 21-25.

Am. Assn. Gen.-Urin. Surgs., White Sulphur Springs, W. Va., May 18-20.
 American Association of Immunologists, Washington, May 10.
 American Dermatological Association, New York, May 13-15.
 American Gastro-Enterological Association, Baltimore, May 10-11.
 Amer. Gynecological Society, White Sulphur Springs, W. Va., May 18-20.
 American Laryngological Association, Niagara Falls, June 1-3.
 American Medico-Psychological Assn., Fortress Monroe, Va., May 11-14.
 American Neurological Association, New York City, May 6-8.
 American Orthopedic Association, Detroit, May 6-8.
 American Otological Society, Niagara Falls, June 3-4.
 American Pediatric Society, Lakewood, N. J., May, 25-27.
 American Psychopathological Association, New York, May 5.
 American Surgical Association, Rochester, Minn., June 9-11.
 Arkansas Medical Society, Little Rock, May 3-6.
 Association of American Physicians, Washington, May 11-12.
 Conf. of State and Prov. Boards of North America, Washington, May 14.
 Connecticut State Medical Society, Hartford, May 19-20.
 Florida Medical Association, De Land, May 12-14.
 Illinois State Medical Society, Springfield, May 19-20.
 Iowa State Medical Society, Waterloo, May 12-14.
 Kansas Medical Society, Kansas City, May 5-6.
 Maine Medical Association, Poland Springs, June 9-10.
 Massachusetts Medical Society, Boston, June 8-9.
 Mississippi State Med. Association, Hattiesburg, May 11.
 Missouri State Medical Association, St. Joseph, May 10-12.
 Nat'l Assn. for the Study of Epilepsy, Old Point Comfort, Va., May 10.
 Nebraska State Medical Association, Hastings, May 18-20.
 New Hampshire Medical Society, Concord, May 19.
 North Dakota State Medical Association, Bismarck, May 12-13.
 Ohio State Medical Association, Cincinnati, May 4-6.
 Oklahoma State Medical Association, Bartlesville, May 11-13.
 Rhode Island Medical Society, Providence, June 3.
 Texas State Medical Association, Ft. Worth, May 4-6.
 West Virginia State Medical Association, Huntington, May 12-14.

TENNESSEE STATE MEDICAL ASSOCIATION

Eighty-Second Annual Meeting, held at Nashville, April 13-15, 1915

The President, DR. S. M. MILLER, Knoxville, in the Chair

How Shall We Treat Appendicitis?

DR. M. C. MCGANNON, Nashville: When a diagnosis of appendicitis has been made, our efforts at treatment should be: (1) To relieve pain; (2) to keep the stomach empty of food; (3) to prevent the administration of purgatives; (4) to empty the colon by a not too large or forcibly administered enema; (5) to operate on the inflamed viscus as soon as possible after the diagnosis has been made.

DISCUSSION

DR. E. H. BAIRD, Dyersburg: When a patient has local pain, nausea and vomiting, rigidity and elevation of temperature, with a high leukocytosis, it is time to operate on him. If there is a beginning peritonitis, the old Clark treatment of opium can be used. The use of enemas in appendicitis is dangerous.

DR. L. E. BURCH, Nashville: Appendicitis is no longer a medical disease. The statistics related by Dr. McGannon are very illuminating. All patients operated on in the first twenty-four or forty-eight hours recovered. When he operated on the fourth, fifth and sixth day, the results were not so favorable. The time to operate is during the first twenty-four or forty-eight hours. Do not carry the case to the interval. No man knows from the symptoms of appendicitis what is going to happen in a given case. In regard to the diagnosis of the disease, usually the symptoms are cleancut and well defined. In some few cases the symptoms are quite obscure, and it is most difficult to make a diagnosis. In all intra-abdominal conditions, the first symptom is pain and then reflex vomiting. When the vomiting comes first and pain afterward, we can, as a rule, eliminate appendicitis, gallbladder or kidney conditions. In those conditions the patient has pain first, and then afterward the reflex nausea and vomiting.

DR. F. B. REAGOR, Shelbyville: As a general practitioner I want to emphasize the point that appendicitis is not a medical disease, and the general practitioner makes a mistake in attempting to cure a case of appendicitis by medicinal

means. One attack of appendicitis is very likely to lead to another. I believe the time to operate is as soon as the diagnosis is made.

DR. K. S. HOWLETT, Franklin: We should not give morphin until after the diagnosis of appendicitis is made. I recall one case in which a patient received my diagnosis with doubt. He asked if I was not going to give him something to relieve the pain. I refused to do so; had I done so that man would not have been operated on that night, or as long as the effect of the morphin had lasted. The fact that I refused to give morphin to relieve him made him willing to be operated on that night. I believe the refusal to give morphin saved his life.

DR. C. N. COWDEN, Nashville: The late Dr. Joseph Price uttered the dictum that appendicitis meant operation immediately after the diagnosis is made. The moment we see a case of appendicitis we are ready for early operation, and a large majority of the laity has been educated to this.

DR. WILLIAM O. SULLIVAN, Newbern: I have not seen any ill results from the transportation of any patient in any stage of the disease. We can give some morphin to allay pain during transit. If a patient has pain in the abdomen, we should not be afraid to send for a surgeon whether we really know definitely what is the matter with him or not.

Tuberculous Meningitis

DR. K. S. HOWLETT, Franklin: The noticeable features of my case were: (1) the sudden onset without prodromas in an adult in good health previously; (2) the absence of any demonstrable tuberculous lesion in any part of the system or of any previous indications of tuberculosis; (3) the subsidence and almost complete disappearance of the meningeal symptoms after the first four or five days, and the continued suppression and abeyance of the symptoms for a week or ten days; (4) the sudden reappearance of these symptoms with indications of exudation and pressure and the rapid decline and death which supervened.

DISCUSSION

DR. HAZLE PADGET, Nashville: There is a well-fixed opinion, based on the pathology of the disease, that tuberculous meningitis is always fatal; that whenever we see such a patient we feel that our hands are tied and that the end is going to be a fatal one. In every suspected case of meningitis the cerebrospinal fluid should be examined, and if in doubt as to the nature of it, serum should be used.

DR. WILLIAM KRAUSS, Memphis: I do not know how many cases of tuberculosis I have had to pass on that were treated for malaria. It is remarkable how many cases of disseminated tuberculosis will give typical third day chills. An important practical point is the determination of the absence of malaria parasites in the blood.

DR. WILLIAM LITTERER, Nashville: In the case Dr. Howlett reported, I took special pains to run over the various tests, using globulin and making a cell count, also resorting to Lange's test, and everything was negative except that there was an increase in the lymphocytes. We felt sure before the inoculation of guinea-pigs that the case was one of tuberculous meningitis from the increase in the lymphocyte count, and from the clinical symptoms, and later on we were able to prove that it was such.

Technic and Results in Eight Gasserian Ganglion Operations

DR. E. J. JOHNSON, Memphis: My eight patients have recovered health and are free from tic douloureux. I operated on the first patient nearly nine years ago. The first four cases were exceedingly difficult and the operations bloody, owing to the fact that at that time I had not learned the importance of tying the common carotid artery on the side on which the operation was to be done. My last four cases have been as bloodless as could be desired, because I now tie the common carotid, and in none of these cases have I seen any ill effect from this preliminary procedure. Five cases reached my hands in a very desperate physical and mental condition. Two patients had more than once attempted self-destruction, seeking relief from the intolerable

erable agony which they were enduring in spite of large doses of opium.

DISCUSSION

DR. R. E. FORT, Nashville: The silver screw was used first by Muscovitz. Its use in a reasonable number of cases in my hands has been successful. I have employed alcohol injections repeatedly. A good deal depends on the accuracy with which the injections are made. They give relief for from two to six months. I recall one case in which a permanent cure, so far as I know, was effected by two injections. Eighteen months after the last injection, the woman was well. In another case in which only three injections were given, the patient has remained well for over two years. The gasserian ganglion operation is not a simple surgical procedure. It is one of the gravest operative procedures, and we should exhaust every other means before we resort to it.

Bad Results of Colles' and Pott's Fractures and How to Prevent Them

DR. DUNCAN EVE, JR., Nashville: To attain good results four things are necessary: (1) a correct diagnosis; (2) a careful comparison of the affected side with the sound side; the location of bony prominences in relation to each other must be carefully considered; (3) do not attempt reduction of a fracture about a joint except under an anesthetic; it saves pain and suffering to the patient; (4) if possible make a roentgenogram. Do not immobilize the fingers. Remove all splints in three weeks' time. If the patient continues to suffer great pain two or three days after reduction, the fracture has not been reduced.

Indications for the Operative Treatment of Fractures

DR. BATTLE MALONE, Memphis: Fractures in which the open treatment may be considered should be divided into five classes. 1. Those fractures which we do not expect to unite by bony union, (a) fractures of the olecranon and fractures of the patella, with rupture of the capsule, and (b) fractures of the neck of the femur. In my own experience most of the cases of nonunion of the neck of the femur have been those in which the fracture was not recognized, and was not treated at all for several months. Such cases demand operation, provided no contraindications are to be found in the age of the patient or other conditions. 2. Fracture dislocations, especially fractures of the surgical neck of the humerus, with dislocation of the head and, of less frequent occurrence, fracture of the femur complicated by a hip joint dislocation. 3. Fractures of the condyles of the humerus, T and Y fractures of the elbow, fractures of the femoral condyles, complicated Pott's fractures. Each case must be considered as it arises. 4. Fractures of the shaft of the long bones cannot always be treated successfully without direct fixation. 5. Fractures in which operation is to be considered is where nonunion is present. The only method of treatment of nonunion is by autogenous bone transplantation.

DISCUSSION

DR. E. DUNBAR NEWELL, Chattanooga: A most important point in the treatment of Colles' and Pott's fractures is proper diagnosis, and the only way to diagnose these cases properly is to use the Roentgen ray. After a proper diagnosis has been made, it makes little difference what kind of splint is applied. Proper approximation of the fractures is very important. With reference to plating a fracture of the upper third of the femur, I believe that is going too far. It is unjustifiable. Mr. Lane claims that he has 100 per cent. of recoveries in these cases, but his associates say that he is mistaken about that.

DR. WILLIAM BRITT BURNS, Memphis: Some years ago I objected to too much plating and to the application of too much hardware. I have been old fashioned enough to believe that I could get results without plating. Most of my plating has been done in compound fractures, and in some instances of double multiple fractures. With the exception of a little necrosis, I have not had occasion to

regret this practice. I believe logical fixation in plating is the bone plate.

DR. S. R. MILLER, Knoxville: There are a great many compound comminuted fractures, cases of Barton's fractures, and other serious fractures about the wrist joint that are not typical Colles' fractures, and you cannot hold them in position with a simple dressing of any character. In order to hold a fracture with a simple splint or any kind of splint it must be a typical Colles' fracture, and not comminuted, or not a Barton's fracture or some other complicated fracture.

Ectopic Pregnancy

DR. T. G. POLLARD, Nashville: Primary rupture may be partial or slight, or it may be complete or even fatal. If complete, a subsequent rupture or ruptures is the rule. With a rupture free hemorrhage, more or less severe, occurs, and it may prove fatal. The loss of blood may be through one rapid fatal hemorrhage, or there may be a series of lesser hemorrhages. Recovery may take place without operation. Patients with ectopic pregnancy, even if in good condition, with or without rupture, are almost certain to have future trouble and should have an operation as soon as possible.

DISCUSSION

DR. E. M. SANDERS, Nashville: We have found in our work that the leukocyte count, temperature and pulse, examination from below, examination of abdomen, and all that which we get outside of the history, is very confusing. However, I do not believe a careful history is a most important factor in arriving at a diagnosis of ectopic pregnancy. The history should be taken several times, if possible. We had one patient in whom the hemorrhage was not simply a bloody discharge, but a real uterine hemorrhage, and at the operation it was easy to pass a probe from the sac through the tube on into the uterus. I do not think that flushing out the abdomen should be done. With reference to drainage, in the subacute cases we are dealing with infection, and it is best to drain some of them, and when it is done it should be done from below.

Duodenal Ulcer

DR. J. S. B. WOOLFORD, Chattanooga: In the cases with mild symptoms we should try medical treatment. I give strontium bromid before meals, in 10 or 15 grain doses, and a pill of silver nitrate, one-fourth grain, with one-half grain of hyoscyamus. This treatment, coupled with a diet that is calculated to leave the least amount of residue and produce the least amount of irritation, will sometimes give relief, and some patients apparently recover. Inasmuch as some of these patients frequently suffer from constipation, the question of overcoming this condition is an important one. The frequent and unnecessary administration of cathartic medicines and laxatives of various kinds is harmful. It would be more rational therapeutics to advise the use of an enema or injection of a few drams of glycerin when necessary, and by this means give the duodenum as much peristaltic rest as possible, thus allowing the ulcer a better opportunity to heal. If symptoms recur and an operation becomes necessary, then the surgeon should open the abdomen through a right rectus incision and make a posterior gastro-enterostomy.

DISCUSSION

DR. HERMAN J. BARNETT, Chattanooga: It seems to me that we have not progressed far enough yet to be absolutely sure that the appendix is not the cause of a great deal of duodenal and gastric ulcer. The frequent occurrence of these conditions in those cases of neglected appendicitis, and the fact that we almost always observe a Lane kink or some form of stasis in the intestine, associated with these conditions, leads me to believe they are the etiologic cause of ulcer. Eleven of my patients gave a history of acute appendicitis that had been neglected.

DR. FRANK A. JONES, Memphis: Moynihan gave utterance to an expression in his book on duodenal and gastric ulcer which, in my own opinion, has been fraught with considerable harm to the diagnostic world. He made the statement

in italics that "any chronic, recurrent hyperchlorhydria is duodenal and gastric ulcer." In the abstract, that, in a great many cases, proves correct; but I have on repeated occasions seen this not verified at the operating table. It proved not to be gastric or duodenal ulcer, but gallstones with cholecystitis.

Colossal Goiters

DR. WILLIAM D. HAGGARD, Nashville: Clinically these larger growths are, as a rule, either colloid, which is the classical and more frequent form of goiter, or cystic growths or adenomas. The adenomas are usually soft and doughy. They begin, as a rule, in the lateral lobes, but on account of the pressure of the muscles are often forced to the center, where they protrude as a round, tense, globular mass in front of the neck. Inasmuch as they are encapsulated, it is impossible for any form of medication to have any effect on an adenoma any more than it would on a sebaceous cyst of the back. Although medication is useless, enucleation in the early stages can be quickly and safely performed without removal of the gland. When, however, they are multiple, one must remove the larger and most diseased lobe and can often either resect the remaining side, according to the method of Mikulicz, or enucleate isolated adenomatous masses with a very satisfactory prospect of cure. The enormous cysts can be shelled out with considerable rapidity. The so-called goiter heart which so often attends these cases of diffuse, fibrous or colloid goiter is generally due to pressure on the vessels and dilatation of the right heart. Both chambers may be affected and the heart muscles so thinned out that a mild cardiac degeneration is brought about which gives the patient the characteristic breathlessness which so often attends goiter. In glands which are permitted to attain a large size, it is not uncommon for a portion or all of the enlargement to develop behind the sternum and into the thorax. This has been called floating, plunging or diving goiter. They are difficult to diagnose, except by the help of the Roentgen ray or dulness on percussion over the sternum. One should suspect the condition when the patient is unable to stoop with comfort. When these colossal growths are symptomless there is no indication for their removal. The time is coming when we shall give these cases more thorough treatment in the beginning, or early surgical removal when necessary.

DISCUSSION

DR. E. J. JOHNSON, Memphis: I should like to impress on the general practitioner the importance of recognizing and advising that so-called innocent goiters be considered surgical. Dr. Haggard has shown that in practically every case these goiters at some time or another in the life of the individual become surgical.

DR. E. M. HOLDER, Memphis: There is no such condition as an innocent goiter. It has been said that every drop of blood in the human body goes through a goiter every hour of the life of that individual. Just think of the enormous amount of disturbance that may result from a goiter. The same principle applies to the exophthalmic type. If we operate and the goiter is lobulated or there is an isthmus between the lobes, if the patient is not in prime condition and if the operation is extensive, the suggestion Dr. Haggard made of operating in two stages, thus conserving the patient as much as possible, and avoiding shock, is an excellent one.

Acute and Chronic Rheumatism

DR. FRANK BILLINGS, Chicago: Acute rheumatism has long been recognized as an infectious disease. The organism has been designated as *Streptococcus rheumaticus*, *Diplococcus rheumaticus*, or *Micrococcus rheumaticus*. With the phenomenal work done by Rosenow in connection with new methods of bacterial culture in our clinic, we practically always find the organism in the exudate or in the tissues of the patient. We can then make a culture of it, can inject it into animals, producing the disease, and can recover it from the animal again. Acute articular rheumatism is an infectious disease due to a form of streptococcus; that streptococcus is specific in the production of the

syndrome we call acute rheumatic fever, just as the pneumococcus is in producing ordinary lobar pneumonia. It has been proved by investigation that the organism in both acute and chronic rheumatism is hematogenous in its method of infection; the organisms passing through the smaller blood vessels of the tissues are caught by the endothelium of the vessel, producing cellular proliferation and obstruction of the blood vessel, so that in acute conditions one finds the blood vessel obstructed with minute hemorrhages at that point into the infected tissue. We have no specific for the treatment of acute rheumatism. Salicylic acid and its derivatives, if used early and in massive doses, often will produce miraculous results. If used later or inefficiently at the beginning, they do not have any effect except as analgesics. They diminish pain, but they do not stop the course of the disease. In acute rheumatism do not be afraid to give large doses of the salicylates in the first forty-eight hours; after that diminish the dosage, but do not stop the salicylates, and often you will stop the disease. Alkalies are supposed to diminish the effects of the streptococcus on the heart. They apparently do intensify the effect of the salicylates, but that is all one can say. For acute rheumatism, vaccines have been used. If we are going to follow any principle in treatment in vaccination, we must stop and ask what these vaccines are expected to do. In acute infectious disorders, vaccines have not proved efficacious. When the living organisms in the body do not excite enough antibodies it is not reasonable to inject more dead bacteria into the tissue to excite the defences. Phylacogen or rheumophylacogen preparations are being used all over the country for rheumatism. In the advertisement of a certain pharmaceutical firm there is a report of 15,000 cases of rheumatism in which recovery ensued in 12,000 with the use of rheumophylacogen. I have been practicing medicine for thirty-five years, and I have not seen patients die from acute rheumatism per se. I have seen them die from the sequelae, that is, of heart conditions later in life, etc. My professional friends know that I have not a good opinion of these preparations.

Etiology and Experimental Production of Appendicitis, Ulcer of the Stomach and Cholecystitis

DR. EDWARD C. ROSENOW, Chicago: The demonstration of streptococci in the focus of infection at the time of an attack of appendicitis that has an affinity for the appendix when injected intravenously into animals, it seems to me, is good evidence, together with all the other facts, that the growth of the organism in the throat or in the focus of infection is primary, and that the disease in the appendix is a result of this, not by the swallowing of bacteria, but by embolic infection, getting into the circulation and finding in the appendix a favorable spot for its growth. When you couple that with the fact that when the attack is over you can go back and make cultures from the same spot, and inject animals in the same way with cultures made as before, and not one animal in the series develops a single lesion, you have evidence of the cause of appendicitis. I do not care whether there is infection of the throat or not. There is no reason why it should not be so. If you have a case of arthritis you say it is an embolic infection. Why not here? Aschoff and others assert that mechanical factors play an important rôle in the causation of appendicitis. They say that the first attack of appendicitis is due to a previous infection, which causes the formation of fecal concretions, and hence the mechanical factor. I feel that these things are primary and the other things are secondary. The same thing can be said with reference to cases of ulcer of the stomach and of cholecystitis.

We have heard much in regard to the importance of various foci of infection. The breaking of the continuity of surface, the epithelium of the skin, the breaking of the continuity of mucous membranes anywhere should be regarded as a serious matter. We know the relationship of slight abrasions to highly virulent streptococcal infection. After demonstrating the presence of bacteria of low virulence in this type of infection in cases of cholecystitis and

appendicitis, why not believe they are also important? The focus is not only the place of entrance, but also the infection atrium. The transmutation of streptococci has been established. In one instance there is an affinity for joints, in another for the appendix, and in still others for the stomach and for the gallbladder. These types of streptococci are so much alike in their cultural characteristics and morphology that it is difficult to differentiate them; but when injected as isolated, they are different in their actions in animals. Therefore it is absurd to hope to get good results by buying streptococcus vaccines at the drug stores and using them for these various diseases. What good will streptococcus vaccines manufactured by various commercial laboratories do in these cases? A vaccine should be developed and given for each specific disease. Only autogenous vaccines should be used. In order to have autogenous vaccines, the micro-organism must be proved; then you can proceed to treat the case intelligently.

Diagnosis and Choice of Operation in Certain Affections of the Stomach and Duodenum

DR. J. M. T. FINNEY, Baltimore: Pyloroplasty has its greatest indication in the relief of pyloric stenosis due to chronic ulcer, situated at or near the pylorus, or resulting from cicatricial contractions in the healing of such ulcers. It is often a useful procedure in case of hemorrhage due to gastric ulcer on the lesser curvature or to duodenal ulcer, which cannot be controlled medically, and which threatens the life of the patient, as well as in the chronic dyspepsias due to ulcers which have not been relieved by medical treatment. Contraindications to the operation are inability to mobilize the duodenum when its lesions are too dense, and thickening and infiltration about the pylorus due to hypertrophic forms of ulceration; in atony or gastroparesis, with slight motor insufficiency; in gastric disturbances not dependent on organic disease and in cancer of the stomach. This procedure affords the opportunity to excise all ulcers and also the application of treatment to ulcers. It does not greatly disturb the normal relationship between the stomach and intestines, as is the case in other operations. The immediate as well as the final results are most encouraging. The end-results in 100 gastro-enterostomy cases showed a percentage of 77.2 per cent. of satisfactory recovery; in the pyloroplasty cases a percentage of 88.6 per cent. of complete cures.

THE AMERICAN ASSOCIATION FOR CANCER RESEARCH

Eighth Annual Meeting, held in St. Louis, April 1, 1915.

Primary Spontaneous Tumors of Liver in Mice.

DRS. MAUD SLYE, HARRIET F. HOLMES and H. G. WELLS, Chicago: Primary tumors of the liver are rare in mice, only twenty-three having been found in 9,000 mice of all ages, dying natural deaths and carefully examined at necropsy. All were liver cell adenomas, one showing malignant structure with multiple metastases in the lung, two showing malignant structure without metastases, and the remainder exhibiting all gradations from probable malignancy to simple adenomas. The mouse liver is not subject to cirrhosis, and these growths are not encapsulated. No tumors of bile duct type were found. Sarcomalike growths were found in four, but these are probably granulomas. No hemangiomas or other tumors were found. There were three carcinomas secondary to mammary gland tumors, and one secondary sarcoma. None of the tumors were associated with cestode infection of the liver or other evident cause. All occurred in mice of highly cancerous ancestry, and none were found in approximately 3,000 necropsies of mice of noncancerous ancestry. The coexistence of liver tumors with other primary tumors is high, there having been multiple tumors in nine of the twenty-three cases; in three both primary tumors were hepatic; in the other six different organs were involved. Only four secondary tumors were found in the liver, three

being metastatic from mammary gland carcinomas, and one from a mesenteric sarcoma.

Tumors of the Japanese Waltzing Mouse and Its Hybrids

DR. E. E. TYZZER, Boston: A spontaneous carcinoma occurring in the Japanese waltzing mouse could be successfully implanted into over 95 per cent. of the same race. It does not "take" when inoculated into the common mouse. If these two races be mated, the hybrids "take" the inoculation in about 95 per cent. If hybrids be mated, the second and third generations of hybrids give practically 100 per cent. of negative inoculations. Metastasis formation in mice growing this tumor occurs in a high percentage of cases. Massage of the tumor increases the incidence of metastases, which also occur earlier. This indicates the danger of undue manipulation of tumors. Filtration, centrifugation and drying of this tumor have each failed to indicate a causative agent apart from the living tumor cell.

Transplantation of Fowl Sarcoma (Rous) by Injecting the Filtered Citrated Blood Plasma of an Infected Fowl

DRS. G. H. A. CLOWES and B. T. SIMPSON, Buffalo: We took blood directly from the vessels of the neck in two chickens carrying implanted spindle-cell sarcomas (Rous). The blood was at once introduced into a cold solution of aqueous citrate. The plasma was separated by centrifugalization. One portion of the plasma was injected without further treatment. A second portion was filtered through a coarse grade Berkefeld bougie previous to injection. The bougie was subsequently tested and found to be impervious to cultures of *Bacillus prodigiosus*. Each of these portions was introduced into the breast muscles of a number of chickens. Tumors were produced by the injection both of the filtered and of the unfiltered portions. In view of the fact that the injection either of whole blood or of corpuscles or of serum of defibrinated blood have all hitherto given negative results, the conclusion is tentatively drawn that the addition of a small amount of citrate to the blood serves as the fibrile agent.

Chemical Studies on the Serum of Chicken Sarcoma

MR. CASIMIR FUNK, New York: Within recent years, several methods for the serum diagnosis of cancer have been advised, but were found to give unreliable results. In contrast to these methods, which are based on the biologic properties of the serum, the present paper deals with the differences found by chemical analysis. For the preliminary study, serum of chicken inoculated with Rous' sarcoma was analyzed, and the average figures obtained from twenty-two malignant cases, as compared with twenty-two normal serums, showed diminution in the total nitrogen, phosphorus, sulphur and chlorids, but an increase in the ammonia nitrogen and the sugar. The differences found here are apparently due to anemia, and are so pronounced because of the short period over which the animals survive with a tumor. Analogous results were obtained in a few instances with rat serum from animals bearing a sarcoma. In human serums the chemical analysis has failed thus far to reveal any important changes, so that here a more detailed analysis and investigation of the serum is necessary.

Action of Radium on Transplanted Tumors of Animals

DR. F. C. WOOD and DR. FREDERICK PRIME, JR., New York: Most of the reported clinical observations are of little value. In many the tumor had not been microscopically diagnosed, and the time and distance of the radium from the tumor not given. Even the amount of the radium used could rarely be estimated from the reports. A long series of experiments on mouse and rat tumors has shown that very much longer exposures were required to kill the cancer cells than had hitherto been thought. The results were plotted in a curve which showed that, the distance from the tube being the same, the only factors were the time and the quality of radium element employed. Dr. Wood said that the exposures required were about the same as for human carcinomas.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

April, LXXI, No. 4, pp. 561-720

- 1 *Movable Retrodisplacements of Uterus. D. Bissell, New York.
- 2 Role of Pelvic Fascia as Uterine Support. J. T. Williams, Boston.
- 3 *Treatment of Placenta Praevia. J. F. Winn, Richmond, Va.
- 4 *Newer Methods for Clinical Examination of Blood. R. Weiss, Basel.
- 5 Sacro-Iliac Strain. K. C. Corley, Washington, D. C.
- 6 Mode of Termination in Ectopic Gestation; Report of Seven Cases. H. J. Hartz, Philadelphia.
- 7 *Significance of Noncoagulable Nitrogen Coefficient of Blood Serum in Pregnancy and Toxemias of Pregnancy. E. D. Plass, Baltimore.
- 8 Occiput Posterior Positions. F. L. Adair, Minneapolis.
- 9 Significance of Uterine Hemorrhage. H. W. Yates, Detroit.
- 10 Combined Local and General Anesthesia in Major Surgery. L. Frank, Louisville, Ky.
- 11 Primary Carcinoma of Liver in Child. M. A. Tate, Cincinnati.
- 12 Leukorrhea. D. H. Stewart, New York.

1. **Movable Retrodisplacements of Uterus.**—Bissell summarizes his paper as follows: The ability of the pelvic fascial diaphragm to restore and maintain the uterus in the extreme anterior or horizontal position is the key to the situation. So long as the uterus is in the standard position, all forces directed from above on it and its adjacent structures are shared equally by the group of tissues constituting the fascial diaphragm, but as the corpus recedes the distribution of the forces becomes more and more unequal and the liability to permanent loss of equilibrium is greater and greater. Nature has provided the round, broad and utero-sacral ligaments as additional safeguards to be called on when the loss of equilibrium is threatened. Any factor or combination of factors, congenital or acquired, which discourages the resumption or maintenance of the uterus in standard position, encourages an unequal distribution of the forces expended on the fascial diaphragm with retrodisplacement as the eventual result.

3. **Treatment of Placenta Praevia.**—Before viability, both in home and hospital practice, Winn states, the Braxton Hicks method of version is demanded. After viability, provided the child is in good condition, the intra-ovular use of the elastic rubber bag followed by internal podalic version offers the best result for both the mother and child. In home practice, when the bag is not available, Braxton Hicks' version again should be the treatment. During labor, in complete or partial placenta praevia, with great loss of blood, the child either dead or possessing little chance of living, Braxton-Hicks' version offers the best results for the mother.

Whenever Braxton Hicks' version is employed it should always be followed by slow extraction. All efforts at rapid delivery by dragging the child through an undilated cervix will be followed by most disastrous consequences to the mother. For the milder varieties of placenta praevia, the marginal and lateral, simply puncturing the membranes is generally the only thing necessary to control the hemorrhage. The cervical and vaginal tampon is a makeshift at best, and if at all should be used under rigid aseptic conditions and other precautions well defined.

Cesarean section in Winn's opinion has a restricted place in placenta praevia. It should be chosen under the following conditions; with the approach of full term, the placenta covering a great part of the whole of the os; the hemorrhage profuse, but not enough to make the mother a bad surgical risk; the child probably weakened, yet offering reasonable prospects of being saved; the cervix in a condition suggestive of prolonged and difficult dilatation; a negative history of vaginal contamination; and, the assurance of hospital technic.

4. **Clinical Examination of Blood.**—Weiss describes methods of examination which, he says, are so accurate that 1/1000 of a milligram of uric acid or a trace of sugar in the

blood can be tested with absolute accuracy. The original paper should be consulted for details.

7. **Coefficient of Blood Serum in Pregnancy.**—Plass claims that the noncoagulable nitrogen coefficient is a better index of kidney function than the total noncoagulable nitrogen alone. In the toxemias of pregnancy and in eclampsia the noncoagulable nitrogen coefficient seems to be of some value in prognosticating the degree of permanent kidney change and in differentiating renal from hepatic toxemias. Possibly, if the noncoagulable nitrogen coefficient were determined in other renal disorders, not especially connected with pregnancy, additional information might be obtained which would increase the clinical and prognostic value of the test.

American Journal of Physiology, Baltimore

April, XXXVII, No. 1, pp. 1-176

- 13 Studies on Growth of Man. I. Prenatal and Postnatal Growth of Infants. T. B. Robertson, San Francisco.
- 14 *Variations in Coronary Pressure, and Their Bearing on Relaxation Rate of Ventricles. A. L. Prince, Hartford, Conn.
- 15 *Contribution to Physiology of Stomach. Secretion of Gastric Juice in Man. A. J. Carlson, Chicago.
- 16 Studies on Growth of Man. II. Postnatal Loss of Weight in Infants and Compensatory Overgrowth Which Succeeds It. T. B. Robertson, San Francisco.
- 17 *Vascular Tone and Distribution of Blood in Surgical Shock. R. A. Morison and D. R. Hooker, Baltimore.
- 18 Some Characteristics of Vasomotor Reflexes. P. G. Stiles and E. G. Martin, Boston.
- 19 *Study of Causes of Respiratory Change of Heart Rate. C. D. Snyder, Baltimore.
- 20 Electrical Studies in Mammalian Reflexes. A. Forbes and A. Gregg, Boston.

14. **Variations in Coronary Pressure.**—Prince found that the relaxation rate of the ventricles is not affected by variations in arterial pressure. This speaks against theories ascribing to the heart a suction action brought about either by the tension or changes of tension in the coronary vessels.

15. **Secretion of Gastric Juice in Man.**—A healthy male, 29 years of age, was the subject of Carlson's study. He has had a complete cicatricial stenosis of the esophagus since the age of 9. Food is introduced into the stomach through a gastric fistula after it has been masticated. Carlson summarizes his findings as follows: The fluid contents of the "empty" stomach varies from 8 c.c. to 50 c.c., with an average of 20 c.c. The quantity is greater in the morning than at noon or at 6 p. m., greater in the summer than in the winter months. The gastric glands in the normal person are never completely quiescent. The continuous secretion varies from 2 to 50 c.c. per hour. The secretion is rich in pepsin, but when the secretion rate is very low it is poor in hydrochloric acid. Chewing of indifferent substances, and stimulation of the nerve endings in the mouth by substances not related to food do not cause secretion of gastric juice; that is, these processes do not augment the continuous gastric secretion.

Seeing, smelling and possibly thinking of palatable food usually cause a slight but very transitory secretion of gastric juice. The rate of secretion of gastric juice on mastication of palatable food is directly proportional to the palatability of the food. During mastication the average rate is 3.5 c.c. per minute (minimum rate, 1.4 c.c.; maximum rate, 10.8 c.c.). On cessation of chewing, the secretion rate diminishes rapidly, so that in fifteen to twenty minutes the gastric glands reach the level of the continuous gastric secretion. The chemistry of this appetite gastric juice has been practically constant during the three years of observation. The latent period of the appetite secretion varies indirectly with the rate of the continuous secretion, so that when the continuous secretion is abundant the appetite secretion shows no latent period at all, while with the lowest rate of the continuous secretion, the latent period varies from two to four minutes. This latent period is therefore one of the processes of secretion in the gland cells, and not in the nervous mechanism. It is estimated that an adult normal person secretes on an average meal (dinner) 700 c.c. gastric juice, or an average total of 1,500 c.c. of gastric juice in twenty-four hours.

17. Vascular Tone in Surgical Shock.—The observations made by Morison and Hooker show that both the systemic and portal venous pressures fall in shock. The weight of an isolated loop of gut is increased in shock, a fact interpreted to mean loss of local vascular tone. This loss of tone may be arterial or venous, or both. Their evidence indicates loss of venous tone, which would predicate failure of the venopressor mechanism and a stagnation of venous blood. Perfusion of vascular areas, temporarily isolated for observation, shows a decreased rate of flow in shock.

19. Respiratory Change of Heart Rate.—The thesis presented by Snyder is said to be new in so far as it gives proof of a different character from that given by previous workers, showing that the cause of respiratory change of heart rate is in the spinal bulb and not in any peripheral mechanism; is an automatic and not a reflex mechanism. It opposes the view that this cause is in the activity of the expiratory center. It gives positive proof that the agent lies rather in the activity of the inspiratory center. It is inclined to regard the mechanism as rather a depression of vagal center than a stimulation of the hypothetical accelerator center.

Boston Medical and Surgical Journal

April 8, CLXXII, No. 14, pp. 503-538

- 21 Cases of Perineal Prostatectomy. F. G. Balch, Boston.
 - 22 *Fixation of Fractured Bones in Infants and Young Children. E. H. Bradford and R. Soutter, Boston.
 - 23 Border-Line Cases of Mental Defect, with Special Reference to Hysterical Symptoms. C. C. Beckley, Lancaster.
 - 24 Somatic Characteristics of General Paretics. D. Gregg, Brookline.
- April 15, No. 15, pp. 539-574*
- 25 New Preparation for Pyelography. E. L. Young, Jr., Boston.
 - 26 Dangers in Handling Food by Persons Afflicted with Communicable Diseases. E. O. Otis, A. J. McLaughlin, H. Linenthal, C. Floyd, A. Post, T. K. Cory and H. Abrahams, Boston.
 - 27 Recent Extension of Outpatient Work in Massachusetts Hospitals for Insane. A. W. Stearns, Boston.

22. Fixation of Fractured Bones in Infants and Young Children.—In attempting to steady two broken fragments of bone, supports are fitted to which the fragments are fastened, reaching a considerable distance above and below the point of solution of continuity. By means of a long bone drill, with an eye at the point, the broken bone was pierced and strong thirty-day catgut threads passed through the eye of the needle thrust through the skin. On withdrawing the needle the catgut is pulled through the bone. No dissection is necessary, as the bone drill is readily thrust through the skin down to the bone. Palpation and the roentgenogram were sufficient guides for the proper placing of the catgut in the fragments of the bone. Any needed number of catgut cords can be passed. The skin is protected by a layer of fat-free leather, which will soften when wet and harden rapidly into stiffness. This leather soaked in alcohol is sterilized and placed around the limb and the catgut threads passed through it. Small wood coaptation splints are then placed in desired places, pressing on the side of the limb, one to check a forward and backward movement of the fragments and another to prevent sideplay.

Traction is then applied to the limb, coaptation splints held in position, and the catgut threads passed through the fractured bone are tied to the coaptation wood strips, thus firmly lashing the fragments in proper position to a firm splint; over the whole a second layer of alcohol softened leather can be placed, held by a firm bandage, and the limb secured in a wire splint. The leather softened in alcohol hardens quickly on the evaporation of the alcohol and in a short time the fractured limb is held in a stiff leather splint firmly. The position can at any time be determined by roentgenogram. In the cases (young children) in which the method was used the leather splints and wood side splints were removed in four weeks, the catgut having softened and the fracture being firmly healed.

Illinois Medical Journal, Chicago

April, XXVII, No. 4, pp. 257-336

- 28 Eutocia by Means of Nitrous Oxid and Oxygen Analgesia—Safe Substitute for Freiburg Method. F. W. Lynch, Chicago.
- 29 Is Twilight Sleep to Be "For Me"—Blessing—or Curse? A. L. Mann, Elgin.

- 30 Dermatoses of Pregnancy. E. A. Fischkin, Chicago.
- 31 Acute Abdomen in Children. D. N. Eiscndrath and A. A. Strauss, Chicago.
- 32 Traumatic Hernia. C. W. Hopkins, Chicago.
- 33 Bill to Regulate Expert Testimony. H. N. Moyer, Chicago.
- 34 Tumors of Bladder. C. Martin, St. Louis.
- 35 Madelung's Deformity of Wrist. W. R. Parkes, Evanston.
- 36 Some Practical Points in Treatment of Traumatic Joint Affections by Massage and Mobilization. H. A. Oldenberg, Chicago.
- 37 Roentgen Ray Aid in Diagnosis of Stomach and Colon Conditions. N. H. Lowry, Chicago.
- 38 Experimental and Clinical Work on Sterility. V. D. Lespinasse, Chicago.
- 39 Eugenics and Physician. M. D. Henderson, Opdyke.
- 40 Puerperal Sepsis. R. N. Lane, Gibson City.
- 41 Pyelitis in Children. G. J. Laben, Papineau.

Journal of Experimental Medicine, Lancaster, Pa.

April, XXI, No. 4, pp. 289-400

- 42 *Comparison of Adult and Infant Types of Gonococci. L. Pearce, New York.
- 43 *Studies on Experimental Pneumonia in Rabbits. B. S. Kline and M. C. Winternitz, Baltimore.
- 44 *Id. VIII. Intra-Vitam Staining in Experimental Pneumonia, and Circulation in Pneumonic Lung. B. S. Kline and M. C. Winternitz, Baltimore.
- 45* Id. IX. Part of Leukocyte in Immunity Reaction. M. C. Winternitz and B. S. Kline, Baltimore.
- 46 *Influence of Epinephrin on Coronary Circulation of Monkey. H. G. Barbour and A. L. Prince, New Haven, Conn.
- 47 *Test for Antithrombin in Blood. A. F. Hess, New York.
- 48 Changes in Biologic Properties of Trypanosoma Lewisi Produced by Experimental Means, with Especial Reference to Virulence. W. H. Brown, New York.
- 49 *Influence of Milk Feeding on Mortality and Growth, and on Character of Intestinal Flora. L. F. Rettger, New Haven, Conn.
- 50 *Concentration of Protective Bodies in Antipneumococcus Serum by Means of Specific Precipitation. F. P. Gay and H. T. Chickering, New York.

42. Comparison of Adult and Infant Types of Gonococci.—According to Pearce two principal types of gonococci may be recognized by suitable immunologic tests; namely, agglutination and complement fixation. These two types correspond to the adult and infant types of infection with the gonococcus, seen clinically. On the basis of the immunologic reactions of agglutination and complement fixation the strains of gonococci isolated from three cases of ophthalmia are classed with the adult type. A polyvalent antigen for the serologic diagnosis of a gonococcus infection should represent strains of the infant type of organism in order that both types of infection, infant as well as adult, may be recognized.

43. Experimental Pneumonia in Rabbits.—Kline and Winternitz found that the production of lobar pneumonia in rabbits is dependent on the introduction of organisms into the alveoli themselves. In order to accomplish this the catheter through which they are injected must be inserted as deeply into a bronchus as possible and the culture fluid injected with considerable force. Large numbers of organisms injected into the trachea just beyond the larynx set up no great changes in the lungs, even though the injection be forcible. This fact suggests the presence of a protective mechanism in the upper air passages, which, under normal conditions, prevents the penetration of organisms into the lungs. If animals be subjected to cold, alcohol and the inhalation of irritating gases, the so-called secondary factors in the etiology of lobar pneumonia in man, then the injection of pneumococci into the trachea causes inflammatory changes of the upper respiratory tract and occasionally pneumonia. The vagi prevent foreign material in the pharynx and upper respiratory tract from reaching the lungs. Section of one vagus may be followed by pneumonia, while section of both invariably leads to this result. It is possible that the secondary factors mentioned above owe their action to their influence on the vagus control of the upper respiratory tract.

44. Intra Vitam Staining in Experimental Pneumonia and Circulation in Pneumonic Lung.—Kline and Winternitz in this study found that the impaired circulation in the pneumonic lung results from the wide distribution of capillary fibrin thrombi. In man these are, as a rule, distributed with relative uniformity. The impairment of the circulation is of importance in bringing about resolution. Only enough

blood is allowed to seep through the vessels to nourish the alveolar walls. Consequently very little serum escapes into the alveoli and the autolysis of the exudate by the leukocytes is unhindered. The impairment of the circulation seriously interferes with the action of intravenous therapy on the local lesion. The exudate in the pneumonic lung can be readily impregnated with a dye injected intrabronchially. This suggests a method of administration of therapeutic agents in pneumonia.

45. Leukocyte in Immunity Reaction.—It is concluded by Winternitz and Kline that there are at least three elements necessary in the immunization process: (1) Immune bodies, (2) white blood cells, and (3) a third factor which is dependent for its existence on the presence of white blood cells at the time of inoculation of the pneumococci. Furthermore, this third factor may be removed if the animal is inoculated at a time when it is aplastic.

46. Influence of Epinephrin on Monkey.—Decrease in coronary flow was the constant response of freshly isolated monkey hearts to epinephrin. These hearts were perfused by Barbour and Prince with autogenous hirudinized blood diluted with Locke solution. The results were constant at high or low perfusion pressures, in beating or resting hearts, and with all adequate doses. Increased coronary flow was obtained constantly in rabbit hearts under identical conditions. In the light of previous work on isolated human coronary arteries, the general conclusion is drawn by the authors, that, while actively dilating the coronary vessels in the dog, cat, rabbit, ox, sheep and pig, epinephrin constricts the coronary vessels in man and the monkey. The coronary arteries of the last two species are presumably supplied with constrictor nerves of true sympathetic (thoracolumbar) origin.

47. Test for Antithrombin in Blood.—A test is described by Hess for the estimation of antithrombin in the blood. The chief advantage of the test is that it is simple, and does not require the preparation of fibrinogen and of thrombin, which are difficult to prepare and to maintain in a pure state. The principle consists in titrating the antithrombin against normal human plasma; in this way obtaining an estimation of its power to delay coagulation. As the result of examinations carried out by this method, it would seem that there is a wide factor of safety as regards the amount of antithrombin in the human blood, and that this inhibiting substance may be increased to a considerable degree without markedly delaying or endangering clotting.

49. Influence of Milk Feeding on Mortality.—The favorable influence of milk feeding on mortality and growth was most apparent to Rettger in his experiments. Mortality from all causes was frequently reduced to at least one-half of that obtained among the chicks that received no milk, while the milk-fed chicks in some experiments gained twice as much in weight as those that were without this article of diet. Although the influence of milk feeding was less pronounced on the mortality of chicks that were artificially infected with *Bacterium pullorum*, quite an appreciable difference in mortality was always noted if the milk was fed at least one or two days before the first administration of the bouillon cultures of the organism in question. Practically the same results were obtained, whether sweet or sour milk was fed, and no differences could be observed in the relative value of ordinary sour milk and of the so-called bulgaricus product. Hence the unique properties of this food exist in the milk as such rather than in any milk acids or milk bacteria that may be present.

50. Protective Bodies in Antipneumococcus Serum.—The addition of a water-clear extract of pneumococci to homologous antiserum by Gay and Chickering in their work produces a voluminous precipitate which carries down with it the agglutinins and practically the totality of the protective bodies against pneumococcus infection in animals. This precipitate when washed and resuspended in saline solution to the original volume of serum protects as well as the whole serum. The protein content of such solutions has

varied from 0.09 to 0.34 per cent., as contrasted with about 6 per cent. in the original serum. The solution of this precipitate is not necessary to insure protection, and when produced by dilute alkali (sodium hydrate) frequently destroys the immune bodies.

Journal-Lancet, Minneapolis

April 1, XXXV, No. 7, pp. 165-192

- 51 *Report of Typhoid Prophylactic Vaccination in Two Thousand Cases with Studies of Widal Reaction. C. C. Burlingame, Fergus Falls.
- 52 Common Errors in Gall Tract Surgery. C. E. Ruth, Des Moines, Ia.
- 53 Roentgen-ray Treatment of Uterine Myomas and Metrorrhagias. M. A. Stern, Sioux Falls, S. Dak.
- 54 Bacteriology of Eustachian Tube. C. F. Coulter and C. H. Pierce, Wadena.
- 55 Tonsils in Relation to Systemic Disease. E. H. Parker, Minneapolis.

51. Abstracted in THE JOURNAL, Nov. 7, 1914, p. 1692.

Medical Record, New York

April 10, LXXXVII, No. 15, pp. 589-630

- 56 Treatment of Diabetes Mellitus in Dispensaries. H. O. Mosenthal, Baltimore.
- 57 *Neurasthenia Among Garment Workers. V. C. Baker, New York.
- 58 Influence of Study of Medicine on Rabelais. D. W. Montgomery, San Francisco.
- 59 *Scopolamin-Narcophin Anesthesia (Twilight Sleep) in Labor. K. E. Schloessing, Freiburg, Germany.
- 60 Important Group of Skin Diseases (Tinea). C. F. Pabst, Brooklyn.
- 61 Two Cases of Laryngeal Obstruction, and of Piece of Turbinate in Lung. C. Graef, New York.
- 62 Two Cases of Monocular Optic Neuritis. H. F. Hansell, Philadelphia.
- 63 Non-Bacterial Urethritis. P. I. Nixon, San Antonio, Tex.
- 64 Causes of Persistency and Incurability of Certain Affections of Genito-Urinary Tract. A. Strachstein, New York.
- 65 Electrical Mouth Light. A. Kahn, New York.

April 17, No. 16, pp. 631-672

- 66 Advantages of Medical Associations. E. C. Register, Charlotte, N. C.
- 67 Gonorrhea in Women. W. J. Robinson, New York.
- 68 Physical Basis for Moral and Mental Deficiencies. H. M. Friedman, New York.
- 69 *Gonorrhea Treated with Succinimid of Mercury Administered Intramuscularly. G. B. Lake, U. S. Army.
- 70 *Use of Decanted Blood Serum after Severe Hemorrhage and in Hemophilia: Report of Two Cases. A. Judd, New York.
- 71 Retention of Salvarsan. W. J. McGurn, Boston.
- 72 New Instrument for Scarifying in von Pirquet Cutaneous Tuberculin Test. W. H. Luckett, New York.

57. Neurasthenia Among Garment Workers.—Eighteen cases were selected by Baker for statistics, because of the absence of organic diseases: Neurasthenia, 6 cases; neurasthenic spines, 4 cases; neurasthenia with gastric neuroses, 2 cases; nervous headaches, 2 cases; mucous colitis, 1 case; neurasthenia with obesity, 1 case; sexual neurasthenia, 2 cases. The length of time at the garment trade varied from six months to twenty-three years. The family history in three cases stated the mother to be neurotic. In one of these instances the mother was insane. The illness in all but two cases developed during their employment in the garment industry. Of these two, one began to have "nervous trouble" in childhood and the other dates her illness from the time she started to work. The conclusions as to symptoms peculiar to the trade showed only one, the painful spines, to be prevalent. The occurrence of other symptoms, such as anemia, constipation, eye-strain, decreased chest expansion, and permanent deformities, were not strikingly prominent features. One girl had a lateral curvature of the spine, which was present before she became a garment worker. The others were negative as to deformity.

59. Also published in ILLINOIS MEDICAL JOURNAL, February, 1915, p. 774.

69. Gonorrhea Treated with Succinimid of Mercury.—The technic of giving the injections of mercury described by Lake is as follows: The syringe must be all glass, and it and the needles, which are better made of platinum, must be carefully sterilized by boiling. The desired dose of the mercury salt is dissolved in 1 or 1.5 c.c. of hot water. The site of injection (usually the buttock) is sterilized with

tincture of iodine and the needle is plunged deeply into the muscular tissues, the fluid ejected and the needle withdrawn. The spot is then once more touched with iodine. There is considerable pain for an hour or two after the injection, but in all of these cases this has passed away promptly (usually within twenty-four hours), leaving no bad effects. Two cases had what appeared to be a reaction to the drug, as in them the temperature rose after all injections and subsided promptly without any treatment, leaving no unpleasant results. Several cases developed a mild stomatitis, which subsided in a few days. Lake is giving 65 mg. or more of the mercury succinimid as an initial dose in every case. He believes that a second smaller dose (40 mg.) should follow the first after from three to six days, especially if the gonococci do not disappear within that time. Nineteen cases are cited.

70. Use of Decanted Blood Serum After Severe Hemorrhage and in Hemophilia.—Such an amount of blood is taken by Judd from the cephalic or other prominent vein of the donor as will answer the need or as the donor can spare. In the case of a baby, 180 c.c. of serum represented 450 c.c. of blood obtained from the mother in two separate sittings. The mother was an extremely healthy, full-blooded woman. No harm beyond a simple anemia, which quickly responded to treatment, resulted to the mother. The result to the child was very satisfactory. After drawing the blood from the vein into a clean, sterilized glass vessel it is put into an incubator for a half hour, although this is not absolutely necessary provided a temperature of blood heat is maintained. It is then placed on ice or in a thoroughly cool place, protected by cotton from the air until the blood separates from the clot. From one to twelve hours is required. The serum is then decanted and kept in a cool place until needed. It can be kept for several days if on ice. An ordinary glass or metal aspirating syringe answers the purpose of injecting admirably.

Military Surgeon, Chicago

April, XXXVI, No. 4, pp. 305-404

- 73 Guide to Facilitate Organization and Administration of Independent Sanitary Command in Field. G. P. Peed, U. S. Army.
- 74 New Ward Tent for Field Hospitals—Its Advantages as Observed at Field Hospital No. 3, Texas City—Method of Closing in Tent for Winter Months. W. H. Smith, U. S. Army.
- 75 Emergency Hospital of Panama-Pacific Exposition. R. M. Woodward, U. S. P. H. Service.
- 76 Hygiene Exhibits of Panama-Pacific International Exposition. J. R. Hurley, U. S. P. H. Service.
- 77 Medical Meetings at Panama-Pacific Exposition. L. O. Reese.
- 78 Hernia Adiposa. H. S. Mathewson, U. S. P. H. Service.
- 79 Case of Gunshot Wound of Head. J. R. Church, U. S. Army.

New York Medical Journal

April 10, CI, No. 15, pp. 709-764

- 80 Trials and Triumphs of Surgeon. J. C. Da Costa, Philadelphia.
- 81 *Colloidal Gold Test on Spinal Fluid; in Paresis and Other Mental Diseases. C. J. Swalm and A. L. Mann, Norristown, Pa.
- 82 Ataxia of Tabes. M. Grossman, New York.
- 83 Treatment of Puerperal Sepsis. R. T. Frank, New York.
- 84 Splanchnic Neurasthenia and Its Treatment. A. B. Hirsh, Philadelphia.
- 85 Chronic Nephritis. A. W. Hollis, New York.
- 86 Medical Records of Indian Campaigns of Generals St. Clair, Harmer and Wayne. O. Juettner, Cincinnati.
- 87 Normal Nasal Septum and Pathology of Deflections. F. O. Lewis, Philadelphia.
- 88 Some Difficulties in Cystoscopy. C. C. A. Lange, New York.

April 17, No. 16, pp. 765-816

- 89 Psychopathology of Neurosis. (To be concluded.) B. Sidis, Portsmouth, N. H.
- 90 Limitations of Functional Tests of Kidneys. V. C. Pedersen, New York.
- 91 Misapplied Bone Surgery. H. A. Wilson, Philadelphia.
- 92 Perforation or Rupture of Gravid Uterus Bicornis Unicollis. D. W. Tovey, New York.
- 93 High Cost of Advertising. W. Brady, Elmira.
- 94 Comparison of American and European Methods. J. H. Schrup, Dubuque, Ia.
- 95 Joint Tuberculosis. L. W. Ely, San Francisco.
- 96 Relation of Physicians to Public School System. I. S. Wile, New York.
- 97 Physician's Life. M. Ginsburg, Philadelphia.
- 98 Present Status of Syphilis Therapy Abroad. A. Strachstein, New York.

81. Gold Test in Mental Disease.—The psychiatric cases tested by Swalm and Mann all reacted to the extent of one or two plus in the first tubes, and hence no reaction less than three plus or dark blue was recorded as positive. In paresis the test was of great value in diagnosis, at least 90 per cent. providing the typical curve, the true specificity of which the authors doubt. They advise that the goldsol test should be used in conjunction with the serum and spinal fluid Wassermann reaction, globulin tests, and cell count, as a more delicate method of interpreting their results and to correct them when they fail. The cases of tabes furnished a marked luetic curve in 50 per cent.; cases of cerebrospinal syphilis in 60 per cent. Nonluetic psychoses produced weak reactions, without characteristic curves, so far as was ascertained.

Ophthalmic Record, Chicago

April, XXIV, No. 4, pp. 163-222

- 99 Homonymous Crescentic Scotomas in Association with Ethmoiditis and Tooth Root Abscess. G. E. de Schweinitz, Philadelphia.
- 100 Intranasal Drainage of Lachrymal Sac—Simple Method. J. A. Pratt, Aurora.
- 101 Aqueoplasty; or Zorab Operation for Glaucoma. C. A. Wood, Chicago.
- 102 Retained Silk-Thread or "Seton" Drainage from Vitreous Chamber to Tenon's Lymph Channel for Relief of Glaucoma. D. T. Vail, Cincinnati.
- 103 Two Examples of Peculiar Form of Retinal Pigmentation (Stephenson). B. Chance, Philadelphia.
- 104 Specific Treatment of Morax-Axenfeld Conjunctivitis. H. S. Gradle, Chicago.

Philippine Journal of Science, Manila

November, IX, No. 6, pp. 465-528

- 105 *Germicidal Power of Glycerin on Various Micro-Organisms Under Various Conditions. E. H. Ruediger, Manila.
- 106 Vitality of Cholera Vibrio in Manila Waters. O. Schöbl, Manila.
- 107 Morphology of Adults of Filaria Found in Philippine Islands. E. L. Walker, Manila.
- 108 Pelvimetry and Cephalometry Among Filipinas. H. Acosta-Sison, Manila.
- 109 Physiologic Action of Proteoses. R. B. Gibson, Manila.
- 110 Lymphagoc Action of Philippine Mago, Mangifera Indica Linneus. R. B. Gibson and I. Concepción, Manila.
- 111 Observations on Mango Rash. I. Concepción, Manila.
- 112 *Milk Poisoning Due to Type of Staphylococcus Albus Occurring in Udder of Healthy Cow. M. A. Barber, Manila.

105. Germicidal Power of Glycerin.—Tests were made by Ruediger in order to obtain accurate information as to the extent that glycerin may be relied on to sterilize bacterial vaccines. He found that glycerin has a distinct, although feeble germicidal action. The germicidal action varies greatly with the temperature, being much feebler at a temperature of 15 C. than at from 30 to 35 C. The germicidal action varies with the diluent employed; in glycerin diluted with physiologic salt solution the micro-organisms died much sooner than in glycerin diluted with bouillon or with horse serum. In dilutions up to 50 per cent. glycerin did not destroy the bacillus of anthrax in fifteen days. This may be due to the presence of spores. Glycerin seems to be a selective poison for the bacillus of plague, the spirillum of cholera, and the bacillus of diphtheria. In 50 per cent. of glycerin in physiologic salt solution all the non-spore-forming organisms died in less than four days.

112. Milk Poisoning Occurring in Udder of Healthy Cow.—The most noteworthy points of Barber's paper are the following: Acute attacks of gastro-enteritis were produced in milk by a toxin elaborated by a white staphylococcus which occurred in almost pure culture in the udder of a cow. The fresh milk was harmless, and the toxin was produced in effective quantities only after the milk had stood some hours at room temperature. Repeated attacks of the illness had occurred among residents and visitors at the farm during a period of three years, and the cow was apparently in good health during this time, except for one attack of garget, which occurred after the cases of gastro-enteritis had begun.

Persons who had used the milk continuously had apparently developed some tolerance to the toxin. Two children of the family had used the milk regularly, but never had attacks. The adults had occasional light attacks or, in

one or two cases, some chronic intestinal trouble. In his case, four acute attacks, three of them severe, afforded no protection against a subsequent fifth dose. Visitors at the farm and Filipino employees who used the milk less regularly showed most severe attacks. Since the discontinuance of the use of raw milk from this cow, all trouble has ceased. Culturally, the toxin-producing staphylococcus differed little from a nontoxin-producing strain, except that the former produced acid in mannite and maltose litmus agars. Agglutination tests with the serum of a person who had recently suffered five attacks and that of a person who had long used the milk showed little, if any, positive result. In guinea pigs and monkeys the toxin-producing strain showed more tendency to form abscesses than a yellow staphylococcus from the same source.

Public Health Journal, Toronto

April, VI, No. 4, pp. 153-200

- 113 "Live a Little Longer," Rochester Plan. M. E. Bingeman, Rochester, N. Y.
- 114 Salesmanship and Business Building. G. W. Allen.
- 115 Some Theories and Methods of Ventilation. E. W. J. Hague, Winnipeg.
- 116 Replacing Cannon Fodder. C. G. Sutherland, Moose Jaw, Sask.

United States Naval Medical Bulletin, Washington

April, IX, No. 2, pp. 179-352

- 117 Operative Treatment of Chronic Intestinal Stasis. W. S. Bainbridge, U. S. Navy.
- 118 Symposium on Intelligence Tests. R. Sheehan, U. S. Navy.
- 119 Value of Mental Test and Its Relation to Service. G. E. Thomas, U. S. Navy.
- 120 Mental Defectives at Naval Disciplinary Barracks, Port Royal, S. C. H. E. Jenkins, U. S. Navy.
- 121 Mental Tests in Examination of Applicants for Enlistment. A. R. Schier, U. S. Navy.
- 122 Observations on Deep Diving. G. R. W. French, U. S. Navy.
- 123 Tuberculosis. E. Thompson, U. S. Navy.
- 124 Seven Cases of Cerebrospinal Fever. D. C. Cather, U. S. Navy.
- 125 Posterior Urethra and Bladder in Hundred Cases of Chronic Gonorrhea. A. L. Clifton, U. S. Navy.
- 126 Apparatus for Securing Traction of Lower Extremities. H. A. Dunn, U. S. Navy.
- 127 Leukopenia of Marked Degree in Fatal Case of Pneumonia. E. R. Stitt, U. S. Navy.
- 128 Gastric Changes Following Gastro-Enterostomy. H. F. Hull and O. J. Mink, U. S. Navy.
- 129 Two Cases of Malaria Treated with Salvarsan. E. U. Reed, U. S. Navy.
- 130 Pseudoleukemic Anemia of Infancy Occurring in Twins. S. Walker, U. S. Navy.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

April 3, I, No. 2831, pp. 581-624

- 1 Acute Appendicular Obstruction. S. T. Irwin.
- 2 *Autogenous Living Vaccine in Typhoid. E. A. Bourke, I. D. Evans and S. Rowland.
- 3 Modification of Wassermann Reaction. F. D. Bana.
- 4 Insects and War; Mosquito. A. E. Shipley.
- 5 General Anesthesia for Eye Operations. T. H. Butler.
- 6 Myeloid Sarcoma of Femur, with Pathologic Fracture. W. S. George and A. H. Todd.
- 7 *Treatment of Dry Pleurisy by Artificial Pneumothorax. G. Lucas.
- 8 Two Cases of Angioneurotic Edema. F. L. Davis.

2. **Autogenous Living Vaccine in Typhoid.**—The authors having recently treated cases of enteric fever with vaccine and obtained satisfactory results, concluded that better results might be obtained by employing autogenous living vaccine for each case. Their cases have demonstrated that this method of injecting living bacilli in suitable doses is perfectly safe. The vaccine was injected subcutaneously, as a rule in the pectoral region and was followed by very slight local reaction, but marked general reaction. No local or general complications were observed. The injection, as a rule, was followed by a sharp rise in temperature within the first few hours, followed by a marked fall within twenty-four hours of inoculation. Careful notes were made and in their minds there is no doubt that this treatment had a beneficial effect and tended to cut short the duration of

the disease. It promotes perspiration, the aspect of the patient undoubtedly becomes brighter after injection, and the tongue becomes much cleaner. Several of the cases on admission to the hospital gave the impression that the attack would be severe; in this opinion the consulting physician agreed.

The disease was in each case diagnosed by means of blood culture. For this purpose 5 c.c. of blood were drawn from the arm and immediately transferred to .1 per cent. sodium taurocholate. From this a broth culture was prepared, and the purity and identity of the growth verified by agglutination and sugar fermentation tests. The broth culture was reinoculated into fresh broth every day and itself constituted the vaccine. No further preparation whatever was employed. The age of the culture used was generally eighteen hours, and the number of bacilli contained in it was obtained by a direct method of counting. The average number of organisms ranged from 60,000,000 to 300,000,000. These preliminary observations have demonstrated that a living culture of the typhoid bacillus can be injected subcutaneously into enteric patients, not only without any deleterious effects whatever, but, as far as the six cases reported show, with decided favorable influence on the course of the disease.

7. Treatment of Dry Pleurisy by Artificial Pneumothorax.

—Lucas reports a case which illustrates the benefit which may be derived from temporary separation of the two inflamed surfaces of pleura in a case of long standing dry pleurisy by a layer of nitrogen, which in this way acts as a pneumatic splint. A woman, aged 50, whose right kidney had been removed for tuberculous disease, had a sharp attack of dry pleurisy in September, 1913, the pain from which had continued ever since. In January, 1914, four small hemoptyses occurred, for which the patient was confined to bed for a month. There was a further small hemoptysis in the beginning of March.

Examination of the chest revealed a healed tuberculous lesion at the left apex. There were signs of much dry pleurisy over the middle and lower lobes on the right side, a coarse leathery rub being audible from the fourth rib in front and the sixth dorsal vertebra behind, downward to the base of the lung. Acute pain was complained of over this site. The patient was kept at rest in bed and the usual palliative methods of treatment adopted without bringing about any amelioration of the symptoms. Throughout this period the temperature and pulse rate were normal. The possibility of producing a partial temporary artificial pneumothorax was suggested and accepted.

On Oct. 11, 1914, under the influence of a local anesthetic given half an hour previously, a Saugmann's needle was introduced into the sixth right intercostal space in the posterior axillary line. No difficulty was experienced in finding the interval between the parietal and visceral layers of the pleura, and 200 c.c. of nitrogen were introduced. On the following day the patient still complained of pain, and on October 13 a further injection of 300 c.c. of nitrogen was given at the same site. On the day following auscultation showed the breath sounds over the right base to be distant and no pleural rub was audible. Pain was distinctly relieved, though still present at the end of a deep inspiration. On October 18 a further quantity of 300 c.c. of nitrogen was introduced, which had the effect of entirely abolishing the pain, even at the end of deep inspiration. At no time during the periods of injection of nitrogen were there any signs of intrapleural fluid, nor was there any disturbance of the temperature or pulse rate. The after-history of the case was uneventful.

Lancet, London

April 3, I, No. 4779, pp. 689-736

- 9 *New Psychiatry. W. H. B. Stoddart.
- 10 Cerebrospinal Meningitis. E. N. Butler.
- 11 Tampon for Controlling Severed Intercostal Artery. J. F. McMillan.
- 12 *Psychology of Traumatic Amblyopia Following Explosion of Shells. J. H. Parsens.
- 13 Heterologous Transplantation; Mouse Tumors in Rats. W. E. Bullock.

14 *Sperm Oil Tubercle Bacilli. A. H. Miller.

15 Pneumococcal Infections Treated with Autogenous Vaccines.
N. Raw.

9. "Projection" as an Indicator of Repressed Complexes.—Stoddart in the Morison lectures on the new psychiatry, says an important psychologic mechanism which often serves as an indicator of repressed complexes, not only in nervous disorder but also in everyday life, is "projection." The peculiarity of this phenomenon is that the effects of the repressed complex are attributed by the individual possessing it, not to himself, but to some other person. A few examples will explain his meaning. People who are guilty of some failing, imperfection or weakness, of which they are ashamed, are exceedingly liable to attribute the same fault to others. If a thief loses an article, his first thought is that somebody has stolen it from him, and the man who is ever ready to disbelieve any statement made to him is himself a person who is habitually economical of the truth. The dishonest financier is always on the alert lest somebody should swindle him, and he is exceedingly intolerant of anybody who succeeds in doing so. The man who is unfaithful to his wife is usually suspicious that she may have been unfaithful to him, and how often have we all heard an asylum patient declare that his wife is insane, or a drunkard accuse his consort of insobriety. Self-reproach is so unpleasant to consciousness that it is repressed and sublimated into reproach of other people.

12. Psychology of Traumatic Amblyopia Following Explosion of Shells.—Parsons describes a typical case as follows: A man after more or less prolonged fatigue, induced by marching and exposure in the trenches, is incapacitated by the explosion of a shell in his immediate vicinity. He may be merely knocked down or thrown into the air, and more or less seriously injured or wounded by concussion, shrapnel bullets, or shell splinters. Consciousness is lost for a variable time, but often not so far as to prevent automatic movements, so that the man may walk in a dazed condition to a dressing station. The mental equilibrium at this stage is much disturbed, and all memory of this phase is usually lost. The most striking feature of the case is that the man is instantaneously struck blind. The blindness may be associated with deafness, loss of smell and loss of taste, but all these are less frequent than the blindness. On examination it is found that there are intense blepharospasm and lacrymation.

The lids are opened with great difficulty and examination of the eyes is almost impossible. The author is not aware of any record of the condition of the pupils at this stage. In the course of a week or two the blepharospasm diminishes and it becomes possible to examine the fundi. Of course, there may be local injury to the eye, but in uncomplicated cases the eyes are found to be normal. The pupils react to light, though in some cases the reactions are sluggish, and sometimes one pupil differs from the other, being larger, or more sluggish in its reactions. The fundi appear to be absolutely normal. By this time probably some restoration of sight has occurred. Light is perceived and large objects may be distinguished. As improvement occurs the patient manages to grope about, usually with his hands outstretched before him, and it is noteworthy that he does not usually stumble up against objects in his path. As soon as it is possible to take the fields of vision it is found that they are markedly contracted, and that indeed to a degree which seems scarcely consistent with the avoidance of obstacles in walking. The recovery of vision is slow, but eventually it seems always to be complete.

There are several suspicious symptoms in many such cases. The eye to recover last is often the shooting eye. Some patients show an obvious disinclination to return to duty. Some candidly admit to being in a "blue funk." In all there has been a complete mental upset, sometimes accompanied by hysteric symptoms—outbursts of weeping, etc., in the early stages. These features render it only too easy to jump to the conclusion that there is often a large element of shamming in the case. It is because there is very grave

danger of cruel injustice being done to men who have faced the music and come battered out of the ordeal that Parsons attempts to an explanation of the underlying psychology. Since there is no demonstrable organic lesion these cases may be regarded as examples of injuries or wounds of consciousness. This does not imply that there is no neural lesion to account for the psychologic disorder, but merely that it has hitherto escaped observation. Parson adopts the view of parallelism between physiologic neural processes and psychologic events or changes in consciousness.

In the case of a soldier under shell fire the man is usually bodily fatigued, whereby his control is impaired. He has "the fear of death before his eyes" and is in a state of acute excitement, whereby his normal judgment is impaired. These conditions conspire to give his innate instincts ungoverned play. On the other hand, positive self-feeling, aided by suggestion and imitation and the sentiments of patriotism, the honor of the regiment, his own honor and so on, enforce his volitional control. At last, however, the shock comes which strikes him unconscious. It is not to be supposed that he is thereby anesthetized to these emotional storms. It is rather to be conjectured that he is rendered "subconscious," and hence the more a victim of his lower instincts. This view is supported by the emotional behavior of the men in the early stages, and by the fact that many of their actions can be revived by hypnosis.

The unconsciousness in these cases is to be explained physiologically by an abrogation of the functions of the highest level cortical cells. Recovery shows that the cells are not irretrievably damaged, and it is most likely that the block occurs on the afferent paths at the synapses of these cortical cells. Consciousness returns, but there is blindness. So far as objective evidence goes the lower visual paths are intact and function normally. The optic nerves carry their impulses, at any rate, as far as the pupil reactions are concerned. The condition resembles uremic amaurosis. Parsons has seen it also in children after post basic meningitis. The block is somewhere above the so-called primary optic centers—external geniculate bodies, optic thalami and superior colliculi. It, too, is probably in the synapses of the cortical cells, in this case the synapses of the fibers of the optic radiations. Sometimes such a block occurs physiologically and it is probably to be explained in the same manner.

14. Sperm Oil Tubercle Bacilli.—Miller makes a second communication on sperm oil cultures of tubercle bacilli (see *Lancet*, London, Sept. 19, 1914, for the first article). More recently the crude sperm oil has been used. The organism on the crude oil seems to grow better and more quickly than on the refined oil. For the oil medium the bacilli must be known to be actively growing. With actively growing bacilli there is often a definite moist growth in about twelve days' time, but the bacilli themselves are apparently no different from those obtained from the usual sources. It takes a further period of from three to four weeks before the changes described and illustrated begin to become visible.

The term "beading" that was used in his former communication is not an accurate description of the organism in all cases, especially in its earlier stages and with the lower percentages of oil (2.5), for the staining parts and the non-staining parts of the organism are then often in the form of definite long segments. Later, when with the richer oil mixtures the granules begin to develop and the segments to become broken up, the term "beading" is perhaps better. The organism grows on the surface of 5 per cent. crude oil and 5 per cent. glycerin as a thick uniform greasy pellicle. Microscopically it alters considerably in shape and form; it begins to branch. Branching is also seen in the refined oil (5 per cent.), but not to so great an extent. The stage of growth described shows branching forms here and there in a field, the remainder of the field being occupied by rod segments. The rod segments also are more filamentous and irregular, the latter from the breaking up of their substance by the formation of granules and in some of them by the

presence of little offshoots, the beginnings or the stumps of their ramifications. At the same time they stain with greater difficulty. The staining portions of the segments do not as a rule stain with their usual vividness. The slide requires to be well heated for eight or more minutes.

Branching appears in most cases to occur in cases in which there is a large "granule" present. In others, small lateral offshoots seem to arise from the segments without any granule being visible, possibly false branching. Granules form in the segments as they grow, and they in their turn give off other segments. Further evidence that these "granules" are essentially bodies whose function is to germinate can be seen in animal inoculation. A 2-months old growth on 5 per cent. refined oil and 6 per cent. glycerin was ground up with olive oil in the proportion of two loopfuls of growth to a cubic centimeter of olive oil and then injected intraperitoneally into a guinea-pig. The animal died twenty-two days later. The necropsy showed the liver, spleen, omentum and glands nearly solid with tubercles. A portion of the tuberculous material was then placed in a mortar, and films were made of the expressed juice.

Microscopically, there were a large number of bacilli present, some 20 to 30 in a field, nearly all of which were beaded, the remainder being of the ordinary rod form. The "granule" or "spore-body" is generally larger than the culture "granule"; it is also sharply defined and intensely stained, and has attached to it the bacillary portion of the organism. There are also forms present in which two "spore-bodies" are fused together, not in juxtaposition, with their bacillary portions issuing out at opposite poles. They are not so commonly met with as the single form. With the above characteristic it is difficult to regard these bodies in any way as degenerative. The bacillary, or rod portion, of the organism varies in length and in staining power. The long forms may have more than one spore-body in their length. In their manner of staining they are to be found in all stages, from not staining at all with carbolfuchsin to being firmly acid-alcohol fast.

Archives Mens. d'Obst. et de Gynécologie, Paris

December, III, No. 12, pp. 241-284

- 16 *The Blood Pressure as Element in the Prognosis with Severe Obstetric Hemorrhage. (La tension artérielle minima élément de pronostic des hémorragies graves de la grossesse.) P. Balard.

16. The Blood Pressure as Element in Prognosis with Hemorrhage.—Balard recalls that with slow and gradual obstetric hemorrhage, the blood count will show the indications and the risks of intervention. Comparison of the number of reds with the degree of the reaction shows whether or not the organism is capable of resistance. With sudden hemorrhage our only means of information are the pulse and the blood pressure. A sudden and persistent drop in the blood pressure shows the great loss of blood and the inability of the organism to compensate for it by reinforcing or accelerating the contractions of the myocardium. In estimating the blood pressure, the minimal pressure is much more instructive than the maximal, as Pachon reported in 1913, urging that the minimal arterial pressure be accepted as the standard for comparison. The pulse was absolutely imperceptible after repeated severe losses of blood at term in one case, but the oscillometer showed some movement and under stimulants and saline infusion the minimal pressure was 5 cm. mercury, the maximal 7. Half an hour later the minimal was 6.5, the maximal 10, but the patient did not rouse and in three hours was dead. The pulse had been 160 and 156. In another case, apparently as severe, the minimal pressure was 7, the maximal 9, and the figures increased to 7.5 and 11 and then to 8.5 and 12 while the pulse kept at 100 or 104 throughout. A turn for the better was soon apparent and recovery followed.

The maximal pressure may vary within a wide range, but a minimal pressure of 5 cm. mercury seems to be the lowest limit at which the blood is able to keep circulating. Even the slightest movement, or other cause inducing transient reduction of the minimal pressure below this point, will

probably arrest the circulation permanently. On the other hand, everything should be done to raise the pressure above this danger point. Not only saline infusion, but also transfusion of blood may be required. The minimal pressure is also instructive in shock from any cause. The oscillometer records movements in the vessel when the pulse is absolutely imperceptible. In the fatal case mentioned, the swing of the oscillometer was only 0.5 or 1, while it was 1.5 in the case with favorable outcome.

Bulletin de l'Académie de Médecine, Paris

March 16, LXXIII, No. 11, pp. 333-352

- 17 The Trench Foot. (24 observations de gelure des extrémités inférieures.) M. de Fleury.
18 Painful Type of Injury of the Median Nerve. P. Marie and Mme. A. Bénisty.
19 *Special Electric Reaction During Regeneration of Nerves. P. Cottenot and P. Reinhold.
20 Tetragenus Infection; Twenty-Five Cases. F. Trémolières and P. Loew.
21 Measures to Prevent Crippling among the Wounded. (Physiothérapie préventive dans les blessures de guerre.) Laquerrière and Peyré.

19. Special Electric Reaction during Regeneration of Nerve.—The reaction referred to occurs when volitional control of movements is just beginning to return after an injury of a nerve. Below the point of injury electric tests elicit merely a total reaction of degeneration, but above the lesion the reaction is normal. This contrast between the totally pathologic and entirely normal responses below and above was noticed in nine of 500 cases of wounds of nerves in the war.

21. Prevention of Crippling.—This communication emphasizes that continuing immobilization too long is the main factor in producing crippling among the wounded. Surgeons, nurses and other attendants must have it hammered into them that it is not enough to dress the wound and reduce a fracture; they must act promptly to ward off later deformity. The base hospitals should have the rule placarded that absolute immobilization is required only extremely exceptionally. The part should be exercised at once, with massage also if possible. The mobilization should be done with great caution and care, under close supervision, studying the cause of any functional impotency encountered. No wound or fracture should have immobilization applied to more than the actual part where it is needed; with a fracture of the humerus, for example, the hand and fingers should be left free. In one case in which this was not done, the man was left with ankylosis of the shoulder and elbow and likewise of the wrist and all the fingers. The parts should be exercised early and often, and apparatus that can be removed to permit this and massage should be given the preference. Another mistake too often made is to delay operating on a wounded nerve. By prompt intervention degeneration is prevented while the operation itself is much easier. Another point to which attention is called is the necessity for early detection of hysterotraumatic and other nervous affections. The longer they go without proper treatment, the harder they are to cure.

Archiv für Gynaekologie, Berlin

CIV, No. 1, pp. 1-187. Last indexed January 23, p. 374

- 22 *Self-Infection of Parturients. (Zur Frage der Selbstinfektion.) W. Zangemeister and F. Kirstein.
23 Normal and Pathologic Physiology of the Menstruation Cycle. R. Schröder.
24 Action of Certain Uterus Tonics on the General Circulation. (Wirkung einiger Uterustonika auf die Zirkulation mit spezieller Berücksichtigung des kleinen Kreislaufes.) E. Anderes.
25 *Placenta Praevia and Advantages of External Version Therewith. E. Zalewski.
26 Drop in Weight with Rise of Temperature in the Newly Born. (Zusammenhang zwischen Gewichtsabnahme und Temperatursteigerungen beim Neugeborenen—Hungerfieber.) A. Mayer.

22. Self-Infection of Parturients.—Zangemeister compares a number of reports from various maternities all of which sustain his assertions that the presence of streptococci in the vagina at the onset of delivery favors the development of fever at the time or later. In three series from his own experience, only from 0 to 7 per cent. of the parturients had

a febrile puerperium when no streptococci had been found in the vagina; in 14, 16 and 32 per cent. there was a febrile course when streptococci had been found that did not display hemolytic properties, and 55, 50 and 75 per cent. developed fever of those presenting hemolytic streptococci. From other data cited is shown further that the presence of hemolytic streptococci renders the course of events much more unfavorable with instrumental delivery. Kirstein presents evidence that even the so-called intoxication fever is usually associated with the presence of hemolytic streptococci, even when there has been no examination liable to import germs from without. When none could be found outside of the hymen, none could be discovered inside of it. The vagina may be already sheltering putrefaction-producing bacteria at the onset of labor, and consequently a putrid amniotic fluid does not necessarily imply that any one connected with the management of the case is to be incriminated.

25. Placenta Praevia and External Version.—In Zalewski's 192 cases of placenta praevia since 1900, fully 75 per cent. of the women belonged to the working classes and only 7.3 per cent. were primiparae. These facts seem to suggest that possibly some endometritic or other changes in the uterine mucosa must be responsible for the abnormal insertion of the placenta. Some form of placenta praevia was found on an average once to every eighty or ninety maternity cases. He urges that every woman found to have placenta praevia should be sent to a hospital without delay and without tamponing. This ensures the best conditions for the woman and relieves the attending physician of a grave responsibility. The mortality for the mothers was 9 per cent. and for the children 61 per cent. in the 66 cases in which he applied combined version; 3.8 per cent. for the mothers and 73 for the children in the 53 cases in which the inflatable bag was used, and 0 for the mothers and 53.5 per cent. for the children in the 45 cases in which external version was performed. There was laceration of the cervix in 7 of the 66 cases in which combined version was applied but none in the other groups.

Berliner klinische Wochenschrift

March 15, LII, No. 11, pp. 257-280

- 27 *War and Traumatic Neuroses. H. Oppenheim.
- 28 Magnesium Sulphate in Tetanus. S. J. Meltzer (New York).
- 29 The Albumin Requirement. (Der Eiweissbedarf des Menschen.) F. Hirschfeld.
- 30 *Tetanus in the Field. A. Goldscheider. Commenced in No. 10.
- 31 Acid Dressing to Check Pyocyanus Suppuration. (Zur Bekämpfung des Pyocyanus-Eiters.) E. Unger.

March 22, No. 12, pp. 281-308

- 32 *Treatment of Eczema in Oozing Stage. (Nässende Ekzeme.) P. G. Unna.
- 33 *Importance of Laminectomy for Wounds of the Spinal Cord in War. E. Meyer.
- 34 Protein Supply During the War. (Deckung des Eiweissbedarfes im Kriege.) E. Salkowski.
- 35 *Familial Gastric Cancer. (Familien-Magenkrebs.) P. K. Pel.
- 36 *Arrest of Hemorrhage on the Battle Field. (Blutstillung auf dem Schlachtfelde.) Wiewiorowski.
- 37 Congenital Affection Resembling Mikulicz' Disease. (Hypertrophia congenita glandularum salivarium cum lymphomate colli congenito.) J. W. M. Indemans.
- 38 Rational Dietary for Working Man. (Kost der Arbeiter.) A. Gigon and F. Hirschfeld.

27. War and Traumatic Neuroses.—Oppenheim recalls the opposition elicited by his statements in 1889 as to the possibility of traumatic injury of nerve tissue being sufficient to affect its functioning while yet beyond detection by microscopic or other examination. He compares it to a magnet; no difference is perceptible between the iron of a magnet and that of a non-magnet. His assumption of the possibility of traumatic neuroses had to contend with the views of those who suspected simulation or "indemnity hysteria" in all cases of nervous symptoms without manifest organic lesions. The psychiatrists, on the other hand, insisted that merely the emotions connected with the trauma and indemnity were responsible for the symptoms. The workmen's compensation legislation imposed a burden of new tasks on physicians, rather foreign to their regular work of relieving and curing the sick, as the process of making out certificates in accident

cases has so many legal and psychologic features. Cases of traumatic nervous affections following an accident are dreaded by physicians as they take up time and impose great responsibility, and many annoyances are connected therewith. This state of mind does not conduce to free and impartial estimation of conditions. The consequence was that the conception of traumatic neuroses sank deeper and deeper into discredit and Oppenheim, as the father of the traumatic neurosis, was viewed askance by the profession. He declares that it actually blighted his career to a certain extent, but the present war has vindicated him and established the traumatic neurosis on a solid scientific basis while deepening our knowledge of it. There can be no question of simulation in these war cases; any tendency to this would be in the line of simulating health, to get release from the restrictions of hospital environment. In many cases the traumatic neurosis accompanies an actual organic lesion of some part of the nervous system. What possible advantage could it be for a man with a wound in the skull or spine to simulate a superposed syndrome? The war traumatic neuroses include some hitherto little known forms of paralysis, such as reflex paralysis and inability to move a limb or certain group of muscles because the man seems to have forgotten how to use them. Oppenheim calls this latter akinesia amnestica. It has nothing to do with hysteria, but a tendency to hysteria may favor its development and retard its cure. In other cases the paralysis seems to be the result of injury of gray matter secondary to a wound of the forearm or elsewhere, so that this part of the gray matter is locked up against impulses sent to it from the brain—conditions thus being analogous to arthrogenous atrophy. In a case of this total reflex paralysis described, electric tests elicited normal responses and there was nothing to indicate a psychogenic affection. A bullet had fractured the humerus but the arm could be used normally after the fracture had healed till finally atrophy and paresis of the entire arm developed, with flail joint and abolished tendon phenomena.

30. Tetanus.—Goldscheider regards as very instructive for the prognosis the way in which the symptoms develop. When they are several days in developing, the outlook is more favorable, regardless of the duration of the incubation period. In one case the tetanus developed twenty-seven days after the injury. The syndrome came on rapidly and soon proved fatal. In another case the incubation period was twenty-one days and the man succumbed the third day to the acutely developing tetanus. Since preventive injection of 20 or 40 units of antitetanus serum has been made a routine measure for all the wounded there have been no further cases of tetanus. Another factor in prophylaxis is to ward off sudden shocks of all kinds, and all efforts. The wounded are protected against such to the utmost, and when tetanus has developed, even loud speaking and a heavy tread are not allowed. The patient is fed through a tube, to avoid disturbing him. It has been found most convenient to keep the mattress on the floor instead of on a bed. The wounded are watched for any tendency to disturbance in swallowing or any starting at a sudden noise—these are regarded as warning of impending tetanus.

32. Oozing Eczema.—Unna says that the simplest method of treating eczema with a serous discharge is to coat it often with a thin layer of a drying paste. This does away with the necessity for dressings and the cocci die off under the influence of the drying and reducing paste. The thinner the layer and the oftener it is applied the better. As the cocci die, the itching subsides. The formula he advises is a mixture of 10 parts sulphur lotum; 10 parts calcium carbonate and 80 parts zinc ointment. This paste is also useful to apply to a vaccination pustule as soon as the vaccine shows that it is going to "take." The course of the pustule is not interfered with but there is no redness or swelling and the whole process is shortened.

33. Operative Treatment After Wounds of Spinal Cord.—Meyer's experience with the wounds of this kind in the war has demonstrated, he declares, that from the neurologist's point of view everything is in favor of early laminectomy

when spinal-cord symptoms develop after an injury of the spinal cord and show no signs of speedy and notable improvement.

35. Familial Gastric Cancer.—Pel emphasizes that possibly more can be learned with regard to the causation of cancer from scrutiny of familial cases than from extensive general statistics. He has encountered seven cancer families and gives the tree of one. A man whose three brothers died of cancer married a woman whose two brothers died of cancer of the face. Of their nine children, six daughters were healthy, but two daughters and one son died of cancer of the esophagus or stomach as did also the daughter of one of the healthy daughters. There were thus ten cases of malignant disease in the eighteen members of the family in three generations. In another family, five of the seven children of an apparently healthy couple died of gastric cancer without any known cause such as abuse of tobacco or trauma. One of the remaining two children suffers occasionally from the stomach.

In this family the stomach was the only organ affected and the malignant disease did not develop until long after the children had left the home roof and scattered. Pel knows of another family in which three sisters, their mother and grandmother, all died of cancer of the breast. Van Iterson has also reported from Leyden a family of ten persons in two generations of whom eight have succumbed to cancer, including four cases of cancer of the breast. Haeberlin has reported that a history of cancer in the family was found in 10.9 per cent. of 138 cases (gastric cancer in 8 per cent.). A collective inquiry in 1901 as to the prevalence of cancer in Holland, elicited data to the effect that the parents and grandparents had had cancer in 10 per cent. of 878 cases, and that in 18.1 per cent. there was a history of cancer in the family.

36. To Arrest Hemorrhage in the Wounded.—Wiewiorowski comments on the impossibility of collecting the wounded in the field during the daytime, on account of the firing, and the difficulty of the work in the dark. The slightest show of a lantern or pocket light brings bullets. He also emphasizes the extreme difficulty in getting the wounded out of the trenches, owing to their narrowness and the zigzag course, while those carrying the wounded have to keep stooping. The result of all this is that the surgeon does not get a chance to arrest hemorrhage; the man has either bled to death or the bleeding has stopped of itself. The jagged soft parts promote coagulation of the blood on them, and as the blood stream grows weaker the clot forms faster.

Another important factor in spontaneous arrest of hemorrhage is that the scraps of shell causing the injury are so hot that they cauterize the tissues. One point on which he expatiates is the harm wrought by incorrectly applied tourniquets. When it is correctly applied, the limb is empty of blood or slightly cyanotic; the veins should never bulge under the skin. The limb should always be raised for some time to expel the blood before the tourniquet is applied. It is not needed when the blood is merely oozing from veins, but only when a large artery or vein has been injured. In short, a tourniquet should not be applied by the untrained. If vessels have to be ligated, this should be done in the wound, but it is better as a rule not to disturb the clots. The wounded can be moved back to the base hospitals but they should be carried, not taken in a conveyance. Saline infusion after much loss of blood should be given without delay even in the field hospital.

Centralblatt für die Grenzgebiete der Med. und Chir., Jena March, XVIII, No. 6, pp. 507-636. Last indexed November 21, p. 1885

39 *Edema, Stasis and Infection. H. Glasewald.

40 *Purgatives and Mode of Action. (Die Wirkungsweise der Abführmittel und ihre Bedeutung für den Internisten und Chirurgen.) S. G. Rosenberg.

41 *Injury of the Vagus Nerve in the Neck. (Klinik und Therapie der Vagusverletzungen am Halse.) D. G. Zesas.

39. Edema, Stasis and Infection.—Glasewald devotes thirty pages to a study of the reciprocal relations between stasis and edema, and the predisposition which they afford to

infection. Even Hippocrates noticed that lesions in drop-sical tissues showed little tendency to heal, and yet the edema is the curative agent in Bier's stasis hyperemia. A total of 110 articles on the subject are compared, all testifying that edematous tissues are more readily invaded by infection than under other conditions. But this, he demonstrates, is the result of long continued mechanical influences. The stasis hyperemia should never be maintained long enough to damage the cells. If continued too long it would have the same injurious influence as inflammatory edema.

40. Purgatives.—Rosenberg discusses in turn the mode of action of the leading purgative drugs, natural and synthetic, emphasizing the necessity for a discriminating selection according to the individual case. Among the fifty-six authors whose works on purgatives are reviewed and compared, he cites Lewin's statement that castor oil is liable to retard the pulse, in addition to its retarding influence on the evacuation of the stomach, and its depressing influence on the appetite. Abuse of purgatives may induce hemorrhoids, jaundice or pruritus, and the resulting congestion in the genital organs in women may lead to prolapse of the uterus or general nervousness. Purgatives should be taken very cautiously if at all during menstruation and pregnancy and also when there is a tendency to hemorrhage. Inflammation in the gastro-intestinal tract, anemia and debility from any cause contraindicate purgatives. He classifies them as those which by osmosis check absorption in the bowel, such as salts, sugar and calomel; those which stimulate peristalsis in the small intestine, oils, colocynth and jalap. Neither of these groups cause griping. This is liable with the third group of purgatives, those which increase peristalsis in the large intestine, sulphur, phenolphthalein, rhubarb, senna, cascara and aloes. This latter group is to be avoided during menstruation and pregnancy. If sulphur is taken too long there may be signs of slight sulphuretted hydrogen poisoning.

41. Injury of the Pneumogastric Nerve in the Neck.—Zesas compares 138 articles on this subject. They record 17 cases of traumatic injury from a bullet or stab wound or fracture; 41 of partial resection during operations; 11 cases in which the nerve was divided, and 40 in which it was roughly handled during an operation. Injury of the vagus is liable to slow the pulse and respiration, the degree of this retardation depending on the nature of the injury and the condition of the nerve at the time. The wide individual variation in the symptoms induced may be the result of anastomoses in unusual numbers, but it generally can be explained by the condition of the nerve, the degenerated nerve not being capable of the reaction of the sound nerve. Waitz removed a stretch 3 cm. long of the nerve involved in a cancer, without consecutive symptoms, and Lücke a stretch 12 cm. long without other disturbance than recurrent paralysis. Severing the vagus nerve on one side does not cause any threatening symptoms on the part of the heart or lungs. But irritation of the nerve is liable to induce extremely severe symptoms, possibly complete arrest of heart and lung action. In some cases there are also more or less dyspnea and spasmodic coughing. When severe symptoms develop, Zesas advocates cutting the nerve at once. The fatalities that have followed dividing the vagus in the neck are all amply explained by other circumstances at the operation. The vagotomy was not responsible for them, as used to be supposed. The only drawback is the permanent paralysis of the vocal cord. The vagus nerve sometimes stands traction, compression, etc., but it is more liable to respond with serious symptoms. If cautiously and gently manipulated it will stand a great deal, especially if treated with cocaine beforehand. A few instances are on record in which the severed nerve was sutured, but the ultimate outcome is not known except that in Markin's case functioning was restored to the paralyzed vocal cord. Zesas remarks in conclusion that suture of the cocainized nerve seems harmless, and the possibility of restoring the functioning of the vocal cord justifies an attempt in this line. Ordinary suture is more liable to succeed than a graft operation on an adjacent nerve. Only three American works are cited in his compilation.

Deutsche medizinische Wochenschrift, Berlin

March 18, XLI, No. 12, pp. 333-360

- 42 *Necrotic Bone May Still Serve as Support. (Die funktionelle Brauchbarkeit nekrotischer Stützgewebe.) H. Ribbert.
- 43 Salvarasannatrium. H. Loeb.
- 44 *Traumatic Ankylosing Arthritis. K. Hirsch. Concluded in No. 13.
- 45 Massage of the Heart from Below the Diaphragm. H. Weitz.
- 46 Treatment of Fractured Ribs. (Rippenbrüchen.) W. Gross.
- 47 Gas Phlegmon in the Pia Mater. Tietze and Korbsch.
- 48 Elastic Resistance in Medico-Mechanical Exercises. R. Heppe.
- 49 To Combat Epidemics in War. (Bekämpfung der Kriegsseuchen.) K. Richter. (Bekämpfung der Läuseplage.) H. Teske and F. Rabe.
- 50 Psychology of Peoples at War. (Völkerpsychologie im Kriege.) J. Schwalbe.

42. **Necrotic Bone.**—In a series of experiments, Ribbert froze the leg of a rabbit, thus inducing complete necrosis of the shaft of the long bone, but after a week or two the animal had entirely recovered the use of the limb and nothing indicated the necrosis within. A thin layer of normal bone developed on each side of the necrotic portion and thus enabled it still to serve its purpose as a support. There was no tendency to cast it off as naturally happens when necrotic tissue is near the surface.

44. **Ankylosing Traumatic Arthritis.**—The influence of mere trauma alone seems capable of starting an acute deforming arthritis under some conditions. Hirsch gives an illustrated description of a case of the kind, developing within six weeks after fracture of a metacarpal bone. The deforming process was in the wrist and speedily entailed complete ankylosis without atrophy of the bones in the joint.

Jahrbuch für Kinderheilkunde, Berlin

March, LXXXI, No. 3, pp. 183-276

- 51 *Induced Antianaphylaxis in Connection with Serum Sickness. (Ueber Serumantianaphylaxie beim Menschen.) G. Bessau.
- 52 *Treatment of Diphtheria. (Zur Serumtherapie der Diphtherie.) L. Knöspel.
- 53 *Elimination of Iodin in Children's Urine. (Die Ausscheidung des Jods im Harn der Kinder.) R. Amstad.
- 54 Favorable Influence of Bee Poison on Chronic Rheumatic Disease in Children. (Versuche zur Anwendung von Bienenstich und Bienengift als Heilmittel bei chronisch-rheumatischen Erkrankungen des Kindesalters.) J. Langer.
- 55 Advantages and Results of Albumin-Milk in Infant Feeding. (Erfolge bei Eiweissmilch-Behandlung.) L. Baron.

51. **Antianaphylaxis.**—Bessau reports the results of research undertaken to determine whether a phase of antianaphylaxis follows regularly after an attack of serum sickness. He investigated the matter on children who had shown signs of anaphylaxis after a single application of serotherapy for scarlet fever, tuberculosis or pneumococcus infection. After injection of a single large dose of the immune serum or tuberculin and development of serum sickness, an intradermal injection of 0.1 c.c. of the serum or tuberculin caused no local reaction. This failure of the otherwise regular reaction is accepted as an evidence of antianaphylaxis. The details of eleven cases are tabulated.

52. **Diphtheria.**—Knöspel compares the results of small, moderate, and large doses of antitoxin in 443 cases of diphtheria at Karlsbad in the last ten years. No signs of anaphylaxis were ever noted. In the severer cases, large intramuscular and intravenous doses—up to a maximum of 10,000 units—seemed to reduce the death rate considerably. Heart trouble and paralysis in or following diphtheria often responded favorably to continued antitoxin treatment. To ward off anaphylaxis, serum from another source may be used, or Friedberger's method may be followed, namely, to inject, after the tenth day, a few drops subcutaneously and then, a few minutes later, inject the whole of the remainder into a muscle.

53. **Elimination of Iodin in the Urine.**—Amstad found that in 4 infants, after a dose of 0.1 gm. potassium iodid, 67.5 per cent. of the iodine was recovered from the urine in the course of thirty hours. After a dose of 0.2 gm. potassium iodid, 11 other children between 3 and 5 eliminated 44.5 per cent. in thirty hours; 13 between 5 and 10, 44.3 per cent.; and 4 adults, 68.2 per cent. After the thirtieth hour only traces could be detected if any. Infants and adults thus eliminated the largest proportion of iodine; in the infants it

ranged from 63.8 to 72.2 per cent. and in the adults from 66.5 to 71 per cent., while the older children under 5 seemed to retain all but 37 to 49.8 per cent., and those between 5 and 10 all but 41.3 to 48 per cent. The elimination in all began a few minutes after injection of the drug and reached its highest point the second hour; four-fifths of the total was eliminated in the first twelve hours.

Medizinische Klinik, Berlin

March 14, XI, No. 11, pp. 293-322

- 56 *Effect of Fatigue on the Heart. (Ermüdungs Herzen im Felde.) W. His.
- 57 *Treatment of Gangrenous and Phlegmonous Wounds with Artificial Gastric Juice. K. Funke.
- 58 Dental Prostheses for the Wounded. (Die Versorgung des Feldheeres mit zahnärztlicher Hilfe.) E. Feiler.
- 59 Misleading Responses to Tests for Typhoid in Those Inoculated Against Typhoid. Mülhens.
- 60 Diabetes After Vaccination. (Ueber Diabetes mellitus im Anschluss an Vaccination.) H. Eichhorst.
- 61 *Nervous Symptoms and Vagotony in the Healthy. (Vorkommen nervöser Symptome und vagotonischer Erscheinungen bei Gesunden.) A. Fein.

March 21, No. 12, pp. 323-350

- 62 Predisposition to Hemorrhage in Typhoid. K. Walko. Continued.
- 63 *Treatment of Wounds of Soft Parts. (Behandlung infizierter Weichteilwunden.) W. Burk.
- 64 Measures to Prevent and Reduce Crippling. (Aufgaben der medico-mechanischen Nachbehandlung der Kriegsverletzungen und ihre Durchführbarkeit.) F. Kirchberg.
- 65 Circle of Injections of Oxygen to Prevent and Treat Gas Phlegmons in the Field. W. Böcker.
- 66 *Residual Nitrogen in the Blood as Test for Kidney Functioning. (Der Reststickstoff des Bluts unter physiologischen Bedingungen, sein Verhalten bei Nephritis, Urämie, und Eklampsie, sowie seine Bedeutung für die Prüfung der Nierenfunktion.) H. Hohlweg.
- 67 Medicolegal Study of Hairs Run Over by Train or Carriage. (Haarverletzungen durch Ueberfahren.) G. Fehsenfeld.

56. **Effect of Fatigue on the Heart.**—His has been able to examine with the Roentgen rays the various cardiovascular disturbances noted among the troops in the eighth base district. Twenty-five typical cases are described. They resemble in many respects the heart disturbances in competitive athletics, and they may be weeks or months in subsiding, both the nervous forms and the acute dilatation, and the heart long remains unusually irritable. The symptoms are about the same with the purely nervous and the organic types, but the greater or less rapidity with which they subside differs widely in the two types, especially the duration of the dyspnea. The prognosis is usually favorable, but the length of the interval before return to normal cannot be estimated with any precision; it may be as long without as with anatomic findings. Recovery depends in large measure on the correct alternation of exercise and rest. Sleep is the main factor in the cure, but otherwise bed rest is not required for more than two or three weeks at most. Digitalis is useless in the nervous form and small doses are better whenever it is indicated. Valerian is a valuable aid in treatment and should be given for a long time. Kola is often useful, as also carbonated and alternating current electric baths. Psychotherapy is often of paramount importance. If the disturbances persist after a few days' repose in a base hospital, the man should be given specialist treatment.

57. **Artificial Gastric Juice in Treatment of Gangrenous Wounds.**—Funke declares that he never witnessed such lively and healthy granulation under any other method of treatment as he is now obtaining with Freund's artificial gastric juice. He applies it only to open gangrenous or suppurating wounds, never to phlegmonous processes during the acute stage. When the wound is on the arm or foot, the part is placed in a basin containing the hydrochloric acid and pepsin, the whole kept at a constant temperature by means of a lamp or other device. At other points compresses dipped in the fluid are applied, renewed every hour. The wound is first rinsed for half an hour with a 0.2 per cent. solution of hydrochloric acid and then the artificial juice bath is applied. Freund's formula for this is 1,000 gm. of the 0.2 per cent. solution of hydrochloric acid; 20 to 50 gm. pepsin, and 5 drops of a 1 per cent. solution of dimethylamidoazobenzol. The stain is added to show whether there is still free

hydrochloric acid present; when it is all neutralized by the secretions, there is no further digestive action. The fluid should be made up fresh every two days and should not be heated above 50 C. It does not injure sound tissue, but clears off gangrenous wounds rapidly and effectually far beyond what can be realized with the continuous bath, according to his experiences with it to date.

61. Nervous Symptoms in the Healthy.—Fein found symptoms suggesting nervous instability surprisingly frequent in 100 supposedly healthy students. The discovery of symptoms of this kind therefore has little diagnostic import in actual nervous disease. Signs of vagotony were very rarely encountered in men, but were comparatively frequent in women.

63. Treatment of Infected Wounds.—Burk reviews the general principles for treatment of infected wounds in the soft parts, emphasizing the necessity for raising the region and keeping it quiet, with the joints arranged in the most favorable position for functioning in the future. With suppuration in any cavity, especially in a tendon sheath, numerous small incisions on each side and at the lowest part permit effectual drainage. He places great faith in Peruvian balsam, but for an encapsulated pus collection he prefers to swab out the cavity with concentrated phenol, neutralizing it half a minute or a minute later with alcohol. Very extensive wounds can be given open treatment to prevent any tendency to stagnation of the secretions. As the inflammation subsides, kaolin or charcoal may be found useful to help dry up the secretions. Burk has had invariably favorable experience with obstructive hyperemia applied to staphylococcus processes, but with streptococci the condition was aggravated by it.

66. The Residual Nitrogen in the Blood.—Hohlweg has found thoroughly reliable the technic he published in 1907 for precipitating the nitrogenous elements in the blood. He has recently been studying the residual nitrogen in the blood as an index of the functional capacity of the kidneys. In health the range is between 41 and 61 mg. in 100 c.c. of serum. In nephritis the amount was from 63 to 99, averaging higher in parenchymatous than in interstitial kidney disease. As the nephritis progressed the amount of residual nitrogen increased, running up to 120, 340 and 370 mg. testifying to the augmenting insufficiency on the part of the kidneys. Any amount over 100 mg. he regards as indicating an unfavorable prognosis. The residual nitrogen content of the serum distinguishes between true uremia and the epileptiform type in which the symptoms are the result of pressure on the brain. In this latter form, lumbar puncture or trephining arrests the symptoms; in a case of this type the residual nitrogen was only 66 mg. and full earning capacity was soon regained. In true uremia the residual nitrogen was always found in unusually large amounts in the blood. In eight cases of eclampsia the proportion was within normal limits or below; three of the cases terminated fatally. The reaction may thus serve to differentiate a chronic nephritis from eclampsia or pregnancy kidney.

Determination of the residual nitrogen in the blood is proving useful also as a means for estimating the functional capacity of the kidneys before operations. In Hohlweg's cases of one sound and one diseased kidney, the residual nitrogen was always within normal range. This was the more surprising as the pathologic conditions in the diseased kidney varied within a wide range of intensity. Even when there was not a trace of sound parenchyma left in the diseased kidney, yet the residual nitrogen content of the blood serum was persistently normal. This was also the case in eight patients, each with a single healthy kidney, long after its mate had been removed. When the second kidney is suffering from toxic influences, the residual nitrogen is liable to be a little above normal, from 62 to 73 mg., but this does not contraindicate nephrectomy, as the kidney rapidly recuperates when the toxic influence is thrown off.

He precipitates out all but the residual nitrogen by treating the blood serum with a mixture of equal parts of 1 per cent. acetic acid and 5 per cent. solution of monopotassium

phosphate, until there is an acid reaction to litmus, but the congo reaction is still neutral. Then he dilutes with water, adding table salt until the total fluid is semisaturated. The nitrogen content of the filtrate is then determined by the Kjeldahl double method. It is more convenient to work with 20 c.c. of blood serum. By this technic all the non-coagulable nitrogen passes into the filtrate.

Münchener medizinische Wochenschrift, Munich

March 16, LXII, No. 11, pp. 361-392

- 68 *Hysteria among the Men at the Front. (Hysterie und Kriegsdienst.) R. Gaupp.
- 69 *Tuberculosis and the War. (Tuberkulose im Kriege.) E. Leschke.
- 70 *Active Military Service of Former Tuberculosis Sanatorium Patients. (Kriegsdiensttauglichkeit ehemaliger Lungenheilstattenpfleglinge.) L. Thieme.
- 71 *Occupational Acute Hematuria Cured by Decapsulation. (Einseitige renale Hämaturie infolge Kresolschwefelsäureintoxikation, geheilt durch Dekapsulation.) Els.
- 72 Efficacy of Vaccination Against Cholera. (Wert der Choleraszimpfung im Felde.) J. Kaup.
- 73 Vaccination against Typhoid. (Zur Frage der Bewertung der französischen Typhusschutzimpfung und der diagnostischen Bedeutung der Gruber-Widalschen Reaktion bei Typhusgeimpften.) H. Stursberg and F. Klose.
- 74 Cholera Carriers in the German Army. (Vibrionenträger im Deutschen Heere.) W. Rosenthal and E. Werz.
- 75 Changes in the Heart from Physical and Psychic Overexertion in the Field. (Herzbefunde bei Verwundeten und krank vom Felddienst Heimkehrenden.) C. Mirtl.
- 76 Functional Paralysis of the Vocal Cords in the Field. (Funktionelle Stimmbandlähmung im Felde.) H. Pape.

68. Hysteria Among the Men in the Trenches.—Gaupp says that, contrary to his usual practice in treating hysteria, he thinks it advisable to yield to circumstances and when a man develops a hysterical dread of returning to the front after a nervous breakdown Gaupp advises detailing him for garrison duty or service elsewhere than at the front. The shock from explosion of a shell nearby, killing their mates, has caused a number of men to be sent to the base with severe nervous breakdown. It generally proved transient, but in the predisposed was liable to persist and flare up anew if the men were sent back to the front. Their nervous systems are strong enough for ordinary life, but they collapse under the stress of war, and the fact of this inferiority will have to be accepted.

69-70. Tuberculosis and War.—Leschke believes that 90 per cent. and more, of rich and poor alike have some tuberculous focus somewhere. But in ordinary life the defensive forces keep it under control and it remains latent throughout or may become extinct finally. The vicissitudes of war, however, are liable to fan it into a flame or permit metastasis when the defensive forces are at a low ebb. He gives an illustrated description of some typical cases of both kinds, including one of acute miliary tuberculosis. The first signs of such metastasis should be carefully watched for and the men sent home at once for sanatorium treatment.

In contrast to the above, Thieme reports that 241 men whom he had had under treatment at the Adorf sanatorium between 1906 and 1913 are now serving in the field, apparently fully capable. This group forms 9 per cent. of the total treated during that period, and 19.6 per cent. of the men of the age suitable for military service.

71. Toxic Hematuria Cured by Decapsulation.—The case reported by Els knocks out another stone from the support of the conception of essential hematuria. The man's duties included cleaning cattle cars, and after seven years of this he suddenly developed tenesmus and smarting at micturition and, by the end of the week, profuse hematuria and pain in the left kidney. The cystoscope showed patches of bright red in the bladder walls, the aspect suggesting toxic action. Inquiry then elicited that for a few weeks the man had been spraying the cars with a mixture of 2 parts kresol and 1 part sulphuric acid to 60 parts water. The intense pain in the kidney was relieved by decapsulation when only slight improvement was observed under two weeks of medical measures. Recovery was soon apparently complete and there has been no further disturbance during the six months since.

Wiener klinische Wochenschrift, Vienna

March 11, XXVIII, No. 10, pp. 261-284

- 77 Necropsy Findings with Influenza Superposed on Typhus. R. Paltauf.
- 78 Operating in a Hospital Train. (Zur Frage der operativen Tätigkeit und des Verbandwechsels auf Spitalszügen.) P. v. Walzel.
- 79 Conservative Treatment of Severely Frozen Extremities. (Behandlung schwerer Erfrierungen.) V. Pranter.
- 80 Prophylaxis in War. E. Wiener. Continued in Previous Volume.

March 18, No. 11, pp. 285-312

- 81 *Weight-Bearing Stump. (Tragfähigkeit des Amputationsstumpfes.) J. Ballner and A. v. Eiselsberg.
- 82 Frost-Bite. (Bemerkungen über Erfrierung.) G. Riehl.
- 83 Subfebrile Temperature at Times During Convalescence from Dysentery. N. v. Jagic.

81. **Weight-Bearing Stump.**—Von Eiselsberg is emphatic in his commendation of Bunge's technic for amputation of the leg, especially below the knee. The experiences with it in his service are reviewed here in detail, and Ranzi also gave a summary account of them at the international surgical congress held at New York last spring, reviewed in THE JOURNAL, May 2, 1914, p. 1426.

Zentralblatt für Chirurgie, Leipzig

March 20, XLII, No. 12, pp. 185-200

- 84 *Advice with Regard to Use of Artificial Leg. (Erfahrungen über die Benutzung des künstlichen Beines.) B. Riedel.

84. **How Best to Manage an Artificial Leg.**—Riedel urges the necessity for getting the best possible artificial leg from the very first. It is unwise to get along with a makeshift, and he advises to use crutches for the first three to six months so that the stump will have finished shriveling before the permanent artificial leg is made for it, unless one can afford two first-class prostheses of the kind. This has the advantage that one is not reduced to crutches again when the artificial leg needs repairing. He uses a rubber sponge wrapped in gauze for the stump to rest on. The stocking drawn over the stump is turned back over the top of the prosthesis and tied there, and is drawn on and off with the latter. Rubber sponge is useful to relieve pressure at any point, especially under a leather strap; leather straps stiffened by sweat should be renewed. Another minor point he mentions is to beware of knocking a hole in the front of the boot on the artificial leg by allowing it to hit against the front of stairs.

Zentralblatt für Gynäkologie, Leipzig

March 20, XXXIX, No. 12, pp. 177-188

- 85 *Radiotherapy of Cancer. (Zur Strahlenbehandlung des Krebses.) A. Döderlein.

85. **Radiotherapy of Cancer.**—Döderlein remarks that twelve patients are still in good health to date, that is, for more than a year since their malignant disease retrogressed under radium and mesothorium treatment. Their cancers were in an absolutely inoperable stage when this treatment was applied. Whether the cure is complete or not, even these twelve or more months of clinical health are a miraculous gain. He has been applying radiotherapy for two years and now reaffirms, more emphatically than ever, that radium and mesothorium are capable of influencing malignant disease in a manner unattainable with any other measure, operative or nonoperative. He advocates radiotherapy for even operable uterine cancers, declaring that operable cancers are the proper field for application of therapeutic radiant energy. The technic is not yet perfected, and radiotherapy is still fraught with various dangers, as he has always admitted. The dosage, the intervals, the filters, the best method of application and the length of the course of treatment—all are still in the tentative stage.

One great advantage of radiotherapy is that it can be applied without interfering with the woman's occupation; it is not necessary for her to stay in the hospital more than one day or two at first. The rest of the course can be given ambulant if necessary. The purely hypertrophic forms of cancer, especially cauliflower cancerous growths on the

uterine cervix, are most amenable to radiotherapy, but all forms are influenced more or less, although it is a difficult matter to obtain any response with certain cancers. The mucosa of the rectum is so sensitive to radiotherapy that it is difficult to apply it here, and it is liable to cause serious and protracted disturbances and pain, but when the patient is persevering enough to carry the course through, the ultimate results were as good as with cancer elsewhere. He never had to resort to an artificial anus.

Zentralblatt für innere Medizin, Leipzig

March 20, XXXVI, No. 12, pp. 177-192

- 86 *Occult Hemorrhages in Kidney Pelvis. (Okkulte Nierenbeckenblutungen.) H. Eichhorst.

86. **Occult Hemorrhages in Kidney Pelvis.**—Eichhorst regards it as remarkable that while so much attention has been paid to the diagnostic significance of invisible blood in the stomach content and stools, its import in the urine has been overlooked. He has found that when the vomit seems entirely free of blood, and even the microscope fails to reveal any blood corpuscles, yet it may show little brownish threads and clumps like the masses of hemoglobin found in the sediment of the urine with hemorrhagic nephritis. This finding in the vomit has often revealed cancer in the stomach when there were no other reliable signs of it until the organ was opened. It has sometimes conflicted with roentgenoscopy, but time proved the accuracy of the former. Eichhorst relates that the same findings in the urine point to damage from calculi in the kidney pelvis or elsewhere, and relates an instructive case in point. The Roentgen rays showed no signs of calculi, but there was a sudden attack of pain and hematuria and then six months followed during which the patient was free from symptoms. The urine was apparently normal, but, after centrifuging, large hematin-bearing cells were found numerous in the sediment—typical heart-defect cells. Clumps of hemoglobin were also perceptible—all testifying to occasional minute hemorrhages from irritation from calculi. They would have escaped detection entirely if the microscope had not been used. Such findings in the urine suggest that the "heart-defect cells" may proceed from the white corpuscles, as seems to be the case in the occult kidney pelvis hemorrhages.

Gazzetta degli Ospedali e delle Cliniche, Milan

March 21, XXXVI, No. 23, pp. 353-368

- 87 Diagnosis of Real and Apparent Death in the Field. (Diagnosi di morte apparente o reale ed inumazione di soldati deceduti sul campo.) L. C. Massini.

Policlinico, Rome

January 31, XXII, No. 5, pp. 149-184

- 88 Operative Treatment of Glaucoma. (Sulla tecnica della cherato-sclero-iridectomia.) Q. Di Marzio.

March, Surgical Section, No. 3, pp. 105-156

- 89 Histologic Changes in Transplant of Rabbit Brain Tissue. (Istopatologia del reinnesto cerebrale parziale.) L. Durante.
- 90 Recovery after Separation of Mesentery and Resection of Cecum and Ascending Colon. (Dimostrazione di un grado (7 cm.) di distacco del mesenterio compatibile colla vitalità dell'ansa.) P. Bastianelli.

March, Medical Section, No. 3, pp. 97-144

- 91 *Influence of Tonsil Extract on the Blood Picture. (Influenza dell'estratto di tonsille palatine sulla crasi sanguigna.) C. B. Farmachidis and A. Vattuone.
- 92 Pancreas Secretion Increases after Splenectomy. (Influenza della milza sulla funzione pancreatica.) U. Lombroso and P. Manetta.
- 93 Roentgenologic Study of Duodenal Ulcer. L. Manginelli. Commenced in No. 1.
- 94 *Improved Technic for Preservation of Brains. (Modificazione del metodo Giacomini per la conservazione dell'encefalo.) A. Giannelli.

91. **Tonsil Extract Treatment.**—In the experimental research and three clinical experiences reported, the numbers of both white and red corpuscles increased under the influence of tonsil extract treatment. Previous research described points to a glycolytic action from tonsil extract, and also demonstrated that this extract is able to arrest the fatal toxic action of epinephrin.

94. **Preservation of Brains.**—Giannelli states that brains preserved for seven years by the technic described have shown no changes, while with other methods they have grown hard and brittle or else the brain has to be kept permanently covered with fluid. After removal of the meninges, the brain was placed for fifteen days in a 5 or 10 per cent. solution of formaldehyd, using not less than five liters, with cotton on the floor of the vessel. It was then transferred to alcohol for the same length of time, after which it was soaked in glycerin for a month. The brain was then placed on a slanting sheet of glass to drain off the fluid. The relations between the fissures and convolutions are not modified by this treatment and the brain afterward does not change.

Riforma Medica, Naples

March 20, XXXI, No. 12, pp. 309-336

- 95 *Radium Treatment of Rectal Cancer. C. Pellizzari.
- 96 Functional Hemispasms. P. Ciuffini.
- 97 Experimental Research on Intramuscular Injection of Ether. B. Formigini. To be continued.
- 98 Syndrome Simulating Peritonitis after Traumatic Hemorrhage from Suprarenal Capsule. (Studio della insufficienza surrenale acuta.) R. Mosti. To be continued.

95. **Radium Treatment of Cancer of Rectum.**—In the case reported the rectum was almost entirely obstructed by the cancer, about 8 cm. above the anus, and adhesions to neighboring organs rendered operative treatment too dangerous. The man was given a course of radium treatment in 1913 and again in 1914, and soon regained his strength and increased in weight. There is still a slight bulging of the rectum wall at the spot, but the malignant disease has otherwise completely retrogressed.

Tumori, Rome

January and February, IV, No. 4, pp. 373-508

- 99 Peculiar Metaplasia of Tissues in Cancer; Four Cases. (Tumori maligni eteroplastici.) E. Fambri.
- 100 Perithelioma of the Ovary in Young Woman, and Hard Ovarian Tumors in General. A. Falco.
- 101 Xanthomatosis in Calcified Lipoma. (Steatosi da lipoidi birifrangenti in un lipoma calcificato del cordone spermatico.) F. Niosi.

Brazil-Medico, Rio de Janeiro

March 1, XXIX, No. 9, pp. 65-72

- 102 *Nasopharyngitis Cause of Protracted Fever in Infants. J. Marinho.
- March 8, No. 10, pp. 73-80
- 103 Uncinaria Carinii N. Sp. L. Travassos.
- 104 *Leishman Ulceration in Mouth, Throat, Vulva and Vagina. (Leishmaniose cavitaria.) A. A. da Matta.
- 105 *Tests of Kidney Functioning. (Contribuição ao estudo da capacidade funcional do rim. A prova da phenolsulfophthaleina.) L. Pezzana.

102. **Fever from Nasopharyngitis in Infants.**—Marinho bases the diagnosis mainly on exclusion of other causes for long drawn out fever in an infant and the discovery of enlarged glands in the neck. The fever may drag along for weeks and the glands may keep swollen and painful long after the nose and throat have returned to apparently normal conditions. The glands never show any disposition to suppurate, even although they may be tender and painful. An incision never brings pus and the fever still keeps up. The type of fever is irregular, and afebrile days may intervene. A discharge from the ear is at times the only other sign of anything wrong. Most clinicians ascribe the fever to the ear trouble, but Marinho insists that an otitis does not send up the temperature unless there are complications. He has encountered cases of protracted fever through months for which the chronically enlarged glands were apparently the only explanation.

104. **Leishmaniosis of Mouth and Vagina.**—The ulcerative affection was of four years' standing in the case described. It began in the nostril and soon had invaded the mouth and throat and also the genital organs. The microbe involved was the *Leishmania brasiliensis viannae*, and treatment by the Brazilian method was instituted, namely, injections of 30 c.c. of tartar emetic in a series of four, repeated four times. Improvement was soon manifest and progressing,

when facial phlebitis and thrombosis developed, speedily fatal. This treatment with antimony and potassium tartrate seems to be proving specific in Brazil.

105. **Tests of Kidney Functioning.**—Pezzana discusses the various tests in vogue, landing the phenolsulphonephthalein technic as superior in various respects to all others. He has applied it in thirteen cases of kidney disease and a series of controls, making the injections in the buttocks; his figures were a little lower than those of Rowntree and Geraghty, possibly on account of the site of the injection. Otherwise his findings confirmed all their statements and corroborated the simplicity, ease and reliability of the technic.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

March 20, I, No. 12, pp. 881-960

- 106 Vaccination against Typhoid; Six Hundred Cases. (Klinische en serologische ervaringen over typhusenting.) H. Aldershoff.
- 107 *Production of Bile Pigment Outside the Liver. A. A. H. Van den Bergh and J. Snapper. Commenced in No. 11.

March 27, No. 13, pp. 961-1040

- 108 *Experimental Study of Heart Rhythm. (De extrasystole, compensatoire pauze en rythme-overzetting.) S. de Boer.
- 109 Bilateral Atrophy of the Optic Nerve after Fracture of the Base of the Skull. G. ten Doesschate and A. de Kleijn.

107. **Production of Bile Pigment Outside of the Liver.**—It is generally accepted now that in extravasated blood left in quiet between the tissues or in some cavity, there is, in time, production of bile pigment. The amount of bilirubin thus produced is, of course, very minute, but its presence in the accumulated blood may be regarded as a sign that the extravasation is not of quite recent occurrence, that is, if the bilirubin content of the fluid is higher than that of the blood serum. The first installment of this article was reviewed in these columns April 24, abstract 118.

108. **The Extrasystole.**—De Boer's study of the compensating pause with extrasystole is accompanied by numerous tracings showing the response to electric excitation. The work issues from the physiology laboratory of the University of Amsterdam, where de Boer is assistant. The experiments were made on frogs placed under the influence of a few drops of a 1 per cent. solution of veratrin acetate injected into the peritoneum.

Hospitalstidende, Copenhagen

December 2, LVII, No. 48, pp. 1417-1440

- 110 *The Skin Reaction in Syphilitics to Various Organ Extracts Not Specific. H. Boas and J. Stürup.
- 111 *Superior Immersion Fluid. (En ny Immersionsvædske.) V. Jensen.

110. **Skin Reaction in Syphilitics.**—Boas and Stürup have been testing luetin and extracts of three syphilitic and of five nonsyphilitic organs to determine whether there was a specific skin reaction in the syphilitic. A reaction was observed in 5 of 248 nonsyphilitics. The response was negative to all the extracts in the 27 syphilitics in the first stage and positive with all in the 25 in the third stage of syphilis. There was also positive reaction to one or more of the extracts in 18 and negative in 139 in the second stage. The tests were positive in 5 and negative in 23 who had acquired syphilis within three years; positive in 7 and negative in 3 over three years, and positive in all of six cases of inherited syphilis and in one of tabes. Positive results were obtained with luetin less frequently than with other extracts of organs, syphilitic or otherwise. The findings all testify that in syphilis the skin is modified in some way which makes it respond to skin tests, regardless of the nature of the organ extract.

111. **Immersion Fluid.**—Jensen has been using for four years a mixture of alpha brom-naphthalin, 24 parts, with 76 parts liquid paraffin and has found it extremely satisfactory for the immersion fluid. He tests it to get the refraction index the same as that of the ordinary immersion oil. It has the advantage over the latter that it flows easily, keeps perfectly, even uncovered; can be easily removed at any time, early or late; it does not dry out, and the specimen keeps its color perfectly.

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NUTRITION AND GROWTH*

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THE NATURE OF GROWTH

Growth receives its impetus, in a general way, from two distinct sources of influence. There is an *internal* factor, representing in good part the hereditary features, among which the inherent growth impulse or capacity to grow is conspicuous. The other influence—the *external* factor—involves the environment of growth and includes, among other agencies, the food supply. No single factor is entirely independent of the other. Of the growth impulse Rubner has subtly said: *Ernährungsphysiologisch drückt er sich in dem Verhältniss der Ansatzgrösse zum Stoffwechsel aus.* Nutrition can only give the growth impulse free play; neither can succeed without the other. The nutrition factor is controllable; the growth impulse is inborn and, in part at least, not subject to regulation at will.

If growth were merely the resultant of the assimilation of food, the problems attending it would be somewhat simplified. The pathology of growth may, however, be manifested in the midst of perfect nutrition and teaches plainly that something more than the food supply is here concerned. Abnormal growth and perverted nutrition are by no means always coincident. I have discussed elsewhere some of the other aspects of growth;¹ the present review will be confined to the food factor.

THE ENERGY FACTOR

No modern discussion of nutrition during growth can overlook the energy aspects of the subject. The energy metabolism of youthful, that is, growing individuals is said to be somewhat greater than that of adults, whether it be calculated on the basis of units of body weight or of skin area. To justify such statements it is, of course, necessary to have some dependable standard of comparison. Growing individuals are of very variable size. For many years it has been customary, following Rubner's lead, to emphasize the significance of the relationship supposed to exist between the metabolism and the body surface rather than between the metabolism and the body weight.² Not long ago Murlin and Hoobler³ announced that metabolism

in different children is much more nearly proportional to the weight than to the surface area, and when the weight is first multiplied by the specific gravity the agreement is even better. More recently Benedict and Talbot⁴ have concluded, from an elaborate study of infants, that the basal metabolism cannot in any wise be considered a direct function of the body weight and the body surface, and particularly has no relationship with body surface on the basis of the law of cooling bodies. They are inclined to believe that the "active mass of protoplasmic tissue"—a quantity which cannot yet be measured directly—determines the fundamental metabolism. A precise formulation of the energy requirement of the growing organism, expressed in general terms, must abide further investigation.⁵

Aside from its energy aspects, the food requirement during growth is peculiar in that the intake of certain groups of nutrients, such as the proteins and inorganic salts, must exceed the demand for wear and tear, so that some excess will be available for the formation or completion of new cells and the elaboration of the tissues that especially develop in the period of growth. For the most part the materials included in the above requirement are merely those which are demanded in the usual maintenance of the grown adult, though perhaps in smaller proportions. It is not improbable, however, that the food needs of the growing organism may in part be specific and peculiar, calling not only for a little more lime or iron or protein than the non-growing individual requires, but for special substances in addition.

HISTORICAL ASPECTS OF NUTRITION IN GROWTH

To gain some conception of the changes which progress in the science of physiology has wrought in the theory of nutrition during growth, we may turn back to the classic monograph published in 1881 by Carl Voit. This marks the beginning of what may be called the modern generalizations on this subject. Voit gave expression to the then current belief that the period of early growth is one characterized by a comparatively large food requirement and intensity of metabolism. "It is generally believed," he writes,⁶ "that the youthful organism is the seat of a particularly active metabolism." This was stated at a time when the energy features were not emphasized as they were later, and at a period when the consideration of the metabolism in growth centered primarily in the transformation of the nitrogenous compounds. The predominant interest in the metabolism of protein had a certain justification,

* Delivered before the Harvey Society of New York, Nov. 28, 1914, and before the Rush Society of Philadelphia, Jan. 23, 1915.

1. Mendel, L. B.: Viewpoints in the Study of Growth, *Biochem. Bull.*, 1914, iii, 156; Growth, *Ergebn. d. Physiol.*, to be published.

2. McCrudden, F. H., and Lusk, G.: Animal Calorimetry. VII. The Metabolism of a Dwarf, *Jour. Biol. Chem.*, 1913, xviii, 450.

3. Murlin, J. R., and Hoobler, B. R.: The Energy Metabolism of Normal and Marasmic Children with Special Reference to the Specific Gravity of the Child's Body, *Proc. Soc. Exper. Biol. and Med.*, April 15, 1914, p. 115.

4. Benedict, F. G., and Talbot, F. B.: The Gaseous Metabolism of Infants, Carnegie Institution of Washington, 1914, Pub. 201.

5. Compare Murlin and Hoobler: *Am. Jour. Dis. Child.*, 1915, ix, 81, and Benedict: *Proc. Nat. Acad. Sc.*, 1915, i, 105.

6. Voit, C.: Chapter on "Nahrung noch wachsender Organismen" in *Die Ernährung*, Hermann's Handb. d. Physiol., 1881, vi, 532.

in that growth (which means increase of protoplasm) in some degree involves a deposition of nitrogenous derivatives in the organism.

Voit realized that although a deposition of flesh (*Ansatz*) can occur in the fully developed adult, the comparable phenomenon of tissue increment in the growing individual is much more conspicuous. To account for this unlike physiologic behavior in the two stages of the organism—the adolescent and the adult—he came to the conclusion that there are differences in the destructive metabolism of these two periods of life. Quoting Voit:⁷

"It is demonstrated, therefore, that in an organism still in process of growth the conditions for the disintegration of protein are incomparably less favorable than they are in adults. With this fact is associated the rapid growth of the organs."

How is the alleged lessened protein catabolism in growth to be accounted for? Voit replies:

We must have recourse to the assumption that the growing organs rapidly withdraw circulating protein and by organization into tissue protein protect it from degradation. The youthful organs behave like a secreting mammary gland or a rapidly developing neoplasm, whereby likewise protein is fixed and spared from destruction. . . . In consequence of the increasing size of the growing organs little by little more protein is used up; but the extent of growth of the cells also gradually declines, so that less and less protein is withdrawn from the circulating media and more and more is destroyed. Accordingly larger amounts of protein are subsequently required to accomplish tissue production.⁸

These contentions of Voit have been reviewed critically by Rubner⁹ in the light of several decades of subsequent investigation. After pointing to the now recognized importance of making comparisons of the total metabolism on the basis of suitable units—according to Rubner, in terms of the surface area of the body—he rejects the idea of a greatly heightened total metabolism in the period of adolescence.¹⁰ Rubner likewise denies that tissue deposition (*Ansatz*) is essentially unique in the growing organism.¹¹

7. Voit, C.: (Note 6) p. 536.

8. Voit, C.: (Note 6) pp. 537-538.

9. Rubner, M.: Das Problem der Lebensdauer und seine Beziehungen zu Wachstum und Ernährung, 1908, p. 87, and following; also Ernährungsvorgänge beim Wachstum des Kindes, Arch. f. Hyg., 1908, lxxvi, 87.

10. "Mit dem Begriff Wachstum hatte man unwillkürlich, indem man sich der wichtigen morphologischen Veränderungen der Zelle und die Aktion des Zellkerns vor Augen hielt, immer den Gedanken an einen enorm gesteigerten Stoffwechsel verbunden und der jugendlichen Zelle wies man auch sonst in dieser Richtung eine besondere Stellung zu. Durch meine Untersuchungen ist hier Klarheit geschafft worden. Die jugendliche Zelle hat einen Kraftwechsel, der sich schon aus der 'Kleinheit' jugendlicher Organismen ableiten lässt und selbst wachsend, das sieht man aus den berichteten Beobachtungen, beansprucht sie ein sehr bescheidenes Mass von Nahrung, das über die direkt zum Ansatz verwendeten Stoffe nur unwesentlich hinausgeht." (Rubner, M.: p. 90. See Note 9.)

11. "Ich habe gesehen dass aber unter ähnlichen Nährstoffverhältnissen wie es beim jungen Tier die Regel ist, auch beim ausgewachsenen länger dauernder Ansatz erzielt wird, aber eines versteht sich von selbst, die Variante des Erfolges der Aufspeicherung von Eiweiss ist verschieden. Dass der Ansatz beim Ausgewachsenen eher zum Stillstand kommt als das Wachstum ist etwas ganz Selbstverständliches. Beim Wachstum wird eben von der Zelle immer wieder Platz für die Eiweissablagerung geschaffen, weil neue Zellen gebildet werden und bei der Rekonstruktion füllen sich nur solche Zellen, in denen ein Mangel vorhanden ist. Das wachsende Tier vermehrt allmählich sein Gewicht auf das 20 bis 30 fache des Neugeborenen, die sich rekonstruierende Zelle kommt selten über die Verdoppelung der Masse hinaus. Damit wird aber kein neuer Gesichtspunkt gewonnen, denn dass nur junge Tiere wachsen und alte nicht, bedarf keiner weiteren Erläuterung. Über den Kernpunkt der Frage, ob nämlich die Anziehung für das Eiweiss der Nahrung in der Jugend eine andere ist als später, ist aus dem Umstand der grossen Länge der Dauer des Wachstums gegenüber dem kürzer währenden Ansatz gar nichts zu schliessen. Das Wachstum könnte durch dieselben, auch sonst beim Ansatz wirkenden Kräfte vermittelt werden, und der grosse Zuwachs nur das Produkt der länger dauernden Ansatzmöglichkeit sein. Für entscheidende Experimente auf diesen Gebiete müssten ganz besondere Voraussetzungen gemacht werden, man kann grossen Ansatz nur sehen, wenn die Zellen durch Hunger stark heruntergekommen sind und dann wieder genährt werden. Hiermit müsste man unter genauer Einhaltung der physiologischen Versuchsbedingungen dann normale Fütterungsversuche am wachsenden Tiere anstellen." (Rubner, M.: pp. 91-92. See Note 9.)

In distinction from his predecessors, Rubner insists that there is neither decreased essential protein catabolism nor proportionately much greater protein consumption requisite in growing individuals. Thus he writes: "I therefore believe the conclusion that growing animals as a rule consume a large amount of protein and destroy extremely little—a conclusion based on experiments dating from the developmental period of the science of nutrition—is untenable" (p. 94).

These quotations may suffice to contrast the views of two masters of the physiology of nutrition in successive generations. Rubner has further made it evident by his researches, particularly with O. Heubner,¹² that the diet of the growing infant is in general comparatively low in protein, rather than the reverse which is commonly assumed. How low the protein intake may remain is exemplified by the following data:¹³ for growth, 7 per cent. of the total energy intake; for maintenance, 5 per cent. of the total energy intake.

With an abundance of calories the child can deposit nitrogen and grow as soon as the intake contains the slightest excess of protein above the small need set by the wear and tear of the organism.

It seems sometimes to be forgotten, particularly in connection with animal nutrition, that large addenda of protein in the diet do not guarantee growth. As Rubner has remarked:

Growth is not proportional to the quantity of protein in the diet. Growth is a *function of the cell*; it can be rendered *latent* by an insufficient supply of protein, but protein cannot raise the rapidity of growth above the limits set by nature. As the amount of protein in the diet increases a smaller percentage is utilized (for growth) and the excess of the intake is merely consumed in place of an equivalent of non-nitrogenous food fuel. The strong attraction between protein and growth decreases in the course of the period of development and is greatest in early life (p. 110).

From Rubner's point of view, and with particular reference to the human suckling that is not overfed, the destruction of protein is confined in the first period of growth to the wear and tear quota. "This behavior of protein during growth," Rubner writes, "is a biological necessity; the relative importance of the physiological functions involved determines the order in which they are filled. First, losses are replaced; next, growth ensues; thirdly, the usual metabolism of protein for the production of heat occurs" (p. 111).

NEWER FEATURES OF THE PHYSIOLOGY OF GROWTH

In all of the foregoing one will search in vain for any indication of those newer conceptions of metabolism, in the development of which the name of Abderhalden has been so prominent. "We must assume," says Rubner, "that the food material must be in excess of a threshold value before growth can proceed. Whether it is the degree of concentration of protein in the tissue fluids that is the determining factor, or whether the body hoards materials and keeps them in reserve for its purposes, cannot be determined at the present day" (p. 113). Rubner did venture the statement, in 1908, that "in growth *all* protein compounds which are essential for cell construction are taken up" (p. 111); and he adds that it is not certain whether the same procedure is essential to tissue repair. Meanwhile has come a newer conception which no longer pictures the food products entering

12. Rubner, M., and Heubner, O.: Zur Kenntnis der natürlichen Ernährung des Säuglings, Ztschr. f. exper. Path. u. Therap., 1905, i, 1.
13. Rubner and Heubner: See Note 12.

unchanged, or at most only slightly altered, into the cycle of metabolism. The significance of the nutrient units—the *Bausteine*—has come into the foreground. The tissues are independent of the gross peculiarities of the ingested foods; they select their constructive units for growth and repair, and their fuel, out of the shattered remains of the alimentary contents. *Der einzelne Baustein verrät nicht welche Rolle seine Muttersubstanz dereinst im Zellgetriebe gespielt hat. So wird die einzelne Körperselle in weiten Grenzen unabhängig von äusseren Einflüssen.*¹³

A careful comparison of the various proteins which may serve as food proteins and of which the biologic properties and chemical make-up are to-day known in some detail, at once excludes the probability of a direct relation between them and the body proteins which they must be supposed to replace or augment. The differences are too conspicuous.

QUANTITATIVE COMPARISON OF AMINO-ACIDS OBTAINED BY HYDROLYSIS FROM PROTEINS

(Compiled by T. B. Osborne, 1914) *

	Casein	Ovalbumin	Gliadin	Zein	Edestin	Legumin (Pea)
Glycocoll	0.00	0.00	0.00	0.00	3.80	0.38
Alanin	1.50	2.22	2.00	13.39	3.60	2.08
Valin	7.20	2.50	3.34	1.88	6.20	?
Leucin	9.35	10.71	6.62	19.55	14.50	8.00
Prolin	6.70	3.56	13.22	9.04	4.10	3.22
Oxyprolin	0.23	?	?	?	?	?
Phenylalanin	3.20	5.07	2.35	6.55	3.09	3.75
Glutaminic acid.....	15.55	9.10	43.66	26.17	18.74	13.80
Aspartic acid.....	1.39	2.20	0.58	1.71	4.50	5.30
Serin	0.50	?	0.13	1.02	0.33	0.53
Tyrosin	4.50	1.77	1.61	3.55	2.13	1.55
Cystin	?	?	0.45	?	1.00	?
Histidin	2.50	1.71	1.49	0.82	2.19	2.42
Arginin	3.81	4.91	2.91	1.55	14.17	10.12
Lysin	5.95	3.76	0.15	0.00	1.65	4.29
Tryptophan, about..	1.50	present	1.00	0.00	present	present
Ammonia	1.61	1.34	5.22	3.64	2.28	1.99
	65.49	48.85	84.73	88.87	82.28	57.43

* These analyses are combinations of what appear to be the best determinations of various chemists.

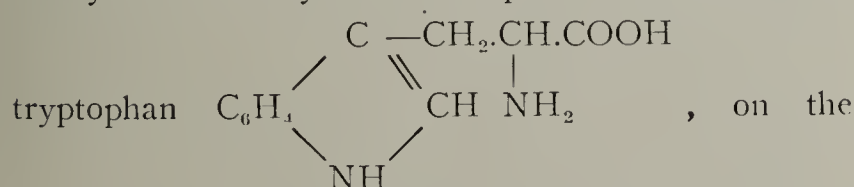
No one would gainsay that if calcium or iron is indispensable for growth it must be furnished in the dietary. But it has required not a little investigation, and much more still is needed, to make an equally convincing statement with reference to the individual protein structural units, the amino-acids. The reasons for this uncertainty are not hard to find. The inequalities of the proteins from the amino-acid point of view had not been demonstrated clearly until very recent times; and, what is more important, it has not been possible to say what capacity the animal organism may have to synthesize anew the different amino-acids—eighteen or more in number—which find a place in the construction and functions of the body.

It is plain, then, that we must know what nutrient units of any nature are indispensable and, further, whether a complete lack or deficit of them in the intake can be made good by direct synthesis. Thus it has already been demonstrated that glycocoll CH_2COOH

can be manufactured anew in the body.

NH_2

Lack of it in the diet would therefore not necessarily betray itself in any nutritive upset. The amino-acid



13. Abderhalden, E.: *Synthese der Zellbausteine in Pflanze und Tier*, Berlin, 1912, p. 101.

other hand, apparently cannot be produced (at least not in sufficient abundance) *de novo* by mammals, if one may judge by the disastrous results which follow a tryptophan-free dietary and the prompt recovery which the restitution of the amino-acid entails. The situation is further complicated by the probability that new tissue construction, such as growth involves, demands structural units which are either conserved in the wear and tear of ordinary maintenance without growth, or are not required for, or destroyed in, the maintenance metabolism.

THE PROTEIN FACTOR

Restricting our considerations for the moment to the protein requirement, we shall not err in identifying it to-day with the specific amino-acid needs of the growing organism. A direct way to study this consists in administering the nitrogenous components of the diet (in so far as they are ordinarily furnished by proteins), in the form of mixtures of the known amino-acid derivatives. The technical difficulties of such a procedure are almost insuperable at present. Abderhalden¹⁴ alone has attempted, with any degree of success, to feed young dogs with predigested foods. In some of his experiments considerable gains in weight—in one case 1,000 gm., in another 1,200 gm.—were made. Prolonged growth is an admirable index of protein synthesis and of the adequacy of a dietary. But a temporary or transient gain of weight, or one which follows the depletion of the body by previous unsuitable nutritive conditions, can not be taken as evidence of true growth; for repair may be accomplished without necessarily implying actual synthetic processes in the sense intended. Real growth, consistently continued, manifests itself in characteristic increments of weight and size as exhibited in typical curves of growth.

Another way of approaching the problem of what nitrogenous units are essential for growth consists in comparing the nutritive efficiency of individual proteins and particularly such as are known to differ widely from the typical tissue protein of animals in their structural composition. Obviously this cannot be done by additions to the usual mixed diet which commonly contains a diversity of proteins. Even milk, which is looked on as a comparatively simple food, furnishes at least two proteins—casein and lactalbumin—decidedly unlike in structure and amino-acid yield, and present in widely different proportions in the mammary secretion of different species. It is necessary, therefore, to devise a ration in which all of the essential food ingredients except proteins or amino-acids are present in abundance, and to which these nitrogenous food substances can be added one by one and tested. In this way the protein factor becomes the sole variable in the diet.

Despite numerous earlier failures, the possibility of maintaining animals on mixtures of isolated food substances and of inducing growth thereon has at length been demonstrated.¹⁵ Röhmann¹⁶ has been a pioneer in this field.

14. Abderhalden, E.: *Fütterungsversuche mit vollständig abgebauten Nahrungsstoffen*, Ztschr. f. physiol. Chem., 1912, lxxvii, 22. Abderhalden, E., and Hirsch, P.: *Fütterungsversuche mit Gelatine, Ammonsalzen, vollständig abgebauten Fleisch und einem aus allen bekannten Aminosäuren bestehenden Gemisch* ausgeführt an jungen Hunden, Ztschr. f. physiol. Chem., 1912, lxxxii, 323.

15. The earlier literature is reviewed in Osborne and Mendel's article. See Note 17.

16. Röhmann, F.: *Ueber künstliche Ernährung*, Klin.-therap. Wchnschr., 1902, (a), No. 40, p. 1.

T. B. Osborne and I¹⁷ were able to facilitate the study of the rôle of the individual proteins and amino-acids in growth by introducing in the artificial ration the use of what we have termed "protein-free milk."

This consists of the dried residue of milk after removal of fats and proteins. It contains, aside from traces of unremoved proteins, all of the milk sugar and inorganic elements along with small amounts of incidental components, most of which remain unknown, yet evidently furnish an essential non-protein factor to the diet. On mixtures of "protein-free milk," sugar, starch, and purified fats along with selected isolated proteins, young white rats (and in some cases mice¹⁸) have grown to maturity and have in turn produced young even in the third generation. The catalogue of the individual proteins with which, in suitable concentration, normal growth has been secured, at least for considerable periods of observation if not until completed maturity, includes:

Proteins of
Animal Origin
Casein (milk)
Lactalbumin (milk)
Ovalbumin (hen's egg)
Ovovitellin (hen's egg)

Proteins of
Vegetable Origin
Edestin (hemp-seed)
Globulin (squash-seed)
Excelsin (Brazil-nut)
Glutelin (maize)
Globulin (cotton-seed)
Glutenin (wheat)
Glycinin (soy-bean)
Cannabin (hemp-seed)

Failure to induce growth has attended our trials with legumelin (soy bean), vigin (vetch), gliadin (wheat or rye), legumin (pea), legumin (vetch), hordein (barley), conglutin (blue or yellow lupin), gelatin (horn), zein (maize), phaseolin (white kidney bean).

In the case of some of these proteins, notably gelatin, zein, gliadin and hordein, an explanation for the failure of growth was at once suggested by the known deficiencies of each of these substances in respect to one or more amino-acids already ascertained to be yielded by the adequate proteins. The tryptophan group (with its indol nucleus) is missing in gelatin and zein; the diamino-acid group of lysin is lacking, or nearly so, in zein, gliadin, and hordein. Other shortcomings are the lack of the tyrosin group in gelatin and the glyocoll group in zein. That glyocoll is either not indispensable or else that it can be furnished by direct synthesis in the organism is shown by the excellent growth attending the use of the glyocoll-free casein (Chart 1).

If we analyze the situation as revealed in the charts of some actual experiments it becomes apparent that both lysin and tryptophan are unquestionably necessary as constructive units in growth. The decline brought about by the zein food can be stopped by the addition of tryptophan, as such, to the diet. This results in maintenance; but no growth ensues until lysin also is added (Chart 2).

The significance of other amino-acids derived from proteins needs to be studied in comparable ways. Experimentally such studies are complicated by the fact that most available proteins are not entirely devoid of the important amino-acid nuclei. The supply of the missing amino-acids need not be in the form of the isolated compound. Suitable proteins which yield them answer in the same way (see Chart 3).

In these illustrations the supply of the various proteins was a liberal one. When, however, the protein is offered in more restricted amounts, the indispensability of certain amino-acids may make itself apparent

in most surprising ways. Casein, for example, is comparatively deficient in its yield of the sulphur-containing amino-acid cystin. When the amount of casein in the diet is plentiful, all the amino-acids are evidently afforded in adequate amount to permit the maximum synthesis of (cystin-yielding) tissue allowed by the capacity to grow—the hereditary factor. When the supply of casein is limited, however, the curve of growth is altered. This does not mean that the growth is limited by

the lack of sufficient protein per se; for the addition of cystin at once raises the nutritive efficiency of the diet. Growth has here been limited by the supply of the (relatively) least abundant essential amino-acid—in this case cystin (Chart 4).

The same story is told in the case of edestin, a protein adequate for growth when fed in abundance, but revealing its comparative poverty in lysin groups as soon as the intake is restricted. Here the addition of lysin, instead of cystin, makes it possible for the organism to use the remaining more abundant amino-acids effectually for growth even when the total protein supply is not large (Chart 5).

The possibility of growth and the extent to which it is accomplished are limited by the supply of each essential amino-acid. It matters not whether this is exhibited as such or in the guise of protein; in either event the "law of the minimum" is exemplified. The amino-acid shortcomings of one protein can be made good by supplementing it with another protein in which they do not exist to the same degree.

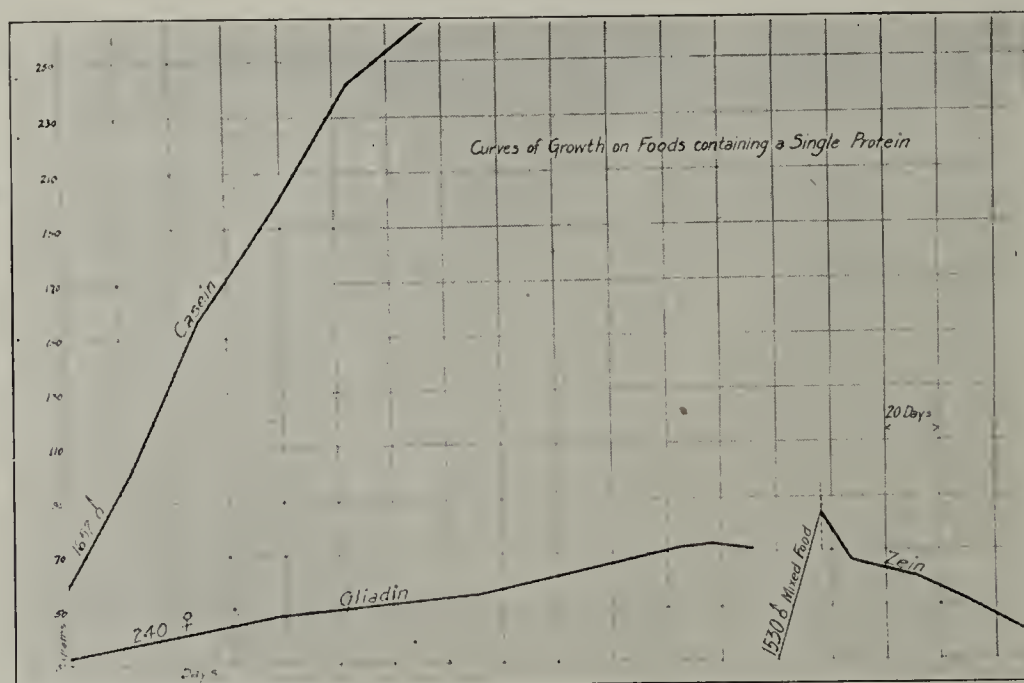


Chart 1.—Showing typical curves of growth of rats maintained on diets containing a single protein. On the casein food (devoid of glyocoll) satisfactory growth is obtained; on the gliadin food (deficient in lysin) little more than maintenance of body weight is possible; on the zein food (devoid of glyocoll, lysin and tryptophan) even maintenance of body weight is impossible.

17. Osborne, T. B., and Mendel, L. B.: Feeding Experiments with Isolated Food-Substances, Carnegie Institution of Washington, 1911, Pub. 156, Part II, p. 80. (Description of "protein-free milk.")
18. Wheeler, Ruth: Feeding Experiments with Mice, Jour. Exper. Zool., 1913, xv, 209.

Let us consider what these new observations mean for the problem of protein minimum. It may now be preferable to speak of amino-acid minima. The differences between proteins appear in a new light. The presence of lactalbumin along with casein in milk furnishes a mixture of proteins which is preferable, gram for gram, to casein alone. The relative amino-acid shortcomings of the casein, as exhibited in the low content of cystin, are averted by the lactalbumin. From the point of view of economy, therefore, it is advantageous to learn the amino-acid make-up of all available food proteins, so that they can be exhibited in proportions furnishing a balanced total amino-acid make-up as nearly ideal as possible. This means far more, in a practical way, to animal production in agriculture than to human nutrition in which we are more lavish with our resources. The proteins of the comparatively cheap maize kernel, for example, consist largely of zein, which of itself fails to maintain nutritive equilibrium.¹⁹ Corn and the by-products of the maize kernel are notably insufficient for good feeding results unless they are supplemented by other protein-containing foods. Osborne and I have found different proteins like casein, lactalbumin, and edestin, or even the maize glutelin—the companion protein of zein in the maize kernel—not equally efficient as a supplement to zein in promoting growth. As we have written elsewhere:

The foregoing experiences bring into new light certain problems related to the economy of foods and commercial fodders. Corn forms the cheapest basis for the feeding of farm animals in food production. Inasmuch as the rate of growth is limited by hereditary, rather than nutritive, conditions, it is futile to furnish more energy and particularly more protein, than is essential for normal development. An inadequate but cheap protein can be supplemented advantageously by one which supplies the needed factors, that is, amino-acids. The relative economy of these additions of supplementary proteins to an inefficient but inexpensive ration depends not only on their quantity but likewise on their amino-acid make-up. A very small addition of a protein like lactalbumin may be far more advantageous, when the cost per unit of gain is considered, than larger amounts of cheaper proteins which supplement less perfectly the amino-acid deficiency of the standard diet. It is perhaps not too utopian to expect that the day may come when amino-acid concentrates may serve to render perfect the mixtures of proteins in a fodder like maize or its commercial by-products.²⁰

The maize kernel is not only quite low in protein, the major part of which fails to yield certain important amino-acids, but it is markedly deficient in cal-

cium which is obviously demanded in abundance in the ration of growth. Evvard, Dox, and Guernsey²¹ have lately found that the addition of calcium carbonate and blood protein to a basal ration of corn and salt fed to pregnant gilts resulted in more advantageous growth, that is, in new-born pigs having greater size, more vigor, bigger bone, increased coat quantity, better coat and color and higher condition. It requires little scientific imagination to translate such experiments with maize into points of view applicable to human feeding.

CARBOHYDRATES AND GROWTH

Without carbohydrate in the diet the nutritive functions of a growing individual are menaced quite as readily as they are during adult life. Metabolism exhibits pathologic manifestations in the lack of carbohydrates. The isolated occurrence of lactose, a carbohydrate peculiar to milk, in the food which nature has provided for growing mammals has quite naturally given rise by teleologic reasoning to the belief that milk sugar has some special virtue in the nutrition of growth. On the other hand, sucrose, maltose, glucose, and even starch and dextrins have found champions, particularly among pediatricists who, above all others, have become interested in ascertaining which, if any, is the best carbohydrate to furnish to growing infants. There are indications, founded on rational experimentation, of inequalities in the value of the different substances referred to. Perhaps these are to be associated with the relative preparedness of the alimentary tract at different ages (or in different species) to digest the various carbohy-

drates prior to their absorption. Suggestions of inequalities in this respect are not entirely wanting.²² But the strict contrast of the comparative value of the familiar sugars can only be made under experimental conditions in which the number of other variables is reduced to a minimum. Despite the large amount of literature on this subject, a critical examination of it leaves the impression that the evidence at hand will not justify a dogmatic conclusion which discriminates unqualifiedly for or against one of the familiar dietary sugars.²³

FATS, "LIPOIDS" AND GROWTH

There is, at present, a dearth of conclusive information whether true fats are an actual requirement for the maintenance of a healthy, normal organism. Fats

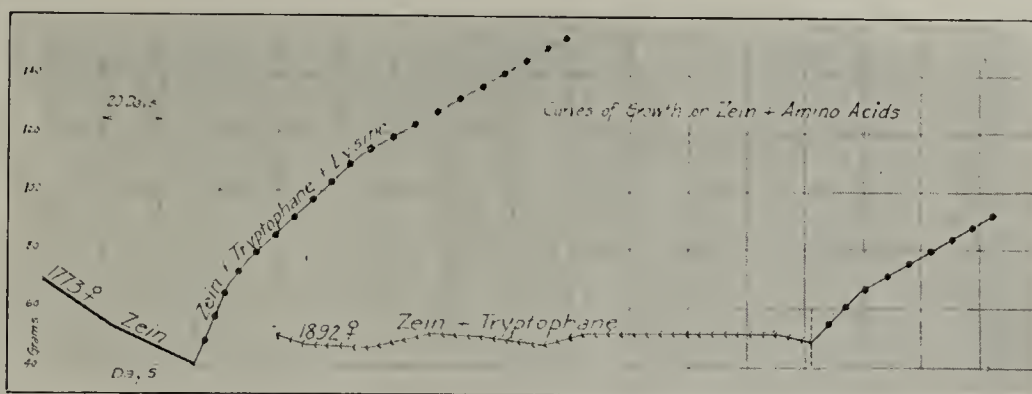


Chart 2.—Showing the effect of the addition of the amino-acids tryptophan and lysin to zein which fails to yield them. With zein alone (Rat 1773) there is nutritive decline. The addition of tryptophan (Rat 1892) permits maintenance without growth on foods containing zein as the sole protein. The addition of tryptophan and lysin to zein enables the animals to make considerable growth. It is interesting to note, in relation to Rat 1892, that the growth of this animal was inhibited for six months without material change in its body weight. That the capacity to grow is not lost by prolonged dwarfing on imperfect food is shown by the subsequent growth of the animal when lysin was added to the food containing zein and tryptophan.

19. Osborne, T. B., and Mendel, L. B.: Feeding Experiments Relating to the Nutritive Value of the Proteins of Maize, *Jour. Biol. Chem.*, 1913, xiv, 31; *Am. Jour. Physiol.*, 1913, (a), xxxi, 16; Nutritive Properties of Proteins of the Maize Kernel, *Jour. Biol. Chem.*, 1914, (b), xviii, 1. Osborne, T. B.: The Nutritive Value of the Proteins of Maize, *Science*, 1913, xxxvii, 185.

20. Section (b), Note 19.

21. Evvard, J. M.; Dox, A. W., and Guernsey, S. C.: The Effect of Calcium and Protein Fed Pregnant Swine on the Size, Vigor, Bone, Coat and Condition of the Offspring, *Am. Jour. Physiol.*, 1914, xxxiv, 312.

22. Mendel, L. B., and Mitchell, P. H.: Chemical Studies on Growth. I. The Inverting Enzymes of the Alimentary Tract, Especially in the Embryo, *Am. Jour. Physiol.*, 1907, xx, 81.

23. Calvary, M.: Die Bedeutung des Zuckers in der Säuglingsnahrung, *Ergebn. d. inn. Med. u. Kinderh.*, 1913, x, 699.

are, of course, commonly found in greater or lesser abundance in every dietary; but to what extent they represent a permanently indispensable need of the animal remains to be learned. As has been pointed out elsewhere,²⁴ the reason why this apparently fundamental question in nutrition has not been answered before is presumably attributable to the experimental difficulties inherent in its solution. Fats or fat-like substances are present to some extent in the majority of the familiar food materials, from which they can be completely removed only with the expenditure of considerable effort and care; and the attempts to maintain animals on artificially prepared mixtures of isolated food substances have, until lately, met with little success.²⁵

There is an added reason why it has been practically impossible to solve conclusively the question of the dispensability of the true fats. In food materials these glycerids are almost invariably accompanied by substances of similar solubilities and physical properties: phosphatids, cholesterol, pigments, etc., for which the heterogeneous designation "lipoid" has been devised.²⁶ These are found in some quantity in every active cell; but although this fact suggests that some, at least, of the so-called "lipoids" have a preeminent biochemical importance it by no means follows that they are essential to the diet during growth or at other periods. They are synthesized by plant cells and it is not impossible to conceive of them likewise as being manufactured in the animal organism. McCollum²⁷ has demonstrated that the phosphorus needed by an animal for phosphatid formation can be drawn from inorganic phosphates, and that phosphatids can be synthesized anew in the animal body.

Röhmman²⁸ asserts the possibility of lecithin synthesis in mice which were maintained into the second generation on lecithin-free food.²⁹

Renewed interest has been infused into the question of the rôle of fats as indispensable factors in the diet

by the observations of Stepp.³⁰ In attempting to ascertain whether animals are dependent on their food supply for lipoids or can furnish them by synthesis like plants, he fed materials extracted with ether and alcohol to mice and observed the effect on the nutritive equilibrium of the animals. Obviously this method of preparing the food eliminated true fats from the diet at the same time. Stepp's observations and conclusions deserve to be carefully examined in connection with the problem at hand. He noted that without exception his mice succumbed in a few weeks when offered otherwise adequate food mixtures that had been thoroughly extracted. The deduction was made that the nutritive failure is due to the lack of certain "lipoid" substances, because the addition of alcohol-ether extracts of materials known to be rich in this type of compound sufficed to keep the animals alive. The lacking substance is assumed not to be inorganic, since the addition of the ash of the lipoid extracts made

from the food material failed to maintain the mice. Furthermore—and this calls for emphasis here—the sustaining component is asserted not to be ordinary fat, inasmuch as the addition of so typical a fat mixture as butter failed to replace the missing life-sustaining factor. More recently Stepp³¹ has re-emphasized his belief that the alcohol-ether-soluble food components, in the absence of which mice regularly succumb, are not fats. They are said to be soluble in alcohol but not in ether.³² Tripalmitin, tristearin and triolein did not resuscitate Stepp's malnourished mice.³³

Some time ago Osborne and I²⁴ believed that we had obtained evidence of the dispensableness of true fats for growth of rats. Our foods for these experiments may presumably be designated as fat-free, even if it is perhaps not permissible to speak of them as "lipoid"-free; for according to the

current definition, the so-called "lipoids" include sub-

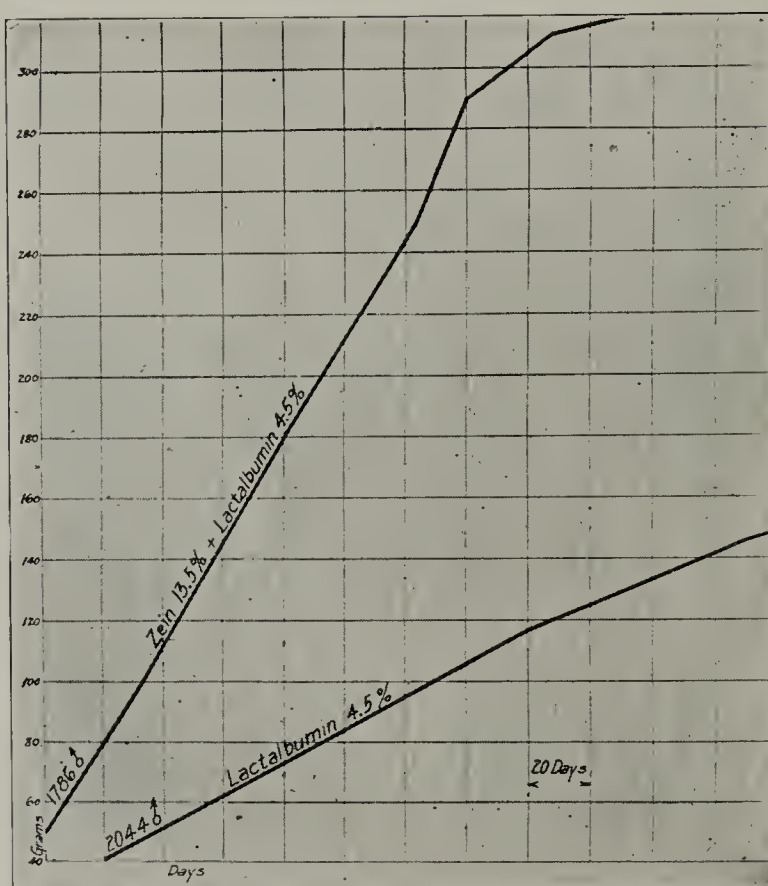


Chart 3.—Showing the favorable effect on growth by supplementing a protein (zein) incapable of maintaining animals when it is the sole protein furnished in the diet with a more "perfect" protein (lactalbumin). The proportion of the lactalbumin used—4.5 per cent.—was of itself insufficient to promote growth well. It evidently furnished the amino-acid groups lacking in the zein.

24. Osborne, T. B., and Mendel, L. B.: Feeding Experiments with Fat-Free Food Mixtures, *Jour. Biol. Chem.*, 1912, xii, 81.

25. Osborne, T. B., and Mendel, L. B.: Feeding Experiments with Isolated Food-Substances, Carnegie Institution of Washington, 1911, Pub. 156, Part I. (A discussion of earlier attempts in this direction.) See also Note 17.

26. For a general description of the so-called lipoids, their occurrence and possible biochemical significance, see Bang, I., *Biochemie der Zelllipide*, *Ergebn. d. Physiol.*, 1907, vi, 131; *Biochemie der Zelllipide II*, *Ergebn. d. Physiol.*, 1909, viii, 463.

27. McCollum, E. V.: Nuclein Synthesis in the Animal Body, *Am. Jour. Physiol.*, 1909, xxv, 120; McCollum, E. V., and Halpin, J. P.: Synthesis of Lecithins in the Hen, *Jour. Biol. Chem.*, 1912, xi, 13; See also Fingerling, G.: Die Bildung von organischen Phosphorverbindungen aus anorganischen Phosphaten, *Biochem. Ztschr.*, 1912, xxxviii, 448.

28. Röhmman, F.: *Biochem.*, 1908, p. 109; Ueber die Ernährung von Mäusen mit einer aus einfachen Nahrungsstoffen zusammengesetzten Nahrung, *Biochem. Ztschr.*, 1914, (b), lxiv, 30.

29. The protocols (Section (b), Note 28.) merely show the absence of phosphorus-containing protein in the diet. The composition of the "margarin" always used is not given.

30. Stepp, W.: Versuche über Fütterung mit lipoidfreier Nahrung, *Biochem. Ztschr.*, 1909, xxii, 452; Fütterungsversuche mit lipoidfreier Nahrung, *Verhandl. d. Kong. f. inn. Med.*, 1911, xxviii, 324; Experimentelle Untersuchungen über die Bedeutung der Lipide für die Ernährung, *Ztschr. f. Biol.*, 1911, lvii, 135; Experimente über die Einwirkung langdauernden Kochens auf lebenswichtige Nahrungslipide, *Verhandl. d. Kong. f. inn. Med.*, 1912, xxix, 607; Weitere Untersuchungen über die Unentbehrlichkeit der Lipide für das Leben, Ueber die Hitzezerstörbarkeit lebenswichtiger Lipide der Nahrung, *Ztschr. f. Biol.*, 1912, lix, 366.

31. Stepp, W.: Fortgesetzte Untersuchungen über die Unentbehrlichkeit der Lipide für das Leben. Ueber das Verhalten der lebenswichtigen Stoffe zu den Lipidextraktionsmitteln, *Ztschr. f. Biol.*, 1913, lxii, 405.

32. Compare also Oseki, S.: Untersuchungen über qualitativ unzureichende Ernährung, *Biochem. Ztschr.*, 1914, lxv, 158.

33. Cooper (Cooper, Evelyn A.: The Relations of Vitamines to Lipoids, *Biochem. Jour.*, 1914, viii, 347) has lately suggested that the deleterious effect of lipid-free diets observed by Stepp is due not to the deficiency of lipid but to the mechanical removal of vitamin (to which reference is made later in the present paper) during the alcohol-ether extractions. The contribution of MacArthur and Luckett (*Lipins in Nutrition*, *Jour. Biol. Chem.*, 1915, xx, 161) appeared after the preparation of this manuscript for publication.

stances soluble in hot alcohol which may not dissolve in ether. None of our isolated food materials were subjected to extraction with hot alcohol. Undoubtedly such treatment would remove other substances as well as lipoids from such a mixture as the "protein-free milk." Although the animals grew for some time on the "artificial" diets thus devised, subsequent experience leads us to believe that the experiments, though extending in some cases over four months, were nevertheless of too brief duration to permit a final answer. Sooner or later all the animals failed to grow further or thrive on such fat-free diets.

This nutritive decline does not, however, necessarily involve the lack of true fats, but presumably concerns a new and hitherto unappreciated aspect of nutrition in growth which deserves consideration in some detail. I refer to the part that may be played by substances which are not identical with the ordinary nutrients and which, despite the minimal amounts thereof present in the diet, may nevertheless be indispensable for growth and the maintenance of life. Hopkins has suggested the term "accessory diet factors"; Hofmeister, *akzessorische Nährstoffe*; ³⁴ Funk, "vitamins" for the factors here involved.

ACCESSORY DIET FACTORS— "VITAMINS"

It would take us too far from our immediate theme to review, at this time, the development of the evidence that beside the foodstuffs in the ordinary sense, there exist other constituents of our food which are of the very greatest importance for life.³⁵ The idea has largely been the outcome of the modern study of so-called deficiency diseases, notably beriberi and scurvy. It was scarcely possible to study the problem under ideal conditions until satisfactory methods were devised for feeding mixtures of isolated food substances with some degree of success. Like many new and suggestive hypotheses

the "vitamin" theory has found a ready acceptance and has been applied in explanation of all sorts of pathologic manifestations, in some cases solely on the basis of analogy and quite in advance of any scientific evidence therefor.

The idea of the existence of accessory factors or specific requisites for growth has only of late taken a more concrete form. Friedenthal³⁶ has designated as "Mitosone" hypothetic products of internal secre-

tion which accelerate the rhythm of cell division. This sort of factor concerns the food supply indirectly at best. The studies of Röhmann,³⁷ Hopkins,³⁸ Hopkins and Neville,³⁹ McCollum,⁴⁰ McCollum and Davis,⁴¹ Funk,⁴² Funk and Macallum,⁴³ and Osborne and Mendel⁴⁴ in particular have raised new questions in respect to the possible function of accessory diet factors or "growth vitamins" in growth. Briefly, they show that all attempts to grow animals on diets consisting of carefully purified isolated foodstuffs—not the highly complex food mixtures such as constitute the familiar rations of every-day life—sooner or later result in failure. The shortcomings of some of the supposed earlier successful experiments with such "artificial" diets, for example, mixtures of casein, fat, sugar, starch, and inorganic salts, were masked by the brief duration of the observations.

Both Osborne and I and McCollum and Davis⁴⁵ have experienced numerous instances of growth over periods of many weeks on diets similar to that just outlined; but growth invariably ceased if the trials were not interrupted too early; and the development was resumed as soon as suitable changes in diet were instituted. Röhmann,⁴⁶ who has achieved a considerable degree of success in inducing mice to *grow* as well as be maintained on mixtures of isolated foodstuffs, hesitates

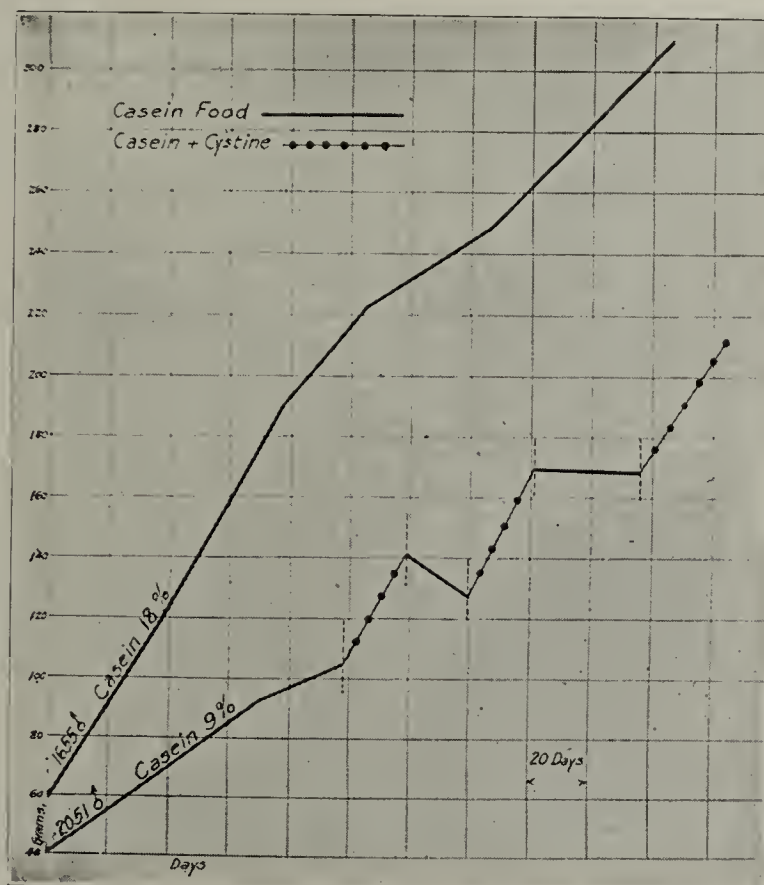


Chart 4.—The curve for Rat 1655 shows the satisfactory growth obtained when 18 per cent. of casein was present in the diet as the sole protein. With a smaller amount of casein (Rat 2051)—9 per cent.—much less rapid growth ensued. That the insufficiency of the smaller amounts of casein is essentially due to its relative deficiency in cystin-yielding groups is shown by the marked accelerating influence on growth brought about by the addition of the amino-acid cystine to the food containing 9 per cent. of casein and the prompt contrary effect when the cystine was withdrawn from the diet.

37. See Section (a), Note 16; also Röhmann, F.: Ueber künstliche Ernährung, *Allg. med. Centralztg.*, 1903, (a), No. 1; Ueber künstliche Ernährung von Mäusen, *Allg. med. Centralztg.*, 1908, (b), No. 9; Zur Frage der künstlichen Ernährung, *Biochem. Ztschr.*, 1912, xxxix, 507; see also Section (b), Note 28.

38. Hopkins, F. G.: Feeding Experiments. Illustrating the Importance of Accessory Factors in Normal Diets, *Jour. Physiol.*, 1912, xlv, 425.

39. Hopkins, F. G., and Neville, A.: A Note Concerning the Influence of Diets on Growth, *Biochem. Jour.*, 1913, vii, 97.

40. See Note 27.

41. McCollum, E. V., and Davis, Marguerite: The Influence of the Composition and Amount of the Mineral Content of the Ration on Growth, *Jour. Biol. Chem.*, 1913, xiv, 40; also *Proc. Am. Soc. Biol. Chem.*, 1913, (a) ii, 128; The Necessity of Certain Lipins in the Diet During Growth, *Jour. Biol. Chem.*, 1913, (b) xv, 167; Observations on the Isolation of the Substance in Butter-Fat Which Exerts a Stimulating

Influence on Growth, *Jour. Biol. Chem.*, 1914, (c) xix, 245.

42. Funk, C.: Studien über das Wachstum. I. Das Wachstum auf vitaminhaltiger und vitaminfreier Nahrung, *Ztschr. f. physiol. Chem.*, 1913, lxxxviii, 352. See also Note 35.

43. Funk, C., and Macallum, A. B.: Die chemischen Determinanten des Wachstums, *Ztschr. f. physiol. Chem.*, 1914, xcii, 13.

44. Osborne, T. B., and Mendel, L. B.: The Relation of Growth to the Chemical Constituents of the Diet, *Jour. Biol. Chem.*, 1913, (a), xv, 311; The Influence of Butter-Fat on Growth, *Jour. Biol. Chem.*, 1913, (b), xvi, 423; The Influence of Cod-Liver Oil and Some Other Fats on Growth, *Jour. Biol. Chem.*, 1914, xvii, 401.

45. See Section (c), Note 41.

46. "Diese Füttergemische sind also für die Aufzucht junger Mäuse den natürlichen noch nicht vollkommen gleichwertig. . . . Worauf diese Unvollkommenheit der künstlichen Nahrungsgemische beruht, will ich nicht entscheiden. Ueberaus bequem ist ja die Erklärung mit Hilfe der Vitamine. Aber sind denn wirklich schon einwandfreie Beweise für deren Vorhandensein gebracht? Ich bin vorläufig mehr geneigt anzunehmen, dass in der von mir verwendeten künstlichen Nahrung zwar alle für die Ernährung und das Wachstum erforderlichen Stoffe vorhanden waren, aber dass das Mischungsverhältnis oder die Form der Nahrungsstoffe nicht derartig war, um die künstliche Nahrung der natürlichen vollkommen gleichwertig erscheinen zu lassen." (Röhmann, F. See Section (b), Note 28.)

34. Compare Oseki (Note 32), p. 160.

35. For the literature on this theme see Funk, C.: Ueber die physiologische Bedeutung gewisser bisher unbekannter Nahrungsbestandteile, der Vitamine, *Ergebn. d. Physiol.*, 1913 (a), xiii, 124; (b) Die Vitamine, Wiesbaden, J. F. Bergmann, 1914.

36. Friedenthal, H.: Die Zeiten der Verdoppelung des Körpergewichts neugeborener Tiere. *Arbeit a. Geb. d. exper. Physiol.*, 1911, ii, 200.

to accept the vitamin hypothesis in explanation of the failures. He inclines to the possibility of an unsuitable relationship in the proportions of the nutrients used. Hopkins (1912) found that he could remedy the shortcomings of the "artificial" mixtures which he fed to rats by the addition of milk in quantities far too small to have significance from the standpoint of their contribution to the energy of the ration. Osborne and I⁴⁷ found in what we have termed "protein-free milk" a more satisfactory substitute for the less efficient salt mixtures or the ash of milk. This product contains, beside lactose and inorganic salts, very small amounts of unknown compounds. Our attempts to imitate the "protein-free milk" in an artificial way have, like those of Röhmann⁴⁷ (1903) and of McCollum and Davis⁴⁸ with salt mixtures, given limited growth at best, though in occasional instances this has been surprising in extent. For such exceptional successes one may offer the hypothesis that the young organism sometimes, if not always, possesses a store of the as yet unknown "chemical determinants" which suffice for some time in the absence of a suitable supply in the food intake. Sooner or later this becomes exhausted and nutritive equilibrium and growth cease. The organism does not synthesize the essential "vitamin," if we prefer to express the situation in terms of this hypothesis.

McCollum and Davis⁴⁹ summarize an extensive experience with rats fed on rations made up of purified casein, dextrin and salt mixtures from reagents by calling attention to a marked difference in the ability of individual animals to grow on such diets. They state that normal growth during a period of somewhat more than one hundred days can be attained only by exceptional individuals. Many fail entirely to grow, others grow at a rate decidedly under the normal; and McCollum and Davis believe that they have in such rations a means of measuring the vitality of individuals in a manner more satisfactory than any hitherto employed.

It does not follow directly, however, that the abnormality of the diet in such instances of failure of growth as have been referred to—whether we call it a lack of "vitamin" conceived to be organic in nature (with Funk), or attribute it to absence of some essential inorganic agent, or an inappropriate balance of the nutrients—inevitably involves the lack of a growth factor. Adequate growth postulates a satisfactory condition of maintenance before any continued gains in weight can be made. It might be supposed that milk, "protein-free milk" and other addenda to the ineffective "artificial" diets promote growth solely because they

furnish something essential for normal metabolism, the basis on which tissue construction and expansion is superimposed.

This, however, is not the whole story. Osborne and I have kept rats through two generations on a diet consisting wholly of whole-milk powder, lard and starch. When we attempted to grow young animals on a comparable diet of isolated protein, "protein-free milk," carbohydrate and lard there was a suspension of growth, sometimes quite sudden and usually more gradual, before adult size was reached. The essential difference between the adequate and the inadequate ration just described lies in the absence of the milk-fat or cream element of the latter. We found that addition of unsalted butter⁵⁰ or of butter-fat⁵¹ to the inadequate diets in which lard formed the sole fat component prevented the suspension of growth in ungrown rats and promptly restored growth when it had failed. Milk fat—which includes all the milk constituents soluble in the fats proper—therefore contains something essential for growth.⁵²

Prior to the publication of our results McCollum and Davis⁵³ showed that the failure of rats to make further growth after reaching a "critical" point on mixtures of isolated food substances could be remedied by supplying the ether extract of egg or of butter. They state that rats in which growth was suspended may remain in an apparently good nutritive condition for many weeks and still be capable of responding to the growth-promoting effect of the ether-soluble substances as well as to the mixed foods of nature. McCollum and Davis in no case obtained a beneficial result by feeding lard or olive oil. To the instances of the favorable influence of butter fat and egg fat Osborne and I have added the equally satisfactory effect of cod liver oil and, in lesser degree, of beef fat. The results with the "efficient" fat mixtures (in contrast with the inefficient ones) are so striking and prompt as to constitute a unique demonstration of the potency of the hitherto unsuspected factors in diet. By fractioning butter-fat we have now been able

to demonstrate that the more liquid portions (or what we may term the butter oil) contain the effective ingredient. That it is not universally present in natural oils has also been demonstrated alike by the observations of McCollum and Davis and our own evidence

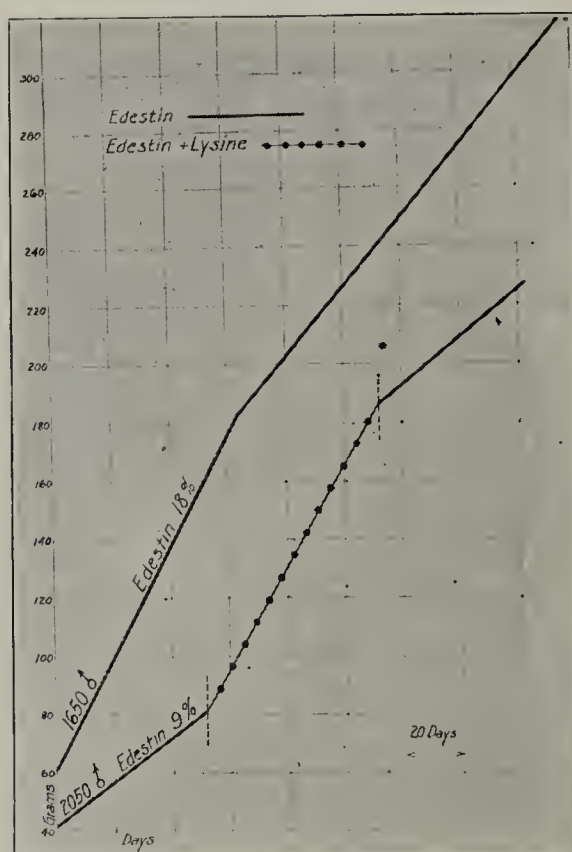


Chart 5.—The curve for Rat 1650 shows the satisfactory growth obtained when 18 per cent. of edestin was present in the diet as the sole protein. With a smaller amount of edestin (Rat 2050)—9 per cent.—much less rapid growth ensued. That the insufficiency of the smaller amount of edestin is essentially due to its relative deficiency in lysin-yielding groups is suggested by the marked accelerating influence on growth brought about by the addition of the amino-acid lysin to the food containing 9 per cent. of edestin and the less rapid growth when the additional lysin was withdrawn from the diet.

50. See Section (a), Note 44.

51. See Section (b), Note 44.

52. It has been said, in criticism of such conclusions, that the "accessories" merely represent something which induces a larger food intake with a more adequate maintenance or consequent growth, as the case may be. Obviously a failure to eat must result disastrously. We recognize the pertinence of such criticism and its applicability to many instances of nutritive decline; but the very extensive records which we have, show numerous cases of decline despite liberal food intake. The ideal plan of feeding measured quantities of food cannot be carried out satisfactorily on many species over long periods; even in birds, which can be "stuffed" with food, it meets with limitations.

53. See Section (b), Note 41.

47. See Section (a), Note 37.

48. See Sections (a) and (b), Note 41.

49. See Section (c), Note 41.

of the inability of fats like almond oil and olive oil to replace the butter oil in promoting resumption of growth. The nutrition-promoting properties of cod-liver oil were tested, owing to the widespread popular and medicinal use of this product. Our experiments afford, we believe, direct evidence that cod-liver oil is something more than a mere nutrient. Experiments now in progress to ascertain how much butter oil is necessary to prevent nutritive disaster, or to induce restoration where decline has resulted, make the quantities appear to be surprisingly small.

Quite recently McCollum and Davis⁵⁴ have found that the property of inducing a resumption of growth in rats which have grown as far as possible on a fat-free ration, can be conferred on olive oil by shaking the latter with a solution of the soaps prepared by completely saponifying butter fat in a non-aqueous system with potassium hydroxid, according to the method of Henriques. The results indicate that the substance or substances present in butter fat which exert such a marked stimulating action on growth are sufficiently stable to withstand the conditions of saponification.

The beneficial effects of some of the fat additions manifest themselves not only in the resumption of growth but also in the alleviation of incidental nutritive disorders and evidences of lowered immunity to disease.⁵⁵ Experimental animals frequently develop an infection of the eye during the periods of their nutritive decline. This has been noted by various investigators and is perhaps represented by comparable phenomena in the malnutrition of children. The simple addition of butter fat or of cod-liver oil to the diet, without other change, leads to a prompt disappearance of the symptoms of eye disease.

No amount of butter-fat or cod-liver oil will induce growth on dietaries in which the proportions and nature of the inorganic salts are inappropriate, in which suitable carbohydrate is missing or the quantity and character of the protein is inadequate. The nutrient units—the *Bausteine*—must not be overlooked in our enthusiasm for the newer features. The work of Stepp, McCollum, and Osborne and Mendel agrees in indicating strongly that mere absence of fat from the diet is not the cause of suspension of growth; or rather we should say that the ordinary fats per se are not the substances which promote the growth. The naturally-occurring fats can dissolve substances other than triglycerids. The chemistry of the problem awaits solution.

THE DETERMINANTS OF GROWTH

It is not unlikely — to speak conservatively — that there are at least two “determinants” in the nutrition of growth. One of these is furnished in our “protein-free milk” which insures proper maintenance even in the absence of growth. When this was fed we have maintained rats without growth for very long periods. Without this “determinant” (as, for example, in diets of isolated food substances containing artificial substitutes for “natural” protein-free milk) the special components of butter fat or cod-liver oil or egg fat induce only limited gains at best. Another “determinant” is furnished by these natural fats (or fractions more recently prepared therefrom by Osborne and myself or the saponification product of McCollum and Davis). Either of the determinants may become “curative”;

both are essential for growth when the body's store of them (if such there be) becomes depleted.⁴³ It is too early to attempt a tenable conclusion.

PRACTICAL APPLICATIONS

In the domain of practical medicine these recent investigations are likely to awaken fruitful speculation and beneficial applications. The popularity of the milk fats may be revived from a new point of view. Quite recently, and apparently without knowledge of the American studies in this field, Niemann⁵⁶ has advocated the use of washed butter as an adjuvant to the dietary of malnourished infants and has reported signal successes from its employment. The dietotherapeutic claims of cod-liver oil appear in a new light. The use of egg-yolk emulsion in the case of growing individuals finds justification. The claims of milk or fractions of milk such as whey, etc., to a place in the ration of the young are emphasized, as they always have been whenever proprietary infant foods containing milk products have been compared with those devoid of them.⁵⁷ The contrast of skimmed or cream-free milk with whole milk is brought into new relations.

Growth is more than a mere energy problem. Insufficiency of food and individual foodstuffs may be contrasted with *specific* deficiencies. We have yet to learn where the essential substances are to be found aside from the few products already mentioned. The possible potency of plant products remains to be ascertained. Even the question of unheated versus heated milk, and the problem of the influence of preservation by heat on canned foods may be concerned with the stability of the “accessory factors” toward physical agents. Perhaps in the refinement of modern food preparation we are dealing with an induced deficiency of actually known substances. One readily thinks of the possible rôle of traces of iodine or silica or manganese hitherto unrecognized.

With activators and hormones, vitamins and food accessories, mitosomes and products of internal secretion brought to our attention day by day, I am conscious, in the midst of our enthusiasm, of a warning given by Rubner in a protest against the creation of a new scientific vocabulary and the danger of transforming the natural sciences into a play of words. “The science of nutrition,” he says, “must never tolerate the substitution of unhealthy speculation for what is admittedly a laborious undertaking, namely experimentation.”⁵⁸

56. Niemann, A.: Ueber die Möglichkeit einer Fettsäureanreicherung der Säuglingsnahrung, *Jahrb. f. Kinderh.*, 1914, lxxix, 274.

57. Wheeler, Ruth, and Biester, Alice: A Study of the Nutritive Value of Some Proprietary Infant Foods, *Am. Jour. Dis. Child.*, 1914, vii, 169.

58. “Es ist sehr bedauerlich, dass in der Literatur des letzten Jahrzehnts überhaupt sich an allen Ecken und Enden die Tendenz geltend macht, bei Experimenten, bei denen weder die wirksamen Substanzen, noch die physikalischen Bedingungen genauer bekannt sind, zu sofortiger Namensgebung schreiten. Aus den ersten Hypothesen werden weitere Hilfhypothesen mit wieder neuer Nomenklatur. Den Lesern kommt gar nicht mehr zu Bewusstsein, dass die Namen, die er hört, nur hypothetische Körper oder nur Namen für einen Vorgang sind, der vielleicht nur bei gewissem Quantitätsverhältnisse des Stoffes in die Erscheinung tritt, bei anderen nicht. Die allerwenigsten der Leser wissen heute noch die Genesis solche Worte. Der kleinste Teil kennt die Experimente, auf welche die Namensgebung zurückzuführen ist. Die einfachsten Binsenwahrheiten werden dann in der Form hochtrabender Spezialausdrücke zu neuen Errungenschaften, die Literatur ist heute auf manchen medizinischen Gebieten, man möchte sagen, ohne die Zuhilfenahme besonderer Lexika für Fachausdrücke und Synonyme ungeniessbar. Die Medizin muss hier endlich einmal wieder Halt machen. Hypothesenbau und Theorie haben auch ihr Gutes, sie dürfen aber nicht hypertrophisch werden und das klare durchsichtige Experiment verdrängen. Die Naturwissenschaft darf nicht in ein Spiel mit Worten sich verlieren. Am allerwenigsten ist es aber in der Ernährungslehre angebracht, eine ungesunde Spekulation an Stelle der allerdings mühseligen Experimente zu setzen.” (Rubner, Note 9.)

54. See Section (c), Note 41.

55. Page 431, Section (b), Note 44.

THE USE OF HYPEREMIA IN THE POSTOPERATIVE TREATMENT OF LESIONS OF THE EXTREMI- TIES AND THORAX

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In calling attention to the use of hyperemia in lesions of the extremities and the thorax, it is my purpose to refer only to the use of that form of treatment known as suction or cupping. In order to be successful with it, it is necessary for a large portion of the extremity to be contained within the vacuum chamber. To successfully create and maintain a vacuum in so large a chamber as will completely envelop an extremity, it is necessary to attach some form of electrically propelled motor, which should be so adapted as to be thoroughly under control while creating the vacuum. Under such favorable conditions a sufficient vacuum may be maintained for a period which will allow of complete and uniform hyperemia of all of the extremity enclosed within the chamber. This means that the veins become fully engorged with new blood, the tissues bathed in the vital fluid, and bactericidal agents liberated, setting free a far more effective death dealing agent to bacteria than any chemical agent known to-day, to say nothing of the stimulating effect imparted to the tissues about the wound.

There are several lesions of the extremities in which I have found the use of the suction hyperemia to give very satisfactory results. One of these lesions is chronic varicose ulcer in all forms. By this description is meant the kind of varicose ulcer which often baffles all ordinary means of treatment and tries one's patience.

These cases all require a certain preliminary treatment, and I am in the habit of instituting hot, moist dressings, and the soaking of the extremity in very warm water at frequent intervals, during each day for at least two weeks prior to operating. This, of course, is hyperemia in one of its various forms, but this method only prepares the tissues for the subsequent work. After this preliminary treatment the tissues become soft and engorged with blood, and the granulations bleed quite readily. The patient is then anesthetized, the granulating surface thoroughly curetted, and the fibrous tissue cleared away with the scalpel. Incisions are then made in the fibrous and healthy tissues surrounding the ulcer, in order that blood may flow into the area which is to be grafted with new skin. After drying the tissues in the usual manner, large Reverdin grafts are taken from an adjacent portion of the extremity and placed in close proximity over the denuded surface of the ulcer. Narrow strips of gutta-percha are now placed over this graft, running at right angles to one another, and over this one or two layers of rubberized mesh. On top of this are placed several layers of sterile moist gauze and the usual dressings are applied. The limb is now put in a light posterior plaster-of-Paris splint, and on the following day, without disturbing the dressings, the leg is placed in a large Bier's hyperemic boot and light suction applied. This treatment is continued about thirty minutes daily for three days. After this the dressings are removed daily, the surface washed with salt solution and the leg placed in the hyperemic boot for thirty min-

utes. The dressings are then reapplied, using first the gutta-percha, then the rubber mesh and other dressings.

Under this method of treatment I have, so far, had about 90 per cent. of my grafts hold, and the period of convalescence has not exceeded eighteen days. At the expiration of this time a roller bandage is applied, painting it while so put on with a soft brush immersed in a gelatin preparation of zinc oxid (Unna's paste.). This makes a firm, elastic stocking, which fits the limb snugly and will not slip. This is left in position for at least six weeks following the patient's discharge. At the expiration of this time I am in the habit of having the patient fitted with an elastic stocking, in order to prevent, as far as possible, the recurrence of these ulcers in other portions of the same limb.

I have also been surprised and pleased with the results obtained by the use of this same vacuum hyperemia in the treatment of infected compound comminuted fractures of the extremities. Where the bones are in good apposition and anywhere about or below the elbow or knee, whether in a wooden splint or a snugly fitting plaster-of-Paris dressing, these extremities can be easily placed in the vacuum chamber, and daily suction hyperemia instituted. Each time the treatment is applied, the lacerated tissues and ends of the bone are bathed in blood and serum, these acting as bactericidal agents. Daily applications soon control the infection present and eventually leave a clot of fibrinated blood between the ends of the bone, thereby aiding osteoblastic proliferations. This same clot also aids very materially in hastening repair in the soft tissues. This method, if used for a period of thirty minutes daily, commencing immediately after the injury or operation, would probably reduce the period of disability and convalescence about 50 per cent.

While I¹ still strongly advocate the use of the open air methods in the treatment of burns, I am also strongly impressed with the use of this same hyperemic vacuum in burns of the second and third degree. Unfortunately, up to the present, this treatment can only be successfully applied to burns of the distal extremity.

For more than ten years I have been using hyperemia as a routine treatment in all my thoracotomies for empyema.² During this time I have had no cause to regret its adoption and have been strongly impressed with a number of good features in connection with the treatment, since it has given quite uniform results. First of these is the rapid and effective emptying of the chest cavity of pus and blood, which is accomplished through a medium sized opening. Second, the early and successful expansion of the lung as demonstrated by the Roentgen ray. Third, the early closing of the drainage site and the absence of post-operative sinuses with their annoying complications. These all make for an extremely short convalescence, which it has been my invariable good fortune to experience.

The site for the incision should be in the median line of the area of dulness, and at the most dependent portion. The incision should parallel one rib, of which 1½ or 2 inches should be resected. Two large drainage tubes are then inserted into this opening, and copious dressings applied, the patient having been in

1. Tennant, C. E.: The Fundamental Principles Underlying the Treatment of Wounds on the Body Surface, THE JOURNAL A. M. A., Dec. 10, 1910, p. 2025.

2. Tennant, C. E.: Ann. Surg., January, 1910, p. 85.

a sitting posture during the operation, and as near on the back as possible, in order that the sound side may have full freedom for its respiratory excursions. On the following day a large bell shaped cup, which not only encloses the tube, but the extreme margins of the incision, is placed on the chest and mild suction instituted for a period of fifteen minutes. Frequent inspection of the tubes should be made, for during the period in which the suction is used, these tubes will often become occluded with coagulated fibrin and one might therefore presume that the chest cavity was free from debris and pus.

With a long thumb forceps or a uterine dressing forceps these fibrinous plugs should be drawn out of the tubes as fast as they collect and suction renewed. I have collected as much as 2 ounces of this fibrinous material in one dressing. If one is careful to collect and remove this material during the first three or four days, there is little or no danger of a blockage from the chest discharge, and all tubes may be removed on the sixth day. Suction should be continued, however, twice daily, while the dressing forceps are used to separate the margins of the wound, until there is nothing but blood secured from the incision. This will occur, providing the treatment has been persistent and effective, in about twelve days after the incision is made.

In applying this treatment in thoracotomies I have found that so long as the patient is comfortable and suffers no pain while suction is being used, no harm will come from the negative pressure in the pneumothorax cavity; and when these patients are examined under Roentgen ray after the twelfth day, the lung will be found to have expanded sufficiently to obliterate the pyogenic space, and certain adhesions have probably formed between the parietal and pulmonary pleura which prevent further collapse of the lung.

612 Empire Building.

SOME UNUSUAL CHANGES IN THE VISUAL FIELDS

THE RESULT OF VASCULAR LESIONS IN THE BRAIN
AND OPTIC NERVES *

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CASE 1.—*Permanent quadrant and hemianopic losses following so-called "migrainous attacks."*

Five weeks ago, I was asked to examine the eyes of a woman; aged 46, with a visual disturbance of several days' standing. It was stated that the patient had always enjoyed the best of health until the present attack, which she ascribed to the effects of a late supper of beer and Welsh rabbit, becoming overheated from dancing, and a cold ride home in a taxicab. The morning after these indiscretions, she awoke with a dull headache and blurred vision, and thinking herself bilious, took calomel and castor oil, without, however, procuring any abatement in her symptoms, the headache, which was chiefly centered over the right eye, and the loss of sight, which seemed to be confined to the same eye, still persisting. It was at this juncture that my advice was sought and an ophthalmic examination instituted. It needed

but the most cursory test to determine that her visual defect depended on a right lateral homonymous hemianopsia, though this was resolved by perimetric test into a quadrant defect merely, the lower portion of both temporal halves being normal (Fig. 1). The fixation points and the nasal fields were also uninvolved. There were no accompanying sensory or motor disturbances, and cerebation was clear. The examination of the urine was negative. Corrected vision was normal in each eye and there were no changes in the extra-ocular or intra-ocular muscles. Both fundi were normal, save for marked signs of vascular sclerosis, the walls of both retinal arteries and veins being thickened and the vessels themselves unduly tortuous. In close association with the right inferior retinal artery, there was a small vascular new formation, one-fourth the size of the disk, which either marked the site of a previous hemorrhage or depended on an aneurysmal dilatation of the artery. The patient was confined to her bed with a low diet and quiet enjoined. It was elicited that although she had been in the habit of taking several cocktails daily and keeping late hours, her health had been of the best. She had never suffered previously from migraine or any form of head pain. After a week or more of absolute rest and liquid diet, alteratives were prescribed and more freedom in her movements tolerated. There was no recurrence of the head pain, but the loss in the field of vision still persisted. This may be ascribed, in all likelihood, to definite changes produced in the visual cells of the left cuneus, in consequence of an interference with their function from intestinal toxemia, either from hemorrhage or by reason of the formation of a thrombosis in the terminal artery supplying them, or as a result of prolonged spasm of the walls of the vessel.

A careful search through the literature revealed a number of somewhat analogous cases. Of these, Hun's¹ is the most instructive. In this instance a homonymous loss in the lower left quadrant of each eye was found at necropsy to have been occasioned by an atrophy of the lower half of the right cuneus (Figs. 2 and 3). This case occurred in a man, aged 57 years, of extremely nervous temperament. The visual affection came on during an attack of vertigo and mental confusion, after several premonitory spells of a somewhat similar nature. Death occurred two years later from angina.

From an inspection of the plates in Seguin's article which represent the cortical lesions which have been found in cases of hemianopsia, Hun was forced to the conclusion that the fibers from the right upper quadrant of each retina have their final termination in the lower half of the right cuneus, and the fibers from the right lower quadrant of each retina terminate in the adjacent part of the right median occipitotemporal convolution. Of course the same relationship holds good between the left half of each retina and the left cuneus and left median occipitotemporal convolution.

Spiller² quotes a case of quadrant anopsia, reported by Beevor and Collier,³ with necropsy and careful microscopic study, which is exceedingly valuable in determining the location of the cortical lesion causing quadrant anopsia. The only symptom of nervous disease was blindness of the left upper quadrants of both visual fields, the fixation point escaping. This condition remained constant nearly two years. Necropsy showed that an occlusive lesion of the right posterior calcarine artery had caused destruction of the cortex (1) of the right fusiform lobe for its posterior two centimeters, (2) of the right lingual lobe from the junction of the calcarine and parieto-occipital fissures

* Abstract of paper read by invitation before the Section on Ophthalmology and Otology of the Baltimore City Medical Society, Feb. 17, 1915.

* Because of lack of space, a considerable part of this article, including the fields, is omitted from THE JOURNAL. The complete article appears in the author's reprints. A copy of the latter will be sent by the author on receipt of a stamped addressed envelope.

1. Hun: Am. Jour. Med. Sc., January, 1887.
2. Spiller: The Eye and Nervous System.
3. Beevor and Collier: Brain, 1904.

to the pole of the hemisphere, (3) of the whole cortex in the depth of the calcarine fissure, (4) of the greater part of the inferior cuneal gyrus, small areas only at the anterior and posterior limits of this gyrus being free. The necrosis did not involve the optic radiations at any point. The only parts of the cortex of the mesial aspect of the occipital lobe which had escaped destruction were the upper two thirds of the cuneus and the anterior and ventral portion of the fusiform gyrus. As the lower quadrants of the visual fields were entirely uninvolved, the left upper quadrants alone being affected, it would appear from this case at least that the cortex of the upper two thirds of the cuneus is the visual center for the lower quadrants.

The cortex lining the calcarine fissure was completely necrotic. Beevor and Collier think, therefore, that the primary half vision center cannot be limited to the calcarine cortex, nor the macula be exclusively represented in the anterior portion of this region. Spiller is of the opinion that the consideration of this case modifies the sharp distinctions made by Henschen in the relation of the upper and lower fields to the calcarine fissure, for the necropsy would seem to indicate that the lower part of the retina appears to be represented in the upper lip of the calcarine fissure.

In 1894, Weymann⁴ described a case in which the defects in the visual fields consisted of homonymous quadrant losses in the upper left field, and similar defects in the lower right field of each eye (Fig. 4). The loss in vision in this instance occurred in a syphilitic adult male, and dated from an attack of unconsciousness followed by right hemiplegia. Later speech became thick and unintelligible, and the mentality seemed at times entirely suspended. There was incontinence of feces and urine. Mixed treatment brought about a marked improvement in all the symptoms, enabling the patient to resume his occupation of dancing master. The defects in the visual fields, however, remained unchanged. Weymann thought them to be dependent on a lesion in each cuneus.

In another case of left quadrant hemianopsia, reported by Gowers, in which the loss in the field was complete for color, but partial only for form, there was associated left hemiplegia. Necropsy showed each cuneus to be normal, but a patch of softening was found in the right internal capsule. Gowers suggests that a partial lesion may have temporarily damaged the whole half vision center, or possibly injury to the optic radiations may have cleared up partially, leaving the fibers of one section destroyed.

Homonymous quadrant defects in the visual fields are of rather rare occurrence from any condition.

More often the visual loss consists in a full hemianopic defect, as exemplified by the following:

CASE 2.—In May of last year, Mrs. F. W. B., aged 33 years, was referred to me by Dr. C. H. Frazier, on account of a loss in the right field of vision. This had followed an attack of severe pain in the left side of the head, accompanied by loss in sensation and motion of the right arm and leg. Sensation returned in the paralyzed side about two hours after the attack, and motion some time later, but the visual defect persisted. Following the attack she stated she experienced from time to time a peculiar kind of headache, which she described as a creeping sensation, which began in the occiput and slowly extended to the vertex. Two months prior to the examination, during a spell of severe localized

pain in the right side of the head, she thought that there had been a partial return of sight in the outer part of the right field of vision. She ascribed her head symptoms to typhoid fever, which was followed by a posttyphoid infection of the gallbladder. A number of gallstones had been removed by operation, but a fistula remained which demanded a second operation for its healing. The examination of the eyes was negative, save for the changes in the fields, which consisted, as may be seen by the accompanying charts (Fig. 5), of right homonymous hemianopsia. Though complete in the left eye, the hemianopic area in the right eye was incomplete, for in the extreme temporal periphery a small island of uninvolved field area could be distinctly mapped out with a 10-mm. white object. A second perimetric test made two months later gave similar findings. In a recent letter, the patient stated that her general physical condition had improved. There had been no return of the head pain, but she was unable to note an improvement in her sight. She writes, "The spot of sight in the right eye (the uninvolved area in the periphery) is slightly larger, but the big shadow is spreading left toward the center of the eye." The case was regarded by Dr. Frazier and Dr. Spiller, who was also seen in consultation, as one of migraine with persistence of the hemianopic defects in the field. Dr. Spiller located the lesion near the left internal capsule, implicating the optic radiations and interfering temporarily with the sensory and motor fibers in the internal capsule, probably by vascular disturbance and resulting congestion. The possibility of thrombosis must, however, also be considered.

To this case a number from the literature may be added, and as some of these came to necropsy, considerable light is thrown on the sublying pathologic lesion causing the hemianopsia.

Of these, the case most referred to is that of Hoeslmayer, who noted the persistence of hemianopsia for a month in a woman aged 57, who had frequent attacks of migraine for forty years. The hemianopsia appeared after a prolonged attack, in which the patient lay in a stuporous state for ten days. The hemianopsia cleared gradually, at first the outline of objects being seen dimly and then more and more clearly, until normal fields of vision supervened. Hoeslmayer thought the condition a toxic one, added to a neurasthenic exhaustion.

Févé's case of a woman aged 34, of permanent hemianopsia with preceding evanescent attacks of vertigo and hemiplegia, was doubtless due to organic cerebral disease; also Charcot's, of a patient who a year before, in consequence of an attack of hereditary migraine with temporary aphasia, was left with hemianopsia, which did not disappear. Migraine attacks of less severity continued at longer intervals.

In Noyes' case, that of a man aged 52, severe attacks of migraine with vomiting had occurred frequently during ten years. Finally, in a sharp attack, after violent vomiting, typical left lateral hemianopsia followed, with a concentric limitation of the nasal half of the field of the left eye. Death occurred three years later from cerebral hemorrhage. A clot was found in the right cuneus.

In a case of ophthalmic migraine seen by Huguenin, with hemianopsia and aphasia, an obliteration of the artery of the fossa of Sylvius was found at the necropsy. To these may be added three additional cases by Thomas of Boston. The first one seemed, from the history, the absence of heredity and the nature of the attack itself, to have been due to arterial disease, and it is probable that the migraine attack was no more than an exciting cause for the vascular lesion, and possibly only a symptomatic migraine. Thomas

⁴. Weymann: *Am. Jour. Ophth.*, October, 1894.

thought the second, and particularly the third case, to be clear instances of cerebral softening ascribable to attacks of migraine. In the second case the presence of sugar in the urine was only temporary, it being absent in two later examinations, and present only at the first test, so that it was probably symptomatic only. In neither case was there any evidence of kidney, heart or arterial disease, or of syphilis.

As appears from the foregoing, there is ample evidence in the literature that migraine may be the exciting cause of organic brain disease, and that an area of softening of the brain may follow, which may manifest itself by a permanent paralysis, aphasia or hemianopsia. While such lesions usually occur in individuals who are predisposed in consequence of disease of the walls of the blood vessels, it would seem that in certain cases the vascular lesion may occur in young persons and even in some adults with healthy vessels. Caution, however, must be observed in ascribing even an exciting rôle to migraine in cases of organic brain disease, as it is not unlikely that independent disease of the blood vessels is responsible for the resultant symptoms, and the migraine merely coincident.

Finally, before closing the subject of migraine, I will cite the history of a case which is of interest on account of the presence of a hallucination in the blind area, and also because of the fact that I had the opportunity of obtaining careful fields at the height of an attack.

CASE 3.—This case occurred early in my professional career, about twenty years ago, and was described in a paper entitled "Visual Perceptions as Symptoms of Disease." An abbreviated account of the case is as follows: After a number of ordinary migrainous attacks, the patient, a neurotic woman aged 30, suffered one rather more severe, in which she saw a large blue eye the size of a bull's in the dark area of the field of vision. The eye was in rapid motion and was projected to the right on her blind side and was visible even with closed eyes. Its appearance was succeeded by an intense throbbing pain in the left temporal region. Synchronously she had a sense of numbness in her right side from the shoulder down. After persisting a few minutes, the eye would disappear, but would reappear about every twenty minutes. The fields, which were taken at a period when the scotoma was present, showed a partial right inferior temporal quadrant loss (Fig. 6).

A few days later she returned with another attack, when a second perimetric study was made. These assumed a different type from those first made, the defect being now on the left side (Fig. 7 A). It was only when the headache was most intense that the scotoma was positive, for at other times objects could be seen in it, although with changed appearance. For example, the white quadrant of the perimeter would often appear bisected, or, again, one corner would be cut off; again, it would seem very minute, and at times it would be lost altogether. Colors were not perceived in the area of the scotoma. Directly after this field was secured, the right eye was bandaged, and the field of the left eye studied. Here the scotoma was directly below, and presented the same characteristics as that of the fellow eye. When the scotoma left the field, it could always be reproduced by testing the field in that position. On the tendency which the scotoma had to shift about being remarked, the field of the right eye was taken once more, as shown in Figure 7 B. The scotoma was now in the inferior portion of the field, and corresponded to that which was observed in the left eye. It is interesting to note the rapidity with which the scotoma shifted itself about. Although taken very carefully, the fields were rapidly obtained by the McHardy perimeter, so that not more than half an hour was consumed in obtaining the two. When the tests were being made, the patient was perfectly calm and collected,

and there were no manifestations of vasomotor changes in the face. At no time did the scotoma involve the fixation point. It was curious to note the way in which the patient described the object when viewed in the affected area. At times it would appear glistening white and rapidly fade out of sight, and then again it would have the peculiar distorted outlines just referred to. At times the white object would appear red, again blue, and then a variety of colors.

CASE 4.—*Left eye blind from thrombosis of central artery of the retina. Temporal field of right eye lost from cerebral apoplexy, right nasal field alone remaining.*—I have had under my care for many years an old lady, now 90 years of age, who typifies to a marked degree the consequences which extreme vascular disease may have on the eyes. Ten years ago, the sight of the left eye was suddenly lost from stoppage of the central artery of the retina. As there had been pronounced changes in the retinal vessels for years, the interruption of the blood current was thought to be due to thrombosis, though the premonitory, transient attacks of blindness which usually accompany that condition were absent. Although seen a few days after the loss of sight had supervened, there were no changes discernible in the fundus, with the exception of a marked diminution in the size of the blood vessels. Several years later she suffered a right hemiplegia, with a loss of the temporal field of the right eye, leaving her with but the nasal half (Fig. 8). This field is becoming more and more restricted from an atrophic condition of the nerve, which is apparently due to local arterial sclerosis.

An example of probable pressure atrophy of the optic nerve from sclerosis of one of the larger vessels in association with the nerve, more likely the ophthalmic artery, is the case of Mrs. T., now in the nineties, who first consulted me about fifteen years ago, on account of loss of vision in the left eye. This had come on, she thought, rather suddenly several months before. As shown by the accompanying field (Fig. 9), the visual defect was found to consist in a complete nasal hemianopsia, with preservation of fixation. The nerve was pale, bluish-white and avascular, and the retinal vessels much diminished in size. Corrected vision equaled 5/12. The right eye was normal, save for signs of pronounced arteriosclerosis, both in the nerve and retinal vessels. There was no limitation of the field of vision. This case has been under more or less constant observation ever since and the fields have remained unchanged, the hemianopic field still persisting, and no other limitation being remarked in the remaining field of the left eye, or in that of the right. Central vision still remains as at the first examination.

CASE 7.—*Right homonymous hemianopsia confined to the macular regions from blocking of an end artery in or near the cortical center of the visual area.*

A rare lesion in the fields is that of a hemianopic defect confined to the macular regions. I have seen but one case of this kind, which I have already reported elsewhere.⁵ This occurred in a man aged 56, a sufferer from rheumatoid arthritis for many years, whose disturbance in vision occurred in association with some dizziness and confusion of mind and speech. These symptoms cleared away after several days, and the only resultant disability seemed to be in reading from type, distant sight appearing normal. A careful functional examination of the eyes showed them to be normal in all respects save for a loss of vision in the macular region of both eyes, as per fields (Fig. 10). Corrected distant vision was normal. This condition persisted until the death of the patient a year later from apoplexy.

Wilbrand is of the opinion that the scotomas under consideration appear when an end artery in or near the cortical center of the visual area becomes blocked up, and believes that the calcarine artery, which runs in a deep fissure on the medial side of the occipital lobe, supplying the largest and most important of the visual radiations, is the vessel chiefly implicated.

5. Posey, W. C.: *Ophth. Rec.*, May, 1908.

TETANUS AND ANTITETANIC SERUM

WITH NOTE ON THE COMPLICATIONS AND
LATE DEATH IN TETANUS *

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Within the past two years, new evidence as to the efficacy of antitetanic serum in developed tetanus has been obtained from animal experiment by Permin and by Park, and from carefully gathered hospital statistics. From this evidence it seemed likely that if antitoxin were given so as best to meet the pathogenesis of the disease (that is, by intraspinal and intravenous routes in massive doses at the earliest possible moment), the course of developed tetanus could be favorably modified, and the mortality materially reduced.

The probability that, within a few months, statistics of large numbers of cases in the war zone will be available, makes one hesitate to attempt generalizations on data insignificantly small in comparison. The encouraging results obtained in Cook County Hospital in 1914 are of interest, however, in showing what can be accomplished on the rather unfavorable material of a metropolitan hospital.

In May, 1914, in a report to the staff, the results of the use of antitetanic serum for the years 1908 to 1913, inclusive, were summarized. The combined mortality of all (fifty-three) cases was 81.4 per cent.; the mortality of serum treated cases, 75.6 per cent. In fifteen cases receiving antitoxin in adequate dosage, but often relatively late in the disease, the mortality was 53 per cent.; thirty cases received small doses, with a mortality of 87 per cent., approximately the same as that of eight cases treated without antitoxin, in one of which, with an incubation period of six weeks, the patient recovered (87 per cent. mortality). The high mortality of tetanus in Cook County Hospital, either with or without serum, has been attributed by some to the late institution of treatment and the unfavorable condition of many of the patients who apply for treatment at the hospital, and by others to assumed inadequacy of antitetanic serum to modify developed tetanus.

In 1914, fourteen cases of tetanus were treated with antitoxin by combined intraspinal and intravenous methods, with a mortality of 57.1 per cent. This mortality is about 20 per cent. lower than that of the previous six years, 75.6 per cent., in the same unfavorable class of patients. By reference to the table, it will be seen that, as a rule, patients reached the hospital and received treatment only after the lapse of two or more days from the appearance of symptoms of tetanus. Two patients were moribund on admission and died less than twelve hours later. If we omit these cases in which treatment was delayed till death was impending, the mortality of the remaining twelve cases is 50 per cent. The latter figure, however, does not represent the percentage of cases in which the disease was modified, for in two other cases, to be referred to later, death was attributable, in part at least, to complications after the symptoms of tetanus had subsided.

Conclusions based on this relatively small number of cases are necessarily open to question; but the fact that a previous mortality of 81.4 per cent. in all cases, and of 75.6 per cent. in serum treated cases, has been

reduced in the same class of patients to slightly over 50 per cent. when serum was used with due regard to the pathology of the disease, must be given some weight in estimating the value of antitetanic serum as a curative agent.

Clinical observations of the course of individual cases has a limited but definite value, particularly when numbers of cases are studied. The patients of this series who recovered suffered from severe tetanus, and in two, convulsions occurred while first treatment was being given. The longest incubation period was fourteen days, the shortest four days, the average ten days, and this group included two cases of head tetanus with incubation periods of four and seven days, respectively. The total antitoxin given was from 17,000 to 35,000 units, with an average of 23,500 per case. This relatively small amount was given in such a way as to get the maximum effect at the earliest possible moment, that is, by intraspinal and intravenous injection.

INFLUENCE OF PYOGENIC INFECTION ON MORTALITY
IN TETANUS

The effect of sepsis developing in lacerated wounds coincident with tetanus deserves more consideration than it has thus far received in estimating the successes and failures of antitetanic serum. In compound fracture and extensively lacerated wounds, streptococcal infection alone may be sufficient to kill the patient, even though he had no tetanus; thus, in one of the fatal cases with compound fracture of both bones of the leg, there was an extensive lymphangitis extending to the hip, with the symptoms of severe sepsis and delirium, a picture not seen at the onset of the uncomplicated tetanus. Yet this death must be charged against the method.

LATE DEATH IN TETANUS

Two instances in which death occurred after patients were apparently convalescing from tetanus deserve mention, because they recall the late deaths from tetanus described in preantitoxin days, and suggest an analogy with diphtheria, in which the introduction of antidiphtheric serum caused an apparent increase in postdiphtheric paralysis because more severe cases lived to develop them.

CASE 1.—An obese woman, aged 60, who developed tetanus following a stab wound of the arm, was admitted and received intraspinal and intravenous antitoxin on the fourth day of symptoms. On two occasions, severe reactions followed the giving of serum. On the eighth day after admission, and the twelfth day from the onset of the tetanus, the jaw was relaxed, other muscular rigidity had disappeared, the temperature was normal, and the patient appeared to be convalescent. The respirations then became more rapid, with fever, rapid pulse, and dulness and râles over the base of both lungs, with death four days later. At the necropsy, pneumonia was found. In this case, while the tetanus no doubt was a contributory cause of death, the outcome cannot be justly charged as a failure of antitoxin to modify symptoms of tetanus. The age (60), the obesity, the injury to the heart muscle during the course of tetanus, and the secondary infection with localization in the lung, probably all had a part in determining the fatal result.

CASE 2.—A man, aged 65, received first antitetanic serum on the third day of tetanus, which developed nine days after a contused wound of the chin, sustained by a fall and blow on the head. On the sixth day after the first treatment, and the ninth day of tetanus, when the muscular rigidity was decreasing, he died in a sudden convulsion. At the necropsy,

* From the Medical Department of Cook County Hospital.

hernia of the foramen magnum was found. There were also old stellate scars in the liver and spleen. While this case terminated with a convulsion, as do many cases of tetanus, the relatively slow pulse of good quality, and the sudden convulsion after a period of apparent improvement, were unusual, and suggested some influence of pressure on pons and medulla. There had been no withdrawal of cerebrospinal fluid for forty-eight hours previous to death.

These deaths are chargeable to tetanus as the primary cause, but the complications should be taken into account in judging the power of antitetanic serum to modify the course of tetanus.

The case for antitetanic serum may be viewed from another angle. Some patients with tetanus recover spontaneously (from 10 to 15 per cent.). These are

ANAPHYLACTIC SHOCK

The danger of anaphylactic shock from intravenous injection of serum deserves consideration, and, in a disease less serious than tetanus, might well make one hesitate to give serum in large doses intravenously. In several instances I have seen immediate reactions with rapidly developing urticaria and increased respiration, which subsided in a few hours; but in none of these was the reaction fatal.

One case, not included in these statistics, presented the phenomena of severe serum reaction, so that further intravenous treatment had to be delayed for several hours, and later resumed after complete desensitization was determined by the method of Besredka.

TETANUS TREATED BY ANTITETANIC SERUM

RECOVERIES

File No.	Age	Injury	Incubation	Duration of Symptoms Before Treatment	Duration of Life After Treatment	Serum Amounts*	Total Serum Units	Remarks
30	52	Operation, hernia	13 days	2 days	8,000 I. S.	30,000	Tonic and clonic spasms on admission.
26	22	Crushed finger	14 days	4 days	.....	22,000 I. V. & I. M.	32,500
25	32	Wound of head	7 days	5 days	.....	8,000 I. S. 13,000 I. V. 11,500 Subcut.	38,000
23	22	Wound of head	4 days	2 days	7,500 I. S. 20,000 I. V. 10,500 I. M.	18,000	Convulsions on admission.
22	15	Circumcision	10 days	4 days	.....	3,000 I. S. 9,000 I. V. 6,000 Subcut.	17,000
19	25	Cut hand	12 days	2 days	.....	6,000 I. S. 3,000 I. V. 2,000 I. M. 6,000 Subcut.	35,500
						24,000 I. V. 11,500 Subcut.		

DEATHS

27	12	Puncture heel	12 days	2 days	3 days	11,000 I. S. 16,000 I. V.	27,000	Convulsions on admission. Marked rigidity.
20	34	Crushed heel	8 days	12 hours	5 days	9,000 I. S. 36,000 I. V.	48,000	No serum intraspinally till third day of treatment.
18	34	Compound fracture, ankle	5 days	12 hours	2 days	3,000 I. N. 3,000 I. S. 9,000 I. V.	24,000	Extensive lymphangitis to hip, and delirious at onset of tetanus.
31	60	Stab wound, arm	12 days	4 days	13 days	12,000 I. M. 10,000 I. S. 20,000 I. V. 5,000 Subcut.	35,000	On eighth day of treatment and twelfth of tetanus, muscles relaxed, apparently convalescent. Signs of pneumonia. Died four days later. Necropsy, pneumonia.
21	65	Wound of chin, fall	9 days	3 days	6 days	6,000 I. S. 13,500 I. V.	19,500	Died in convulsion on ninth day. Necropsy, hernia foramen magnum.
33	24	Frozen toes	5 days	24 hours	7 hours	5,000 I. S. 15,000 I. V.	20,000	Severe rapid tetanus. General rigidity before treatment.
29	8	Puncture wound, foot	17 days	4 days	7 hours	3,000 I. S. 10,000 I. V.	13,000	Moribund on admission.
24	2	Vaccination	21 days	2 days	7 hours	3,000 I. S. 9,000 I. V. 12,000 I. M.	24,000	Moribund on admission.

* I. S., intraspinal; I. V., intravenous; I. M., intramuscular.

usually chronic cases in which the formation of tetanospasmin is so gradual that time is afforded for the development of antitoxin in the body of the patient. Other patients suffer the first symptoms within two or three days, and die with severe acute tetanus. Between these two extremes are all grades of rapidity and severity of tetanic intoxication, and in many, recovery can occur if the toxin is neutralized early enough. Obviously, the proportion of possible cures decreases, the longer artificial neutralization of toxin is delayed. Free toxin in the blood is neutralized by a single large intravenous injection. A portion of toxin which has already entered the nervous system can be neutralized by intraspinal injection, as demonstrated experimentally in animals.

CASE 3.—The patient was a man who received a prophylactic injection of 1,500 units two days after a puncture wound of the heel. Ten days later he developed a severe tetanus. He was given a subcutaneous injection of 1,500 units by a local physician, which was followed by a moderate urticaria. Eight hours later, on arrival at the hospital, he was given 5 c.c. of serum intravenously, on the assumption that sufficient time had elapsed since the dose in the morning, followed by the immediate cutaneous reaction to render him insensitive to further serum. However, an immediate severe serum reaction followed the second dose, with urticaria, rapid respiration and pulse. The severity of the tetanus made us feel that unless something further could be done, he would surely die of tetanus. We prepared a 10 per cent. solution of antitetanic serum in salt solution, and injected 10 c.c. intravenously, very slowly, watching carefully the pulse, blood pressure and respiration. There was no further reaction, and the full

dose of 20,000 units was then given intravenously, and 5,000 units intraspinally without a trace of serum reaction. Surgical treatment of the wound and sufficient sedatives to control spasms completed the treatment. The patient recovered.

PROPHYLACTIC USE OF SERUM

Antitoxin contained in serum derived from one species of animal is more rapidly eliminated after injection into an animal of another species, than if injected into one of the same species. A prophylactic dose of 1,500 units in man will not surely protect against tetanus longer than from ten to twelve days, and if the original wound is not entirely healed, the subcutaneous protective dose should be repeated.

SUMMARY

From animal experiments, and the results in veterinary medicine, it is evident that antitetanic serum will save animals in which tetanus has already developed. Clinical observations and carefully compiled statistics of tetanus in man indicate that the course of tetanus can be modified, and in many instances life saved by proper use of antitetanic serum.

The frequent delay in giving antitoxin, after symptoms of tetanus have appeared, the complications of sepsis in lacerated wounds, the occurrence of late death from indirect complications, and the totally inadequate methods of use of serum, have served to cast doubt hitherto on the curative value of antitetanic serum.

The frequently employed method of giving small doses subcutaneously every few hours, and gradually increasing the dose as the symptoms advance, disregards entirely the pathogenesis of the disease, is wasteful of an expensive remedy, and is usually without therapeutic result.

If the patient is seen early, before fatal intoxication of the central nervous system has already occurred, prompt neutralization of all free toxin in the circulating blood by large intravenous injection, and the neutralization of a part of the toxin already in the central nervous system by intraspinal injection, combined with the judicious use of sedatives, and other indicated medical and surgical measures, will save a considerable number of patients who would otherwise die.

122 South Michigan Avenue.

The Danger of Quack Medicines.—There are two very good reasons why these tempting baits should be avoided: first, because proprietary medicines rarely do any good, and second, because they often do very serious harm. Tuberculosis may frequently be cured by proper treatment in a sanatorium or hospital; cancer by a surgical operation, but neither of them by drugs. The sad part of it is that while ignorant and foolish people are trying to treat themselves by drugs, the time when a real cure could be effected often passes by and when at last they call the physician it is too late. This is not the worst of it, however, for many proprietary medicines are not only fakes, but, worse, they often contain dangerous poisons or habit-forming drugs. The "soothing syrups" are rightly known to physicians as "baby-killers" for their active principle is usually morphin or opium, and headache cures often contain such powerful and dangerous drugs as acetanilid or phenacetin. The spring medicines, tonics, bitters, sarsaparillas, etc., are often strong alcoholic drinks as harmful for habitual use as whiskey or gin. . . . If you do not feel well and need medicine, consult a skilled physician and don't pay tribute to the Great American Fraud—the patient medicine faker.—*New York Health Almanac*, January, 1915.

NON-TUBERCULOUS PULMONARY SUPPURATIONS

THEIR MEDICAL AND SURGICAL RELATIONS *

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There is one great debt which the internist owes to the surgeon, which he never acknowledges or even considers. I refer to the fact that whenever a surgeon annexes any new territory to his domain in the attempt to cure diseases which have defied medical skill, he always associates his mechanical technic with the demand that the diagnosis and differential diagnosis of the lesions shall be made more precise and exact; and to his great honor be it said that he contributes in no small measure toward attaining this end. The reason for this is not far to seek. These so-called incurable cases offer very little inducement to most physicians for careful study, and once the diagnosis is made, the poor patient is consigned to his fate, with such routine palliative treatment as his symptoms may require. How different is the point of view when a disease is no longer considered hopeless! An intensive study is at once begun on all sides. From being relegated to the youngest assistants, these patients are eagerly sought. Doubtful points are investigated; differential diagnoses are sharply defined; the cases are classified; the requisite surgical procedures and technic are soon proposed; successful operations are reported, and the new surgical territory is thus annexed.

The latest field of surgical activity in the lungs has been no exception to this rule. There has been one difference, however, in that the internists themselves were the pioneer surgeons. I refer to the operations of Mosler, Quincke, Lenhartz and Brauer. It was the internist Lenhartz who really inaugurated pulmonary surgery on a large scale, and no surgeon to this day has ever equaled his activity.

The object of this paper is to make a plea that the general practitioner should seriously think of the surgical possibilities of all cases of non-tuberculous sup-puration. The surgeon is right in urging that he be given a suitable opportunity to operate on these patients as early as possible, and not when it is too late to do much—before the disease has progressed so far that the poor condition of the patient and the extent of the lesions render any operation almost hopeless. Coughing up pints of pus daily for months drains the patient, subjects him to the risk of amyloid degeneration and weakens the heart so much that he becomes a poor surgical risk.

There is no lack of patients who could be benefited by the new pulmonary surgery. The miserable lives which many of these poor people live—veritable lepers, whose stinking expectoration and horrible fetor cause them to be shunned by all—should appeal to us to do something for them in the way of help. Not a few of them are to be found in the tuberculosis sanatoriums under faulty diagnosis. In every dispensary class we may find them. The surgeons' progress requires the internists' active cooperation. The problems which must be solved are often extremely difficult. Pulmonary surgery will always remain in the hands of the advanced surgeon; but even in his skilful

* Read before the Harlem Medical Society, March 3, 1915.

hands the progress will largely depend on these operations being made a matter of choice rather than of last resort.

To recognize these cases it is essential that physicians should be more progressive in their methods of diagnosis. They must not lay so much stress on their stethoscopes and fingers. In acute diseases like pneumonia, it does not matter much whether the exact area of infiltration is definitely marked out, and by the way, who ever saw the consolidation of the lobes distinctly marked out as they really are with oblique lines?

Physical diagnosis of the lungs is based on acoustic phenomena which are related to the presence of air. In pulmonary suppuration the conditions are usually very complex. The access of air to the diseased area is often interfered with because the bronchi may contain more or less secretion, the lung tissues may be infiltrated or may be atelectatic. Moreover, the pleura may be thickened or its cavity may contain fluid or air, or both. Then, too, the movements of the diaphragm may be more or less interfered with, and finally the thoracic viscera may be displaced. No method of physical diagnosis can always correctly interpret such a maze.

All writers agree that in the pulmonary lesions under discussion physical signs are most misleading. Extensive processes may give very few signs, especially in bronchiectasis. This is very well shown in two patients whom I have under observation. In the one patient the Roentgen ray and bronchoscope show a very large process in the left base and a smaller one in the right base. The only physical signs are dulness and a few scattered râles over the involved areas. The other patient has coughed up about 4 ounces of offensive three-layered sputum every day for two years. The physical examination shows only a dulled right base posteriorly with distant bronchovesicular breathing and now and then a few bubbling râles. In both of these cases the thickened pleura hides the real physical signs. The physical examinations would never reveal the true condition; but the diagnosis could be made from the sputum and the clubbed fingers, both of which are valuable symptoms which are too often overlooked.

The collection and examination of the twenty-four-hour sputum yield such important evidence that it is surprising that this is so often neglected. The quantity and fetor of the three-layered sputum are valuable indices of the character and progress of the process. Microscopically the presence of Dittrich plugs differentiate putrid bronchitis from a chronic bronchitis which has temporarily caused fetid sputum, since they are absent in the latter. They are also always present in pulmonary abscess and gangrene. Elastic fibers are of less importance, since they may be found in any destructive lesion in the lung. In lung abscess and gangrene they may be absent, since they may have been digested by the trypsin ferment which, as shown by Filehne, is secreted by the bacteria.

It should also be noted that bloody sputum and even large hemoptyses may occur in non-tuberculous suppurative lesions.

Clubbing of the fingers should always be looked for in these patients. It is surprising to note how early this may appear. Hence their occurrence in any patient who has no cardiac lesion is very significant when there is putrid sputum, even when the pulmonary physical signs are vague.

The fluoroscope and roentgenogram must be used in every case. Fortunately we now have roentgenographers of great skill in fluoroscopy, and in the making and reading of plates. It is true that many mistakes in diagnosis have been made, and errors will be committed in the future. It would be asking too much of any method to demand that it be infallible. One must not be surprised that the exact character and site of the lesion is not always determined, for, after all, we are only dealing with shadows and their interpretations. In the lung these shadows may not alone be caused by the actual lesion, but also by the associative bronchopneumonic areas around the cavities, or by patches of infiltration which are associated with the lesion but are not of the same type. The most frequent field of error lies in the differentiation of putrid abscesses of the lower lobe from simple bronchiectasis and small bronchiectases with peribronchitic infiltration, especially if there is much thickening of the pleura.

The Roentgen rays are of the greatest value in revealing unsuspected foreign bodies, localized empyema, localized pneumothorax and visceral displacement. Tuffier, whose experience in pulmonary surgery is second to none, relies absolutely on Roentgen-ray findings, and when they do not agree with the results of the physical examination he disregards the latter entirely.

Next in importance to the Roentgen ray comes bronchoscopy, and I am sure that when the two are combined the chance of error will be very much reduced. Indeed, I believe that no case should be submitted to a radical operation unless a bronchoscopy has been performed. In Mount Sinai Hospital we have been very fortunate in having the cooperation of such a skilled bronchoscopist as Dr. Yankauer, whose work in diagnosis and treatment has yielded such splendid results. A few instances deserve mention. Thus in an old man in whom the diagnosis of bronchiectasis had been made, he found a carcinoma of the bronchus in an early stage. In another case under Dr. Lilienthal's care there was complete agreement in the clinical diagnosis of bronchiectatic cavities in the right lower lobe. This was also the verdict of the roentgenographer, yet the bronchoscope failed to reveal any bronchial dilatation. The final diagnosis was that of parenchymatous lung abscess communicating with the bronchus. In another patient, a child also under the care of Dr. Lilienthal, the roentgenogram showed only a diffuse shadow of the entire right lung. With the bronchoscope, Yankauer was able to recognize a large simple bronchiectatic cavity with pus oozing from all the main bronchi in the right lung. Recently in a patient with hemoptysis, under the care of Dr. Alfred Meyer, he was able to show that the bleeding came from a varix in the right bronchus.

Yankauer claims that he is now able to differentiate bronchiectasis from multiple abscesses. In bronchiectasis, besides finding a change in the lumen of the bronchus, he has observed that the area can be sucked dry and will remain so. In purulent infiltration, however, there is no change in the lumen of the bronchus, and the area cannot be kept dry because there is a constant oozing of pus.

Besides these improvements in the methods of diagnosis it is essential that physicians should broaden their views on the pathology of pulmonary suppuration. Increasing experience at operations and necropsies shows that it is essential that the lung be consid-

ered as a whole, and that it is erroneous to regard the parenchyma, bronchi and pleura as separate parts. They are all closely related in the etiology and progressive development of the lesions. This relation is still frequently overlooked. As an example I will quote the opening sentence of a comprehensive paper on bronchiectasis by Dr. Willy Meyer:¹ "Bronchiectasis is a disease of the bronchial tree, *not* of the pulmonary parenchyma." I venture to say that this is true only at the outset of the disease, and then only in a small proportion of the cases. Nearly always there is more or less involvement of the parenchyma or of the pleura, and often of both. This relation is well shown in Lord's² definition that "bronchiectasis is only in rare instances an independent affection, but usually arises as a complication of different diseases of the bronchi, lungs and pleura, singly or combined." An excellent discussion of these varied relations of the etiology and pathogenesis of bronchiectasis has recently been published by Howard.³

Fraenkel⁴ divides bronchiectases into two groups; the bronchitic and the indurated; he emphasizes the difficulty of differential diagnosis from chronic abscess and tuberculosis. Garrè and Quincke⁵ group putrid chronic abscesses and bronchiectasis under the same heading, and make no attempt to differentiate them in their discussion.

Many bronchiectases are the result of localized empyemas. Alexander James⁶ states that "50 per cent. of the latter discharge into the lung, and produce fistulous tracts. If the drainage is interfered with, there is a formation of new connective tissue which contracts and causes stenosis or displacement of the bronchi. Small bronchiectases are thus caused. Then as the result of coughing, pressure of secretion and traction, these cavities will enlarge." Körte⁷ also directs attention to the not infrequent softening of the pulmonary parenchyma when there is much putrid decomposition in bronchiectatic cavities. This will produce lesions which cannot be differentiated from pulmonary gangrene. This distinction, however, is not important since the operative indication is the same.

We must therefore pay more attention to the small pleural lesions, that is, localized empyemas, a by no means easy task, because the signs and symptoms of these processes are often very vague, and hence may escape detection unless they are carefully searched for with the Roentgen ray.

Closely allied to the small localized empyemas are the interlobar empyemas which are beginning to assume more importance, and hence deserve a brief consideration. The quantity of pus in such exudates is variable, and may reach a liter or even more. They usually occur with or after pneumonia, but they may also arise independently. If small they may escape diagnosis, and if they drain into the bronchus, as they usually do, they may be considered small pulmonary abscesses. This error may readily be made because in the foul-smelling pus which is expectorated elastic fibers have not frequently been found. As Stone⁸

maintains, this differentiation is academic because these interlobar exudates are the result of small intrapulmonary necrotic foci near the fissure which have ruptured into it, after having caused its edges to become agglutinated. In other cases the empyemas drain into the bronchus. If this remains free, this is usually the end of them; but if the drainage is blocked, then the lesion progresses to an abscess of the lung of a greater or less extent, which must be treated surgically.

At other times the exudates remain encapsulated, and, if the quantity of pus is large, the diagnosis by physical signs and exploratory needle may be made, especially if there is localized tenderness along the fissure.

The physical signs of an encapsulated interlobar exudate of considerable size are: A zone of dullness, more or less high pitched and tympanitic in character, with the presence of bronchovesicular breathing over the dull area, often accompanied with friction sounds if the condition is acute. Below the dull zone the resonance and respiratory sounds are more nearly normal. On the left side the tympanitic area of the stomach (Traube's space) is retained and on full inspiration the more normal area below the zone of dullness increases in size. Grocco's paravertebral triangle is not present as is usual in large, free exudates. If the exudate is on the right side, the heart is apt to be extremely displaced to the left (Fraenkel); if on the left, the displacement is not so marked as with free fluid (Stone). The roentgenogram will show a shadow extending from the apex of the heart toward the head of the humerus, or from the sternal junction of the fourth rib on the right outward to the head of the humerus. The fluoroscope will show the same shadow band and also the moving shadow of the diaphragm.⁸

The Roentgen ray is invaluable in the diagnosis of these exudates, although even here errors may occur, as happened in one of my patients in whom a bronchiectatic process gave the "hanging shadow" which is so characteristic of the interlobar exudates.

Pulmonary suppuration must always be considered in its relation to other organs. Of these the most important are the liver, subphrenic space, uterus and tonsils.

The relation to the liver and subphrenic space is too well known to require more than mention. Of less frequent occurrence is the gangrenous abscess of the lung after operations on the gallbladder. I saw such a case in a patient who had been operated on by Dr. Berg. About ten days after a cholecystostomy the patient suddenly became ill without any discoverable cause, except a few râles at the right base posteriorly. Dullness rapidly developed, and the case looked like a secondary pneumonia, until the patient suddenly began to cough up large quantities of very foul pus. A putrid abscess of the lung having been diagnosed, an operation was advised, even though the patient's condition was most desperate. Under local anesthesia Dr. Berg resected two ribs and drained the abscess. After a protracted convalescence the patient finally recovered.

Appendiceal abscesses which burrow along the psoas muscle into the subphrenic space and thus reach the lung must not be forgotten. A most unusual case of lung abscess which occurred in my practice many years ago also deserves mention. A man who had a chronic staphylococcus osteomyelitis of the ilium suddenly coughed up a large quantity of pus, and for a long time suffered from an abscess of the lung, from which he finally recovered when the osteomyelitis of the ilium had been cured.

1. Meyer, Willy: Ann. Surg., July, 1914.

2. Lord: Diseases of the Lungs, Bronchi and Pleura, Philadelphia, Lea and Febiger, 1915, p. 108.

3. Howard: Am. Jour. Med. Sc., March, 1914, p. 313.

4. Fraenkel: Special Pathologie und Therapie des Lungenkrankheiten, p. 178.

5. Garrè and Quincke: Surgery of the Lung, Ed. 2, p. 114.

6. James, Alexander: Pleurisy, p. 124.

7. Fränkel and Körte: Der gegenwärtige Stand der Lungenchirurgie, Berl. klin. Wchnschr., 1912, Nos. 6 to 8.

8. Stone: Interlobar Exudates, Boston Med. and Surg. Jour., July 27, 1911.

Tonsillectomy is occasionally the cause of lung abscesses. This was the cause in a fatal case of mine in a woman, aged 26. Two days after a tonsillectomy she was taken sick with a fever and cough; dullness and râles were present in the left axilla. When she was admitted to my service ten days later she had dullness, bronchial breathing and crepitant râles in the left subclavicular region and axilla. In the left base the breathing was diminished. Two days later the signs of abscess of the left upper lobe were unequivocal; but before anything could be done there was a sudden rupture into the pleural cavity which caused her death in a few hours.

In three of a series of sixteen cases of abscess of the lung reported by Scudder,⁹ tonsillectomy was the cause. This proportion does not seem too high to me, for it has always been a surprise that these abscesses from the aspiration of blood or food after tonsil and adenoid operations do not occur more frequently with the technic of the majority of operators.

The distressing cases of embolic multiple abscesses of the lung which occur in severe puerperal sepsis also deserve mention. They are a class of cases which are among the most melancholy in medicine, and once seen are not apt to be forgotten. I have never seen a case of this kind recover.

In all cases of pulmonary suppuration in which the etiology is at all obscure the possibility of syphilis must always be borne in mind. It is true that these broken down gummas are rare, yet the fact that they do occur must not be forgotten because of the excellent results which are obtained from salvarsan. A case of this kind recently occurred in the service of Dr. Alfred Meyer; for some time it was regarded as a lung abscess until a positive Wassermann reaction revealed its real nature. Prompt cure followed the use of salvarsan. Howard¹⁰ shows that even in bronchiectasis the relations of syphilis are by no means to be neglected.

Finally the association of pulmonary suppuration and tuberculosis must be mentioned. I refer to the cases in which lung abscesses develop in tuberculous subjects which are independent of the tuberculous process. A mere mention must suffice, since it is too complicated a subject to be discussed at this time.

The consideration of these pathologic relations must convince one of their practical value in diagnosis and treatment, and, therefore, in determining the need of surgical interference, a carefully taken history is all important. Especial attention should be paid to antecedent diseases such as pneumonia, empyema, influenza, whooping cough, abdominal operations, the puerperal state, tonsillectomy, syphilis, foreign bodies, and especially tuberculosis.

Influenza deserves especial attention because it is so frequently associated with pulmonary suppuration. Where it is concerned one should delay surgical operation longer than one would otherwise, as these patients as a rule make excellent recoveries even when their symptoms seem urgent. I make this statement as the result of a considerable experience with patients of this kind. In these cases the upper lobes are usually infiltrated. There is often dullness in the anterior mediastinum and even hoarseness, from pressure of the enlarged glands in the mediastinum. I have found the fluidextracts of buchu and hydrastis in large doses

kept up for a long time, and fresh-air treatment, to be of great value.

I would also urge that operations should never be considered unless foreign bodies have been eliminated by the Roëntgen ray or the bronchoscope, even if there is no mention of this possibility in the history. This is especially true in children, and even in adults the swallowing of a foreign body may possibly have been overlooked, as occurred in the case of the old man already referred to in the discussion of bronchoscopy. Howard¹¹ reports a very interesting case in which the shadow of a tack in the skiagram was overlooked; but it was clearly recognized after the boy coughed up the tack one year after his discharge from the hospital. It was not until the tack was coughed up that the mother remembered that the boy had swallowed it. Hoffman and Chevalier Jackson¹² both urge the importance of considering each case of bronchiectasis as one of possible foreign body origin.

Acute pulmonary abscesses usually develop after pneumonia or they are the result of embolisms or of foreign bodies. When due to pneumonia it is wise to wait, since there is a distinct tendency toward spontaneous cure.

In true metapneumonic abscesses which are usually due to a pneumonic necrosis of the infiltrated tissues, there is sometimes very extensive sequestration. If this can be expectorated, spontaneous cure will follow; but if the putrid expectoration continues and the fever persists, then the only cure is by surgical interference (Körte⁷).

When the acute pulmonary abscesses are caused by embolism they usually go on to gangrene and must be treated surgically. Much will depend on the primary cause, and whether they are multiple. The prognosis is usually very bad. In the acute pulmonary abscesses which are caused by foreign bodies, bronchoscopy is often of signal value. When the aspirated foreign body is food, the outcome will depend on whether the food is soft or hard. It may not be possible to remove all of it with the bronchoscope. If the food is soft and the patient is young, it may be advisable to wait, as the abscess may remain localized; or it may be cured by coughing up food remnants and the abscess contents. Such a successful experience I recently had in a girl of 10, who aspirated some fish while she was laughing heartily at her meal. On the other hand, Lilenthal has recently reported a case of a child of 2¾ years who aspirated some pieces of nut. Although pieces of the chewed nut were removed with the bronchoscope by Yankauer, a chronic bronchiectatic abscess resulted which required operation.

In acute pulmonary gangrene spontaneous cures sometimes result, but this is so exceptional, the tendency of the disease to progress rapidly is so pronounced, and the constitutional evidences of disease, with the danger of hemorrhages and metabolic abscesses (especially in the brain), may be so severe that it is not wise to wait too long. There is also the great danger of aspiration into other parts of the lung. The only contra-indication to operation is that the other lung should not be affected, and the patient's condition must not be too bad. Diabetes is another contra-indication.

In these patients the Roentgen ray is of the greatest value in the diagnosis of the site of the lesion and in

9. Scudder: Boston Med. and Surg. Jour., Oct. 1, 1914.

10. Howard: Am. Jour. Med. Sc., March, 1914, p. 315.

11. Howard: Am. Jour. Med. Sc., March, 1914, p. 319.

12. Quoted by Howard (Footnote 11).

indicating its extent. Even if the exact localization is impossible the surgeon is warranted in making extensive exploration when the chest has been opened, since the prognosis is so bad when the case is left to nature. Repeated operation may even be necessary because lesions which were small at first may subsequently develop to a larger extent. This is no disadvantage because the patient's chances will have been so improved by drainage of the primary large foci, that he is in a position to stand these later operations.

In putrid bronchitis when medical treatment has failed Fraenkel and others have recommended artificial pneumothorax and claim to have seen good results from it. This is possible because there is no infiltration of the lung, and there are no pleural adhesions, and hence the lung may collapse. This puts the lung at rest, lessens the secretion, and diminishes the danger of aspiration into the healthy lung tissues. Furthermore, there is a better chance for energetic coughing to empty the contents of the bronchi because the air cushion between the lung and the rigid chest wall will allow this more readily than would otherwise be possible. In passing it may be noted that in putrid bronchitis we find the only condition of pulmonary suppuration in which artificial pneumothorax has been found at all useful. In all other suppurative pulmonary conditions it has failed.

In bronchiectases and chronic putrid abscesses surgical interference must not be considered too early; first, because the operative results are the poorest of all in pulmonary surgery, the mortality being as high as 30 per cent., and the chances of numerous operations great. Secondly, because the diagnosis of the site and extent of the process is still difficult, and errors are especially frequent. Tuffier goes so far as to state that errors as to the extent of the process are the rule. As already stated, the roentgenograms are often very unsatisfactory, small cavities being difficult to differentiate from the lumen of the bronchi. The physical signs are very ill defined unless the infiltration of the pulmonary parenchyma is extensive. Körte correctly maintains that unfortunately it is by no means an infrequent occurrence to discover at the post mortem that the entire lung is riddled with a series of rigid-walled abscesses, from which the putrid expectoration has been derived. It is to be hoped that these difficulties will be greatly minimized by the combined use of the bronchoscope and the Roentgen ray.

It is therefore wise to see what results can be obtained from medical treatment with the balsams, fluid restriction, dry climate (Arizona and New Mexico being especially indicated), and topical applications through sprays, injections and the bronchoscope. The latter promises to be especially valuable.

The subacute spindle dilatations after whooping cough, bronchopneumonia and influenza usually yield good results to medical treatment. Unfortunately many physicians do not pay sufficient attention to the complete recovery of these patients. If numerous large moist râles persist over the involved areas or at the base of the lungs, a change to a dry climate should be insisted on. Otherwise foci will be left behind from which bronchiectases may easily develop.

It is true that we have all of us had patients in whom this line of treatment has yielded good results; yet these are the exceptions and not the rule; and hence we should not wait too long in considering surgery, because the operative prognosis depends so much on the duration of the disease. We should turn the

case over to the surgeon when medical treatment fails to change the character of the putrid purulent secretion, and also fails to reduce its quantity. We should not wait until the violent paroxysms of coughing have widely disseminated the disease by aspiration into the healthy areas, and have even infected the sound lung. Another danger must not be lost sight of, namely, that of the development of carcinoma in the diseased area. I have recently seen two examples of this.

The best surgical results are obtained when these patients have one or several large cavities. According to Körte especially good results occur in bronchiectases of the lower lobe which follow empyema.

The surgical indications are extensive resections of the thoracic wall, pneumotomy and pneumectomy. The latter operation, although it is the most radical, is the one which promises the best results, and the successful cases of Lenhartz, Körte, Krauss, Kuemmel, Sauerbruch, Lilienthal and others, in which parts of or whole lobes have been successfully resected, are very encouraging. A patient of mine, a young man 18 years of age, with an extensive process in the right middle lobe of eight years' duration, was recently operated on by Lilienthal, the greater part of the right middle lobe being resected. The results thus far indicate that the patient will be radically cured. I would also refer to the successful case recently reported by Lilienthal,¹³ in which a splendid result was obtained by the removal of the right lower lobe in a boy 2¾ years old, for suppurative bronchiectases which were the result of the aspiration of partly masticated nuts.

The danger of bronchial fistulas after these radical operations must not be forgotten, and also the possibility of several operations must not be lost sight of.

Artificial pneumothorax usually fails in these cases on account of the extensive adhesions. This is not surprising because bronchiectases are so often the result of localized empyemas, as has already been referred to. All surgeons unite in condemning its use in these cases. Ligation of the pulmonary artery has been recommended by Sauerbruch and Willy Meyer; but it is to be noted that this only causes a shrinking of the lung and does not always result in a cure.

Granting that the mortality is high and the possibility of multiple operations is great, we should give these patients a chance, since surprisingly good results have already been reported in a number of long-standing cases. These patients lead such a miserable existence that they are willing to take their chances. The outlook will be very much better as the surgeons improve their technic with increased experience; but it will be still better if these cases are referred earlier to him, before the process has extended too far. It is in just this class of patients that the internist must consider the possibilities of surgery, both because they are the most common cases of non-tuberculous pulmonary suppuration, and because it is in this field that the surgeon must have the opportunity to develop the possibilities of his skill.

In conclusion I would say that what has already been done by the surgeon is a splendid promise for the future. Surgery never goes backward. It sometimes goes too far, but then the natural correction always controls the swing of the pendulum. Of this there is at present no danger. The surgeon's attitude is admirably stated by Robinson:¹⁴

13. Lilienthal: *Ann. Surg.*, June, 1914.

14. Robinson: *Progressive Med.*, xvii, p. 109.

Is it not true that many operations successful today would have remained in their undeveloped infancy had not the faith of certain internists been greater than the surgical results justified at the time? Those of us who are struggling with the surgery of chronic lung infections wish only to convince physicians that we are conservative; that we are not inclined to attack unsuitable cases; that we are working along lines of surgical propriety; that already we can relieve; and that eventually, with added experiences, we may cure some of these cases which seem to defy medication.

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THE APPLICATION OF THE VAN SLYKE AMINONITROGEN DETERMINATION TO THE DIAGNOSIS OF CANCER *

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In working with the Abderhalden reaction in pregnancy or cancer we are dealing with a reaction which lends itself admirably to diagnostic work. With this reaction, as with all other laboratory tests, we are dealing with something which does not and cannot give absolutely accurate results (clinically). But experience has shown that the results obtained are accurate in a sufficiently large percentage of the cases to give it a place in the diagnostic armamentarium of the clinician.

It is not my intention in this short paper to give a description of the technic of the thimble method, nor to go into details of the theory on which this test is based. The thimble method, which is the method advocated by Abderhalden, and which is being used all over the world, contains a number of errors which appear at the most unexpected times and which invalidate the test to such a degree that the test either cannot be read, and must be repeated, or else the reading assumes the guise of guessing. I will briefly enumerate some of these errors.

1. The most constant error is in the serum of the patient. The blood of the patient at all times contains amino-acids. Shortly after meals, during the height of digestion, the amino-acid content of the blood may be decidedly increased.¹ Or, again, in certain cases of malnutrition there is an abnormal increase of ninhydrin-reacting substances which diffuse readily through animal membrane. It will be seen, then, if serum from a patient containing a high amino-acid content be used, the dialysate of the test serum, as well as the controls, will give a color reaction with ninhydrin.

2. If in taking the blood from the patient, the blood is permitted to drip into a container, or if during centrifugalization some of the red blood cells should be broken up so as to free the hemoglobin, the same error will occur as above.

3. No matter how careful we may be in having all of our glassware absolutely clean and sterile, accidental contamination may occur.

4. Owing to the fact that it is impossible absolutely to sterilize the thimbles without boiling, another error may sometimes occur.

5. The thimbles, through careless handling, may become bruised or weakened at some point so as to allow protein to penetrate into the dialysate or else, if we boil our thimbles, the meshes become tightened so that they do not permit even peptones to pass.

6. In boiling the dialysate with the ninhydrin over the gas flame for one minute, as advocated by Abderhalden, a different degree of intensity of heat must undoubtedly be obtained by the most careful worker. I have tried, and I believe successfully, to overcome this error by boiling all the test tubes in a water bath at the same time for ten minutes.

From the foregoing it will readily be seen how extremely difficult and how extremely painstaking we must be in order to obtain accurate results. At the suggestion of Prof. V. C. Myers of the Post-Graduate Hospital Medical School, I have been using the Van Slyke aminonitrogen apparatus, which Dr. Van Slyke of the Rockefeller Institute of New York devised for the purpose of measuring the aminonitrogen content of the blood.

The rationale of this method is that we are able to determine accurately the amount of aminonitrogen liberated or given off in a given quantity of serum.² We add dried cancer substrate (prepared in the same manner as for the thimble method and then dried) to the suspected serum in a test tube and take another test tube which contains suspected serum alone, cover the serum with a layer of toluene and incubate for twenty-four hours. If the suspected serum is the serum of a cancer patient and contains a sufficient quantity of the proteolytic enzyme, a reaction will take place. After measuring the amount of aminonitrogen liberated from the serum alone, and then measuring the amount of aminonitrogen liberated from the serum plus substrate, we find that the amount of the latter is increased over the former by anywhere from 0.05 to 0.15 c.c.

In three cases of cancer with cachexia I observed that the amount of nitrogen liberated in the serum plus substrate was decreased anywhere from 0.4 to 0.1 under the amount of nitrogen liberated from the serum. Inasmuch as I did not at that time use the dried cancer substrate, Dr. Van Slyke suggested that the amount of fluid in the moist substrate may have diluted the serum to a great extent so as to account for that decrease. In preparing the substrate for this test we must be careful to rid the substrate of all soluble proteins, and before using the same it must be tested to determine whether any nitrogen is given off by the substrate. Should this be the case, the substrate must be discarded. The total number of cases examined by the Van Slyke method was eighty-two. Of these forty-two were clinically and pathologically diagnosed as cases of carcinoma, which were divided as shown in the accompanying tabulation:

CASES DIAGNOSED AS CARCINOMA			
No. of Cases		Pos.	Neg.
14	Cancer of stomach	10	4
4	Cancer of esophagus	4	0
3	Cancer of colon	3	0
2	Cancer of pylorus	2	0
11	Cancer of breast	9	2
8	Cancer of uterus	7	1
42		35	7

Positive, 83.3 per cent.; negative, 16.7 per cent.

* From the Laboratory of Pathological Chemistry and the Department of Medicine, New York Post-Graduate Medical School and Hospital.

1. Van Slyke and Meyer: Jour. Biol. Chem., 1912, xii, 399.

2. Van Slyke and Vinograd: Proc. Soc. Exper. Biol. and Med., May 20, 1914.

NONMALIGNANT CASES EXAMINED

No. of Cases		Pos.	Neg.
2	Arthritis	0	2
1	Hodgkin's disease	0	1
5	Gastric ulcer	0	5
1	Ulcer of lesser curvature.....	0	1
2	Abdominal adhesions	2	0
5	Duodenal ulcer	0	5
2	Cholelithiasis	1	1
1	Gout	0	1
1	Pericolitis	1	0
4	Cirrhosis of liver.....	0	4
5	Colitis	0	5
3	Arteriosclerosis	0	3
2	Interstitial nephritis	1	1
1	Obstructive jaundice	0	1
3	Syphilis	0	3
1	Tuberculosis	0	1
1	Ileac stasis	1	0
40		6	34

Positive, 15 per cent.; negative, 85 per cent.

In all the cases tabulated the substrate used was obtained from carcinoma of the breast. All the cases, with a few exceptions, were tested in the laboratory of pathologic chemistry of the Post-Graduate Hospital, New York.

CONCLUSIONS

While the number of cases examined is small, nevertheless, I believe that if Abderhalden's theory should prove to be the correct one, the Van Slyke amino-nitrogen apparatus will give us more satisfactory results than the thimble method, for the following reasons:

- 1. The Van Slyke method is very accurate if performed properly.
- 2. The blood of the patient may be taken at any time, even shortly after meals. The addition of hemoglobin does not invalidate the test.

The percentage obtained in my series of cases should not be considered absolute, for we are unable to figure an absolute percentage on such a small number of cases. It would be preferable to have examined at least 500 cases before any definite percentage of results was announced.

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THE NECROPSY AS A PUBLIC SERVICE

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The very careful investigation of the subject of post-mortem examinations in the United States made two years ago by a committee of the New York Academy of Medicine¹ showed that of the seventeen large hospitals in the United States from which statistics were available for the years 1910, 1911 and 1912, the ratio of necropsies to deaths ranged from 7.3 to 62.7 per cent. In only four was the percentage above 25. As a reason for these very low percentages as compared with those of European hospitals, the committee states that "the main causes of the difficulties in obtaining permission for necropsies are due (a) to the ignorance on the part of the public of the importance of necropsies to science and therefore to the welfare of the people; (b) to the existing inadequate laws; (c) to the activity of undertakers and cer-

tain funeral societies; (d) to the inadequate rules of hospitals in this respect; and (e) to the claims of the department of anatomy."

While the foregoing are no doubt important deterring factors, I believe that much more important are (a) the lack of genuine interest in post-mortem examinations on the part of many physicians and surgeons, and (b) the lack of a commendably selfish interest in post mortems on the part of intelligent relatives of the dead.

Some physicians entirely lack an interest in necropsies because they are not interested in accurate vital statistics and in problems of heredity in disease, or because they do not appreciate the value of the necropsy in the correction of errors in diagnosis. Possibly some also hesitate to bring their diagnoses or operative procedures to the test of publicity in the necropsy.

Most intelligent laymen will respond to the argument that they ought to know the weaknesses of the members of their own families, but this argument is frequently omitted or greatly subordinated by the physician proposing that a necropsy be made. Usually necropsies are asked for as a favor to the physician, and rarely offered as a favor to the relatives.

The policy of the desirability of checking diagnoses and the results of operative procedures by the necropsy findings and of presenting to the relatives the desirability of their knowing the exact cause of death and the presence of intercurrent diseases has been followed out in the Mayo Clinic for many years. As a result, during the triennial period, 1910-1912, in 626 deaths, 512 necropsies were made, or 81.8 per cent.; in 1913 there were 269 deaths and 227 necropsies, or 84.4 per cent.; in 1914, 293 deaths and 258 necropsies, or 88 per cent., while to date (March 17) in 1915, there have been 73 deaths with 73 necropsies, or 100 per cent.

Of the hospitals surveyed by the committee of the New York Academy of Medicine, which have patients of about the same social conditions as those in the Mayo Clinic, the two in America showing the highest percentage of necropsies to deaths are the Johns Hopkins Hospital of Baltimore and the Royal Victoria Hospital of Montreal. During 1910, 1911 and 1912, the former had 346 post mortems, or 62.7 per cent. of its deaths, and the latter had 560 post mortems or 67.6 per cent. of its deaths.

NEED FOR NECROPSIES

At present our most accurate vital statistics concerning the cause of death from functional and chronic diseases are derived from the records of patients in charity hospitals. The charity patient, who for years has been examined and treated by physicians working in a public capacity before students, or at least using their knowledge for the teaching of students, as a rule receives thorough scientific diagnosis and treatment; and, supplementing this, the charity patient on whose body, in case of death, a necropsy is performed, is the subject of a death certificate which closely approximates the facts. But we must recognize that inferences drawn from statistics compiled from the records of great charity hospitals are apt to be more or less misleading when applied to specific cases in the estimation of family inheritance or life expectancy in the well to do. If Mendel's laws are of any value, forecasts of probable heredity can

1. Report of Public Health, Hospital and Budget Committee, New York Acad. of Med., THE JOURNAL A. M. A., June 7, 1913, p. 1784.

be accurately made only on a basis of accurately observed individual familial incidence.

In all those fields of investigation in which a knowledge of the exact cause of death is important, the necropsy stands in first place. Aside from the infectious diseases and accidents, most of the fatal diseases of mankind can be diagnosed with accuracy only after death by an examination of the body both grossly and microscopically. This is particularly true of the three diseases chiefly resulting in the death of adults; namely, tuberculosis, cancer and diseases presenting the cardiovascular renal syndrome.

In the consideration of facts in the family history, diagnosticians and life insurance examiners will agree that often the cause of death as stated by the patient is absolutely untrustworthy, not because of wilful deception on his part, but because neither he nor his physician nor anyone else really knows of what his ancestors died; and yet this is information which every intelligent man should have at hand. Every stock breeder tries to know not only the cause of death, but also the intercurrent diseases of every one of his pure bred animals that dies. In the same way nearly every intelligent man can be made to understand that he ought to know and has a right to know all the facts concerning the diseases of all the members of his family.

In the presentation of this argument to the intelligent layman, the obvious corollary is a frank admission on the part of the physician that he does not and cannot know everything about the diseases of every person, either by a clinical or a surgical examination. If quite honest, he must go further than this and acknowledge also that even after a post-mortem examination he cannot approach absolute accuracy until microscopic examination of the tissues has been made. He may say, however, in presenting the matter to the relatives, that his present knowledge from the clinical and perhaps surgical examinations goes about so far, that if he makes a careful post-mortem examination he will probably be able to extend that knowledge considerably by the study of the gross specimens, and that if in addition he makes a microscopic examination he may extend it yet further, though he must honestly acknowledge that there are cases in which, even after every possible examination has been made, the truth may yet lie beyond his ken. It is also necessary to present frankly the fact that it is not alone the general cause of death which he seeks to determine, but also—what is sometimes of much greater interest to himself and the relatives—the incidental occurrence of abnormalities or other diseases. In making such acknowledgment of our shortcomings in the matter of clinical diagnosis, it may not be amiss to refer to the experience of many good clinics in regard to inaccuracies of clinical diagnoses as revealed at necropsy. Without going into this matter in detail, a general survey of the statistics furnished from a number of large hospitals where patients had been under examination for a long time before death, seems to show that clinical diagnoses in carcinoma are correct in only about three-fourths of the cases, in tuberculosis in less than half of the cases, and in cardiovascular-renal diseases in less than 40 per cent. of the cases which come to necropsy. While it is not possible to raise the percentage of accuracy even by post-mortem diagnoses to 100, yet such great improvement is possible by the necropsy method that its advantages are incontestable.

CONSENT FOR NECROPSY

The average layman may know that "modern progress of medical science and the proper development of medicine in the future are closely correlated with the use of the cadaver for post-mortem examination," but he is not therefore sufficiently interested to permit a post mortem on the body of his relative. The matter must appeal to him personally. Some men may be made to feel that they are under obligation to give the attending physician a chance to review his ante-mortem observation. Some may be reached by the appeal that a post-mortem study of the cases in which they are interested may immediately help in the diagnosis or treatment of other similar cases; but the one argument which appeals most to intelligent men is that they ought to know exactly, not only the cause of death, but also the incidental diseases of every member of their families. If we can get this point of view to be taken by the relative, his ignorance of the importance of the necropsy to science, the existence of inadequate laws and hospital rules, the objections of undertakers and burial societies and the just cause of anatomists will all become as nothing and he will not only permit but will insist on a necropsy, and moreover, he will often demand a written report of the findings. It is to this commendable, intelligent self-interest that we should appeal in our arguments for necropsies. The most unyielding objections are based on mistaken religious scruples, yet even against these progress is possible and some of the clergy of the most conservative churches are now advising necropsies.

In relation to the details of presenting the subject of necropsy to the relatives of the deceased, there are many important points which are sometimes overlooked. One of the long-established customs we long ago found it necessary to correct was that of having anyone who chose to do so present the matter. We recognized that this must be done by one person only. It took more than a year in our clinic to change the customs of the institution so that the pathologist invariably should be called immediately on the death of a patient, and that he and he only should make any suggestions to the friends concerning the post mortem. It frequently happened in the early days that the good intention of sisters, nurses, surgeons or clinicians in broaching the subject resulted in a very positive refusal. Formerly it was difficult to get the undertaker to wait until the necropsy was made before beginning his operations. This was overcome by conducting the necropsy as soon as consent had been obtained, at any hour of the day or night. Most important is the establishment of a reputation for honesty and frankness in reports to the relatives. At the first interview, the place and time for a formal report, after the necropsy and preliminary microscopic examination have been made, should be arranged for.

For a time consent was obtained only by the chief pathologist; then in later years by the first assistant in pathology. More recently, the work has been turned over to the Senior Fellow in Pathology. This man must have been a graduate of a good medical school and have had one year in a general hospital before coming on service as a Fellow. He serves six months as junior, during which time he listens to his senior's requests for necropsies, but makes none himself except in emergencies. He then serves six months as a senior, during which time he makes requests. Of course, there is considerable difference in the per-

sonality of different men coming on this service, chosen as they are from all sections of the country and from different medical schools. The fact, however, that the necropsy service has not fallen below 80 per cent. in the last four years, is sufficient evidence that it is not all a matter of personality, but more largely a matter of training in placing proper arguments before the relatives.

IN THE POST-MORTEM ROOM

As soon as possible after consent for a post mortem has been obtained, the necropsy is made. This gives us a better knowledge of the condition of the body than is possible if a long delay has occurred. It gives better material for microscopic examination. It gives the undertaker a chance to do his work properly. The Senior Fellow is the chief operator at the necropsy, the Junior Fellow is his first assistant, and another Fellow in Pathology acts as clerk.

THE DEATH CERTIFICATE

The cause of death as stated in the usual death certificate is frequently inaccurate and often misleading. This is true in some instances even in which necropsies have been made. Many diseases, particularly the chronic infectious granulomas, neoplasms and those involving the cardiovascular and renal organs, require microscopic evidence before a correct judgment can be formed of the essential cause of death; but the death certificate must be signed before such a microscopic examination can be made. There is no provision for the correction of the original certificate after this further knowledge has been obtained. It would seem that in order to complete public records for statistical purposes a preliminary report might be made which should be sufficient on which to issue a burial permit, but that the final record of the case should have added to it any data which were subsequently obtained by the pathologic examination of microscopic sections, chemical analyses, etc. Such records, if made by competent and careful observers, would greatly increase the value of our vital statistics.

GIVING INFORMATION TO RELATIVES

It is futile to expect laymen to be interested in or to give consent for necropsies on the bodies of their dead relatives unless they are told honestly, fully and in simple language just what the findings are. If all pathologists would pursue this policy, not shrouding their work with mystery, but explaining everything in a perfectly matter-of-fact, business like way, being careful to make themselves clearly understood and being willing to spend considerable time with the relatives in elucidating not only the actual findings, but also the possible meaning of these findings to the family of the deceased, the public would soon come to realize the desirability of having necropsies performed. Also, there would be implanted a widespread knowledge of means of safeguarding against certain forms of disease, for example, tuberculosis, syphilis and cancer. Lessons mordanted in by grief sink deeply. We can do vastly more to spread a knowledge of disease in heart-to-heart talks with sorrowing relatives than we can by talking to the public in masses in lecture rooms when they would rather be at a moving-picture show. True, intelligent laymen, by reason largely of the campaign of education conducted by the American Medical Association and various boards of health, have already wide enough knowledge of cancer and tuberculosis so that the indolent physi-

cian may not with impunity "watch" such patients into the grave. It is to be hoped that the time will come when, similarly, laymen will have such a clear idea of the value to them of post mortems that the timid physician who does not offer his services for performing a necropsy will lose his standing with his patrons.

THE CLINICO-PATHOLOGIC CONFERENCE

After the death certificate has been signed and the friends told as accurately as possible what was found at necropsy, there yet remains the utilization of the material for clinical purposes and for organized research. It is our custom once a week to hold a clinico-pathologic conference on the post mortems of the preceding week. Gathered about a large table bearing the specimens are seated the physicians who have seen the case and such others as choose to come. The physician who made the clinical examination gives a brief summary of the clinical history and physical findings. If Roentgen negatives were taken, they are shown by the roentgenologist; if specific, luetic, hematologic, gastric or other tests were made, the results are described by the men who made them; if the patient had been operated on, the surgeon or his first assistant describes the operation and the operative findings. The clinician who had charge of the case after operation tells of the progress of the disease, especially noting the symptoms immediately preceding death. The pathologist gives a general description of the findings and demonstrates the gross specimens, supplementing this, when necessary, by microscopic slides or photomicrographs, usually of frozen sections. Following this is an informal discussion of the question-and-answer type of the case in all its bearings. Whenever anything of marked pathologic interest has been found and the time permits, there is a discussion of the disease and the findings in its broad general bearings, illustrated by specimens from other similar cases and microscopic slides or photomicrographs. The conference forms one of the most adequate means of correlating the clinical, surgical and pathologic aspects of disease.

ORGANIZED RESEARCH ON NECROPSY MATERIAL

Much of the organized research on pathologic material in the past has consisted largely of compilations of statistics of facts, form and numbers in gross pathologic anatomy. When consent for necropsy is obtained immediately after the death of the patient and the necropsy conducted as soon as possible, much of the material is still of value for microscopic examination. This is especially true when it is supplemented by pathologic material removed at operation and fixed when it is absolutely fresh. We follow the principle of making general microscopic surveys of all specimens obtained within a few days after their removal and of recording this data on the necropsy record. As a rule, study further than this is reserved for specific effort directed toward a particular organ or disease of an organ, and in connection with the study of the same organ or disease in the specimens removed at operation. Thus it will be seen that our general method of study is, (1) an intensive study of the case for the completion of the record from the purely pathologic point of view; (2) the broad correlation of all the different aspects of the case in the clinico-pathologic conference; and (3) the intensive study of some aspect of the case in relation to other cases of a similar nature.

A COMPARISON OF THE SWIFT-ELLIS
AND MODIFIED RAVAUT INTRASPINAL
INJECTIONS FOR SYPHILIS OF THE NERVOUS
SYSTEM

REPORT OF TWELVE CASES

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Since the introduction by Horsley¹ in 1910 of intraspinal irrigation with mercuric chlorid solution for syphilis of the nervous system, much has been done and written on this mode of treatment; but since Swift and Ellis² reported their technic and results with serosalvarsan injections for parasyphilis (now a misnomer) in 1912, there has been no progress as to simplification of technic. Clinical and serologic results have supported their claims as to the efficiency of the method and the freedom from danger in the hands of one who knows how. It is true that ill results have been obtained, but with the originators of the method it is the belief of men who have had any experience that the so-called later improvements and simplifications of technic have been responsible for them, and principally, I believe, the Ravaut³ method of direct injections of neosalvarsan.

It is the purpose of this paper to offer additional records tending to support the original method, and if possible to direct a more favorable impression among men who have had any hesitancy about employing this seemingly hazardous form of medication.

My experience comprises fifty-three injections in twelve cases. The technic employed has been the original or slightly modified Swift-Ellis in thirty-nine injections, and the Ravaut in fourteen. At first I employed 30 c.c. of the 40 per cent. serum in normal salt solution; later undiluted serum in quantities up to 22 c.c. In the employment of this method, after the first few injections it was unusual to have a temperature rise of more than one degree. Pains in the legs, headache and nausea occurred at times, often necessitating morphin, but these symptoms invariably disappeared in twelve to twenty-four hours. The Ravaut method as modified by Wile and later by Hall⁴ was employed fourteen times in six cases, four having received three injections each.

I have recently been injecting as high as 30 c.c. of undiluted serum at weekly intervals, with a more speedy response and no ill effects. The patient in each instance has been able to leave the hospital in twenty-four hours. This would seem to be an important pillar in the support of the Swift-Ellis technic.

REPORT OF CASES

CASE 1.—D. P. H., aged 49, with tabes of eight years' duration, came for aid because of lost bladder and rectal control and marked difficulty in walking; practically bedridden. He had received the usual forms of mercury, in addition to treatment at Hot Springs. In 1912 he had four injections of salvarsan with no improvement. He exhibited on examination Argyll Robertson pupil, absent knee jerks, Romberg and marked static ataxia.

Preliminary serologic examination, Aug. 2, 1914.

1. Horsley, V.: *Neurol. Centralbl.*, 1910, xxix, 1170.

2. Swift and Ellis: *New York Med. Jour.*, 1912, xcvi, 53.

3. Wile, U. J.: *The Technic of the Intraspinal Injections of Neosalvarsan in Syphilis of the Nervous System*, *THE JOURNAL A. M. A.*, July 11, 1914, p. 137.

4. Hall, G. W.: *Illinois Med. Jour.*, October, 1914.

Blood Wassermann negative.

Spinal fluid: Wassermann strongly positive, Nonne positive, cell count 33 per cubic millimeter.

Treatment.—Aug. 3, 1914, first intraspinal injection 30 c.c. 40 per cent. serum.

Aug. 11, 1914, second intraspinal injection, 30 c.c. 40 per cent. serum.

August 21, third intraspinal injection, 15 c.c. undiluted serum.

August 28, fourth intraspinal injection, 18 c.c. undiluted serum.

September 6, fifth intraspinal injection, 21 c.c. undiluted serum.

September 14, sixth intraspinal injection, 22 c.c. undiluted serum.

September 27, seventh intraspinal injection, 20 c.c. undiluted serum.

Results.—The Wassermann and Nonne became negative after the fifth injection, and remained so at the time of the last puncture, Sept. 30, 1915. The cell count dropped to ten after the second injection, after the fourth to three, and at the end of the seventh stood at five.

Remarks.—After each injection the patient was placed flat on his back. Pains in the extremities developed within three hours, requiring morphin, but disappeared over night. After the third injection the patient noticed that he no longer wet the bed at night. Likewise his rectal control was complete. When employing a cane his gait was excellent, and the hypotonicity of his legs, so apparent before treatment, was scarcely discernible. The patient was seen again three weeks after the last injection and felt no change for the worse, although he had stopped treatment entirely.

CASE 2.—J. A. C., aged 53. Tabes twelve years, chancre contracted twenty years ago. The patient complained of complete loss of sight in the left eye, rapidly failing sight in right and great difficulty in walking even with a cane; in fact, he had resigned himself to wheel-chair locomotion for six months. No loss in bladder or rectal control, no crises. He had had lightning pains eleven years previously. Accepted treatment with the hope of improving sight.

Serology of specimens taken at time of first injection, Aug. 3, 1914.

Blood Wassermann negative.

Spinal fluid: Wassermann positive, Nonne positive and cell count 22 per cm.

Treatment.—Aug. 3, 1914, first intraspinal injection, 30 c.c. 40 per cent. serum.

August 11, second intraspinal injection, 30 c.c. 40 per cent. serum.

August 21, third intraspinal injection, 12 c.c. undiluted serum.

August 28, fourth intraspinal injection, 16 c.c. undiluted serum.

September 6, fifth intraspinal injection, 20 c.c. undiluted serum.

September 14, sixth intraspinal injection, 16 c.c. undiluted serum.

September 22, seventh intraspinal injection, 16 c.c. undiluted serum.

Results.—The cell count showed a steady decline and at the last examination, Sept. 30, 1914, was 2 per c.mm. The Wassermann became negative after the fourth injection and remained so. The globulin excess disappeared after the sixth injection.

Remarks.—After each injection, in view of the symptoms, the patient was kept in the Trendelenburg position for sixteen hours with the hope of concentration by gravity of the medication in the upper cord region. Pains in the legs were insignificant at all times. Neither did the temperature vary half a degree, even when in one instance the serum showed distinct hemoglobin coloring. Although there has been no improvement in his vision, he has nevertheless not retrogressed. His gait was excellent with the use of a cane. When last seen, January, 1915, he was able to conduct his cigar store with no difficulty.

CASE 3.—J. M. F., woman, aged 55; tabes six years. Husband also had tabes, and died of some urinary trouble. Complains of marked gastric crises, and had become addicted to morphin therefrom. Has hypotonic gait; Romberg is present; knee jerks are absent; no impairment of sphincter control. Previous treatment consisted of mercury by inunction on and off for three years, and one intramuscular salvarsan injection in January, 1913.

Serology Aug. 12, 1914.

Blood Wassermann positive.

Spinal fluid: Wassermann positive, Nonne positive and cell count 54 per c.mm.

Treatment.—Aug. 13, 1914, first intraspinal injection, 10 c.c. undiluted serum.

August 20, second intraspinal injection, 14 c.c. undiluted serum.

August 28, third intraspinal injection, 14 c.c. undiluted serum.

September 6, fourth intraspinal injection, 18 c.c. undiluted serum.

September 13, fifth intraspinal injection, 16 c.c. undiluted serum.

September 22, sixth intraspinal injection, 15 c.c. undiluted serum.

Results.—The cell count after the first injection dropped to 16 per c.mm., and after slight variations was 2 at the last examination, Oct. 3, 1914. The Wassermann became negative at the fourth injection and the Nonne after the sixth.

Remarks.—Pains in the legs were severe after each injection, requiring morphin. There was also some headache and little nausea after the last three injections. It will be noticed that the injections were given at practically weekly intervals, and to this I attribute the good results. Gastric crises disappeared, and strangely enough so did the craving for morphin. The gait was practically normal and the general condition excellent. With the last examination the patient passed from observation.

CASE 4.—P. S., aged 48; tabes for seven years. Has difficulty in walking, loses his balance in stooping over, eyesight failing, difficulty in emptying bladder. Exhibits Argyll Robertson pupil, Romberg and Westphal phenomena. Had had no antisyphilitic treatment, since he had never suspected such an infection.

Preliminary serologic examination, July 25, 1914.

Blood Wassermann negative.

Spinal fluid: Wassermann positive, Nonne positive and cell count 26 per c.mm.

Treatment.—July 26, 1914, first injection intraspinally 30 c.c. 40 per cent. serum.

August 5, second injection intraspinally, 30 c.c. 40 per cent. serum.

August 26, third injection intraspinally, 15 c.c. undiluted serum.

September 18, fourth injection intraspinally, 20 c.c. undiluted serum.

Results.—The cell count showed little change until the third injection, when it fell to 12 per c.mm. At the last examination, Nov. 15, 1914, the cell count was 5, the Wassermann negative, although at the time of the fourth injection it was slightly positive. The globulin excess persisted.

Remarks.—Untoward phenomena after injections were moderate. Clinically, all bladder disturbance and gait impediment disappeared. Vision, according to the patient, was improved, although this is doubtful. It seemed that the Romberg was not so marked. The patient said he felt well enough to return to work.

CASE 5.—Fred H., aged 60, had tabes nine years. Almost total absence of vision, paradoxical urine retention, pharyngeal crises; unable to walk; poor nutrition. Exhibited absent knee jerks, Argyll Robertson pupils, marked static ataxia. Had taken only "patent medicines" for his ailment. This case was undoubtedly of a marked degenerative type.

Preliminary serologic examination, Oct. 12, 1914.

Blood Wassermann negative.

Spinal fluid: Wassermann and Nonne positive and cell count 24 per c.mm.

Treatment.—Oct. 16, 1914, first intraspinal injection, 16 c.c. undiluted serum.

October 30, second intraspinal injection, 20 c.c. undiluted serum.

Results.—The cell count after the second injection was 20, the Wassermann and Nonne remained positive.

Remarks.—Pains in the legs were moderate; vomiting occurred after the first injection; pharyngeal crises disappeared. The patient looked and felt better constitutionally. He refused to continue treatment.

CASE 6.—G. R., aged 45, had tabes two years. He complained of lightning pains in the legs, slight difficulty in walking and paresthesias; had had a probable Charcot knee three months prior to observation. Examination revealed an Argyll Robertson pupil, loss of knee jerks and Romberg. The patient wanted relief from his pains.

Serology, Nov. 3, 1914.

Blood Wassermann negative.

Spinal fluid: Wassermann and Nonne positive, cell count 66 per c.mm.

Treatment.—Injected intraspinally, 14 c.c. undiluted serum Nov. 5, 1914.

Remarks.—The patient suffered intense pain in the legs, requiring two doses of morphin. The temperature rose to 100.6 F. On the fourth day, however, his lightning pains had gone, and he felt so good that he remarked that he was well and needed no further treatment.

CASE 7.—F. C., aged 28; latent cerebrospinal syphilis, with an absence of symptoms, but positive findings in the spinal fluid. Had a chancre in 1911, when he had had two intramuscular injections of salvarsan. In 1912 he had three intravenous neosalvarsan injections, and mercury by inunction on and off for about a year. He discontinued treatment of his own accord when he was told he had a negative Wassermann on his blood, but returned at my suggestion for a spinal fluid analysis.

Examination Oct. 20, 1914.

Blood Wassermann negative (hemolysis slow).

Spinal fluid: Wassermann and Nonne positive; cell count 48.

Treatment.—Oct. 23, 1914, first intraspinal injection 16 c.c. undiluted serum.

Second intraspinal injection 6 mg. neosalvarsan in spinal fluid (Wile's method).

Results.—The Wassermann became negative, the cell count was reduced to normal, 5 per c.mm., but the Nonne remained slightly positive.

Remarks.—There was a little reaction after the Swift-Ellis method and none after the Wile.

CASE 8.—J. A. A., aged 32; latent cerebrospinal syphilis. Sore on penis five years previously, which was treated by chemical cauterization; antisyphilitic treatment instituted eight weeks afterward when he developed an eruption, and consisted of mercury by mouth for two months steady, and then iodids, and so alternating for two years. In 1912 he was advised to take salvarsan, because the Wassermann was still positive. He then took intravenous neosalvarsan monthly for four months, at the end of which time the Wassermann was still positive. He then discontinued treatment. He came under my observation Sept. 13, 1914.

Examination Sept. 16, 1914.

Blood Wassermann slightly positive.

Spinal fluid: Wassermann and Nonne positive, cell count 56 per c.mm.

Treatment.—Sept. 18, 1914, first intraspinal injection 12 c.c. undiluted serum.

Second intraspinal injection 4 mg. neosalvarsan in spinal fluid (Wile's method).

Result.—The blood and spinal fluid Wassermann became negative, and the cell count was reduced to the normal figure, 4 per c.mm. The globulin excess persisted, however.

Remarks.—After bearing the Swift-Ellis method of injection well, the patient developed a temporary paresis of the bladder and bad leg pains after the Ravaut method.

CASE 9.—L. R., aged 52 years, had tabes seven years; complained mostly of difficulty in walking, impotency and inability to control the bladder. Had had seven intravenous injections of salvarsan between January and June, 1914, and mercury by injection, with no clinical improvement.

Serologic examination, Nov. 12, 1914.

Blood Wassermann negative.

Spinal fluid: Wassermann and Nonne positive, cell count 46 per c.mm.

Treatment.—Nov. 14, 1914, first intraspinal injection 14 c.c. undiluted serum.

November 21, second intraspinal injection 18 c.c. undiluted serum.

December 2, third intraspinal injection 4 mg. neosalvarsan (Wile).

December 10, fourth intraspinal injection 4 mg. neosalvarsan (Wile).

December 17, fifth intraspinal injection 4 mg. neosalvarsan in 15 c.c. spinal fluid (Hall method).

Result.—Serology after the fourth injection yielded a negative Wassermann, a cell count of 6 per c.mm., and a positive Nonne. After the fifth injection the cell count rose to 28 per c.mm.

Remarks.—Clinical improvement was marked after the fourth injection, the gait was improved, there was a gain in weight of 10 pounds, and the bladder control was perfect. After the last modified Ravaut injection, the patient was confined to his bed, suffered intense pains in his legs, developed paresthesias, required bladder catheterizations, and had violent pains in his abdomen. The cell count and globulin increased. Further consultation was refused.

CASE 10.—K. G., aged 52, had tabes seven and a half years; chancre twelve years previously. Complained of uncertain gait and impotency. Had had mercury and iodids for his present condition for six months. The stigmata of tabes were present.

Serologic examination, Oct. 2, 1914.

Blood Wassermann not made.

Spinal fluid: Wassermann and Nonne positive; cell count 36 per c.mm.

Treatment.—Oct. 3, 1914, first intraspinal injection, 14 c.c. undiluted serum.

October 20, second intraspinal injection, 20 c.c. undiluted serum.

November 21, third intraspinal injection, 2 mg. neosalvarsan (Wile).

December 10, fourth intraspinal injection, 4 mg. neosalvarsan (Wile).

December 17, fifth intraspinal injection, 4 mg. neosalvarsan (Hall).

Result.—The serology after the fourth injection showed a slightly positive Wassermann, a cell count of 14 per c.mm. and a positive Nonne. After the fifth injection the Wassermann became strongly positive, and the cell count rose to 22 per c.mm.

Remarks.—Like Case 9, the patient was markedly improved constitutionally and felt natural, as he said. After the fifth injection, however, the condition became alarming, he was paralyzed, vomited quite a bit for the first twelve hours after the last injection, and was unable to empty the bladder. When last seen in February, 1915, he still complained of numbness in the legs, but the other symptoms had abated.

CASE 11.—M. D. F., aged 44, had tabes six years; no history of chancre. Had gastric crises and hypotonic gait, was impotent and had numbness in feet. Previous antisyphilitic treatment for present condition consisted of four intravenous salvarsan injections in 1913 and three in 1914. Stigmata of tabes were present.

Serologic examination, Sept. 26, 1914.

Blood Wassermann negative.

Spinal fluid: Wassermann and Nonne positive, cell count 28 per c.mm.

Treatment.—Sept. 27, 1914, first intraspinal injection, 12 c.c. undiluted serum.

October 4, second intraspinal injection, 14 c.c. undiluted serum.

October 20, third intraspinal injection, 18 c.c. undiluted serum.

November 14, fourth intraspinal injection, 2 mg. neosalvarsan (Wile).

November 25, fifth intraspinal injection, 2 mg. neosalvarsan (Wile).

December 10, sixth intraspinal injection, 4 mg. neosalvarsan (Wile).

Result.—Serology after the first five injections exhibited negative Wassermann and Nonne and a cell count of 5 per c.mm. After the sixth injection, the globulin excess reappeared and the cell count rose to 18 per c.mm.

Remarks.—This patient as early as the fourth injection was completely freed of his crises and was able to walk with ease. The numbness in his feet vanished. After the sixth injection, the pains in his legs became constant, had headaches, vertigo and paresis of the bladder. The cell count and globulin became pathologic again. The sixth injection was given with the idea of clinching his good status, and instead it was a month before he was in fair shape again. His bladder trouble persisted. There was no further examination made.

CASE 12.—P. H. R., aged 34; (latent) cerebrospinal syphilis; chancre two years prior to observation. Complained of frontal headaches and indefinite pains in the legs and abdomen. Antisyphilitic treatment was started in the secondary stage, with mercury by injections for one month, then iodids, so alternating for one year. Prior to consulting me, had had sodium cacodylate intraspinally weekly for his headaches.

Serologic examination, Sept. 4, 1914.

Blood Wassermann positive.

Spinal fluid: Wassermann and Nonne positive, cell count 50 per c.mm.

Treatment.—Sept. 7, 1914, first intraspinal injection, 12 c.c. undiluted serum.

September 15, second intraspinal injection, 16 c.c. undiluted serum.

September 27, third intraspinal injection, 16 c.c. undiluted serum.

October 10, fourth intraspinal injection, 2 mg. neosalvarsan (Wile).

November 7, fifth intraspinal injection, 4 mg. neosalvarsan (Wile).

November 14, sixth intraspinal injection, 4 mg. neosalvarsan (Wile).

Result.—Serology at time of fifth injection showed a negative Wassermann and Nonne and a cell count of 8 per c.mm. After the sixth injection, the cell count rose to 36 per c.mm. and the globulin excess was marked.

Remarks.—This patient, like Case 11, showed a marked recrudescence with the cumulative action of the neosalvarsan on the nervous system. Walking became difficult, he felt as though he were constantly walking on cotton, pains in the legs were unendurable, and catheterization of the bladder was necessary. These symptoms disappeared, however, in three weeks, when another spinal fluid examination showed a cell count of 22 per c.mm., and a positive Nonne, but the Wassermann was negative.

A review of these cases corroborates the findings of others, that markedly beneficial results have been obtained in cerebrospinal lues and tabes, subjectively and objectively, with concomitant serologic improvement. The easiest to respond clinically and serologically was cerebrospinal lues and then tabes. Serologically the cell count was invariably the first to improve, then the Wassermann and last the globulin reaction, which in some cases was persistently uninfluenced.

It is further noticed that invariably after the second Ravaut injection, the method brought forth unfortunate complications, due to the irritating action of the neosalvarsan on the nerve tissue. This to my mind would serve to condemn the method.

Although the patients treated have not been under observation long enough to determine whether the good results obtained will be permanent, it is my purpose to continue their treatment until definite stable results have been secured. Spinal fluid analyses will be made at six months intervals, or at shorter intervals in case of a clinical relapse, for a period of three years at least.

In view of the favorable results so far recorded in the literature, and in the absence of untoward symptoms when the original technic is employed, patients afflicted with lues of the central nervous system are entitled to intraspinal medication.

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THE TREATMENT OF PELLAGRA BY AUTOSEROTHERAPY

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Thirty years ago blistering was considered a very valuable therapeutic procedure in the treatment of pneumonia. Its beneficial action was at that time thought to be due simply to counterirritation. The physician of that day, however, in giving directions for producing an efficient blister, laid much stress on two points: first, a real blister must be raised, and second, it must not be broken. Why must a true blister containing serum be raised and why should the serum be kept from escaping if its whole effect was simply counterirritation?

In 1911 F. Maillet¹ and in 1913 M. Fishburg² each reported good results in pleurisy by reinjecting some of the pleural effusion. In 1913 B. Spiethoff³ reported eczema treated by reinjection of blood serum and Lewin⁴ gave a favorable report of the treatment of carcinoma by reinjection of acetic fluid from the carcinomatous patient. Prätorius⁵ in 1913 reported marked results in a case of pemphigus and recently Fox⁶ of New York has given a very favorable report of autoserotherapy in the treatment of psoriasis; other reports have been published from time to time and there seems to be plenty of evidence that autoserotherapy can be made a potent factor in the therapeutic management of our most baffling diseases.

In the light of our present knowledge of serotherapy it is our belief that the benefit derived from the old-time blister in pneumonia was not due simply to counterirritation but that its effect was due to antigens produced in the serum and reabsorbed, thus stimulating the production of antibodies.

Reasoning on this basis, we were led, in June, 1913, to try the effect of autoserotherapy in the treatment of pellagra. The first case treated was a colored boy, bedfast and in the last stages of the disease, but the beneficial effect of the treatment was so marked that we have tried it out carefully in seven cases with the most gratifying results.

CASE 1.—May, 1913: A colored boy, aged 10, with marked skin lesion of hands, forearms, feet and part of face. Patient had sore mouth and liquid stools daily. Was emaciated and weak, and confined to bed for several weeks.

After two injections the bowels became quite normal and patient improved so much that he returned home to San Antonio. It was impossible to continue the treatment of this case and we lost track of him.

CASE 2.—June, 1913: Mrs. J. B., white woman, married, no children, aged 35, refined, above average intelligence, from good family. Patient had diarrhea five months (diagnosed tuberculous). When seen by us there was a typical pellagra dermatitis over hands, forearms and sides of neck. She had a sore mouth and marked nervous symptoms. We treated her for two months with arsenic preparations and at first she improved, but later developed marked nervous and mental symptoms, typical melancholia. We then gave her autoserotherapy and she improved from the first dose. She received five doses and is to-day in better health than she has been for several years and no symptom of pellagra is present.

CASE 3.—May, 1914: Mrs. W., a white woman, of good family, married, aged 36, four children. Patient had dermatitis, diarrhea, sore mouth, head pains and nervous symptoms. Case was diagnosed as pellagra by Dr. S., a physician in San Antonio and patient was treated by injections of sodium cacodylate. There was considerable improvement for a time but later nervous symptoms became more marked and patient was sent here. We tried arsenic preparations with no apparent result and then used the autoserum. Improvement began at once, but every week or two she would have a nervous spell. At first these were severe melancholic attacks, but within six weeks all mental symptoms disappeared, she had gained 8 pounds and was feeling well except for slight nervousness at times. This patient remained under treatment three months and returned home, apparently as well as ever. In this case we found that small doses of Fowler's solution (3 drops after meals) for two days every two or three weeks seemed to increase the beneficial effect of the serum. We note that Fox has made a similar observation in his treatment of psoriasis.

CASE 4.—July, 1914: A white woman, aged 45, widow, one child. Patient was sent here from Austin for "nervousness." This case presented the nervous and gastro-intestinal symptoms in mild degree only, but her history of a previous dermatitis and sore mouth made a diagnosis of pellagra clear. It was not of the rapid, acute type, like Cases 1, 2 and 3, but the symptoms had been present for two years with fall and spring exacerbations.

After three weekly injections, this patient was so improved that she and her son took a tent and camped out near Kerrville during the summer and she returned home in the fall very much improved. We have now lost track of this case.

CASE 5.—July, 1914: A white woman, aged 25, was sent to Kerrville from Corpus Christi to aid convalescence from a protracted diarrhea. From history and clinical findings, diagnosis of pellagra was made and two injections given; patient was better but disappeared and we lost track of her.

CASE 6.—June, 1914: A white man, aged 35. Seen in consultation with Dr. C. C. Jones of Comfort, Texas. A perfectly typical, acute case of pellagra with very severe symptoms from the beginning. Dr. Jones gave this man six injections of autogenous serum at intervals of one week, and a few days ago showed us a letter just received from him in which he stated that he was perfectly well, all symptoms had disappeared and he had gained much in weight. He gave all the credit to the injections.

CASE 7.—November, 1914: Mrs. K., a white woman, aged 35, three children. Has had nervous symptoms for two years and came to the hospital for operation. Examination revealed typical dermatitis of pellagra on forearms, hands and sides of neck, sore mouth, marked nervous symptoms and head pains, but in this case there was a constipation instead of diarrhea as in all the other cases. This patient improved from the first injection but is still under treatment. The improvement has been most marked in the nervous symptoms.

1. Maillet, F.: *Gaz. d. hôp.*, March 25, 1911.

2. Fishburg, M.: *Autoserotherapy in Serofibrinous Pleurisy*, *THE JOURNAL A. M. A.*, March 29, 1913, p. 962.

3. Spiethoff, B.: *Med. Klin.*, June 15, 1913.

4. Lewin: *Therap. d. Gegenw.*, June, 1913.

5. Prätorius, P.: *Diagnosis of Anthrax from Spinal Fluid*, *München. med. Wchnschr.*, April 22, 1913.

6. Fox, Howard: *Autogenous Serum in the Treatment of Psoriasis*, *THE JOURNAL A. M. A.*, Dec. 19, 1914, p. 2190.

In fact we have noted in other cases that improvement was first seen in the nervous symptoms.

The foregoing list of seven cases is not a selected list, but includes all of the cases that we have treated by this method to January 1, 1915. Every one has shown improvement. Two patients, Cases 2 and 3, are well, having passed critical seasons without recurrence of symptoms. Two others, Cases 6 and 7, are to all appearances well, but they have not passed a spring and fall season yet to test the permanence of the cure. In Cases 1, 4 and 5, the patients, while much improved by the treatment, were lost track of.

Our technic in using autoserotherapy is simple, rational and effective. A piece of cantharides plaster $1\frac{1}{2}$ inches square is smeared with olive oil and placed on the chest at bed time. In the morning a blister will be raised. The plaster is not now removed but is simply lifted at an upper corner, and a hypodermic needle is introduced into the blister from the top. One c.c. of serum is withdrawn and injected into an arm. There should be no visible reaction.

In Case 3, we tried a 2 c.c. injection with the result that the symptoms were aggravated, and from our studies, 1 c.c. given once a week seems to give the best results. In the acuter cases, a shorter period may intervene between injections, but, on the whole, from five to seven day intervals seem satisfactory.

THE EMETIN HYDROCHLORID QUESTION IN THE TREATMENT OF PERIODONTAL DISEASES (PYORRHEA ALVEOLARIS)

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The claims which have recently been made, that endamebas are the cause of periodontal diseases (pyorrhea alveolaris) and the published reports of the successful treatment of cases by the use of emetin hydrochlorid, call for a better understanding of these lesions, and, also, of the conditions which can be accepted as a cure of them.

OPINIONS REGARDING ENDAMEBAS

There can be no doubt that endamebas are to be found in the majority of pyorrheal pockets, but the exact rôle they play in these locations is not yet definitely understood.

Bass and Johns¹ of Tulane University Medical College, who have recently studied these endamebas, state definitely that they are the cause of periodontal diseases. They base this statement on the fact that they have found endamebas in the deepest parts of these lesions, and have failed to find them in healthy mouths, and also that they notice a marked improvement in the appearance of the involved tissues when the endamebas have been destroyed by the use of emetin hydrochlorid. They say, "These endamebas are not known to live on open surfaces."

Smith and Barrett of the University of Pennsylvania, who have also carried on investigations along these lines, are less certain that endamebas are the cause of all pyorrheal lesions. Barrett says:² "It

should be stated here that none of those who have been engaged in this study have held or now believe that all cases of pyorrhea are due primarily or alone to the presence of the oral endamebae." He calls attention to the fact that they often contain a large number of bacteria, as well as remnants of leukocytic nuclei and erythrocytes. He also speaks of an improvement in the affected tissues after the emetin hydrochlorid treatment has been employed, and gives this as his chief proof in establishing the pathogenicity of these oral endamebas.

Angelo Chivero of the Royal University of Rome, after making a thorough study of oral protozoa, says that he has found *Endameba buccalis* in the pus of all pyorrheal pockets, but believes they may even be beneficial. He says:³ "The endameba has not a pathogenic action; on the contrary, as it feeds on bacteria, it is most probably an aid to the autodisinfection of the mouth." He also finds that they get into a state of encystment in the oral cavity, and, therefore, do not represent a stage in the development of either *Endameba histolytica* or *Endameba coli*. He has discovered endamebas in the materia alba which collected around teeth in healthy mouths where cleansing had purposely been omitted for a few days.

OTHER MICRO-ORGANISMS TO BE CONSIDERED

Whether endamebas play any part in causing pyorrheal pockets or not, one thing is certain: once these pockets are formed, they always contain several strains of micro-organisms living symbiotically. One of these, the *Treponema mucosum*,⁴ recently discovered by Noguchi of the Rockefeller Institute, deserves special notice. The organisms are small spirochetes which live anaerobically, are mucin-forming, and produce the odors which are characteristic of periodontal diseases. These facts have led Noguchi and others to believe that they cause these diseases.

Barrett,² after his extensive investigation as to the cause of periodontal diseases, still believes that pathogenic bacteria play an important part. Speaking of the *Endameba buccalis* in these lesions, he says:

There have been a few cases in which they have not been discovered, and in any case it would be illogical to deny associated importance to the myriads of other organisms which are also found in the lesion.

A BRIEF DESCRIPTION OF PYORRHEAL POCKETS

Whether or not the infection which commences in the gingival sulcus is entirely due to pathogenic bacteria or to endamebas, if it is permitted to continue, the pericemental fibers become detached from the cementum at that point; atrophic changes occur in the pericementum and the margin of the alveolar process is absorbed. As this detachment of the pericementum increases, portions of it are frequently destroyed. In these cases one may find exposed margins of bone in the deeper portions of the pockets. While these tissues are being detached from the cementum, the calcium salts which are held in solution in the blood escape from the broken vessels and precipitate on the surface of the cementum. Sometimes these calcic deposits form coarse, irregular nodules. In other cases they may be so thin and hard, and so thoroughly embedded into the porous surface

1. Bass, C. C., and Johns, F. M.: Pyorrhea Dentalis and Alveolaris, THE JOURNAL A. M. A., Feb. 13, 1915, p. 553.

2. Barrett, M. T.: Clinical Report on Amoebic Pyorrhea, Dental Cosmos, December, 1914, p. 1345.

3. Chivero, Angelo: Researches on the Entamoeba Buccalis, Dental Rev., December, 1914, p. 1133.

4. Noguchi, Hideyo: Treponema Mucosum, a Mucin-Producing Spirochaeta from Pyorrhea Alveolaris Grown in Pure Culture, Jour. Exper. Med., 1912, xvi, 194.

of the cementum, that it requires experience to detect them.

The atrophic changes which take place in the supporting structures when they become detached from the cementum, frequently leave a portion of the roots exposed to view, but in the majority of cases the tissues simply become separated, and form pockets of varying depths. A lesion of this character may develop on one side of a root while the tissues on the other side may remain almost normal. These pockets sometimes reach a depth of from 12 to 14 mm. beneath the gingival margin of the gum.

Periodontal diseases are so frequently met with that it is almost impossible to find an adult patient who does not show at least the incipient stages of them around some of his teeth. The insidious way in which they begin usually results in the formation of numerous pyorrheal pockets before the patient suspects that anything is wrong.

RESULTS SECURED BY THE EMETIN TREATMENT

The writers who advocate the use of ipecac or its alkaloid, emetin hydrochlorid, to destroy amebic life in pyorrheal pockets, all report considerable improvement in the involved tissues after the treatment has been employed. None of them, however, makes any claim that it removes the pockets. They casually mention in this connection such additional measures as the removal of calculus. The question at once arises as to whether it is the use of emetin or the removal of these deposits which has brought about the changed condition.

Bass and Johns,¹ describing the results they have secured by employing emetin hydrochlorid, say (p. 556): "After the endamebas have been destroyed by the emetin treatment, however, there are still left the lesions which will require days, weeks or months to heal." In explaining what they mean by healing, they say (p. 556):

It is an important question in this connection as to whether the periosteum or a substitute tissue can be regrown to fill the space between the root and the alveolar process after it has once been destroyed, even though we stop the destructive process. We have not seen any evidence that this can occur to any considerable extent.

Barrett² makes practically the same statement in reporting the results he secures from the emetin treatment, saying (p. 1349):

Of these seventy-three cases, all but one may be said to have been cured of pyorrhea, and to have now, as far as reexamination has been possible, the periodontal tissues in a good healthy condition. By this the writer means that the suppuration ceased after the use of emetin, and, with the few exceptions below referred to, has remained absent (at longest, thus far, for five months). The redness, swelling, bleeding and painfulness of the tissues have likewise disappeared; in some cases the pockets seem to have filled in with new tissues to a slight extent, although there is not apparent any growth of the gums about the exposed roots.

They frankly admit in these statements that the pockets still remain after the emetin treatment has been employed, and we know it does not destroy all of the bacteria; therefore, these bacteria must continue to endanger the health of the patients when carried by the blood stream from these foci to all of the tissues throughout the body. This systemic phase of the subject, however, must be reserved for consideration in a subsequent paper.

In fairness to these writers it should be stated that many of the leading dental authorities contend that it is not possible to secure a reattachment of these structures to the roots, as all of the tissues which would be necessary to take part in this reunion have been destroyed, and that, therefore, palliative treatment is all that can be given. This, however, is not the case, as will be shown later.

WHAT CONSTITUTES A CURE

It must be conceded that periodontal diseases are not cured until the pyorrheal pockets have been obliterated. This can be accomplished in but three ways: by the extraction of the tooth, by the removal of the separated supporting structures to the level of the floor of the pocket, or by the vital reattachment of these tissues to the cementum. It is the necessity of securing this reattachment that I wish to emphasize. I find that when correct surgical methods are employed the tissues not only form a vital reattachment to the roots of living teeth, but in the majority of cases the healing is of a rapid, primary character.

CONDITIONS WHICH PERMIT REATTACHMENT OF TISSUES

Nature requires the same conditions here which are necessary to permit a union of tissues to take place in other parts of the body. That is, tissues to be united must have freshly exposed, living cells on each surface, and these surfaces must remain in undisturbed contact for sufficient time to permit Nature to unite them. To produce these conditions, it would not be sufficient to destroy the amebic and bacterial life in these pockets, if such were possible, or even to add to this the removal of all of the calcic deposits from the cementum. What is necessary is first thoroughly to remove all of the calculus with surgical instruments, and then to scrape the cementum just enough to leave a freshened living surface. While it is absolutely necessary to secure this freshened surface on all of the involved cementum, great care should be taken not to scrape through the outer dense lamella and expose the lacunae in the deeper portions. This is an exceedingly delicate and difficult operation, because these surfaces are covered by the separated supporting structures and one must rely entirely on the sense of touch.

The inner surfaces of the separated soft tissues are usually in an unhealed, bleeding condition, and, therefore, no attempt should be made to increase this; on the contrary, extreme care should be exercised to prevent the instruments from lacerating or bruising them. When these precautions are taken, the natural contractility of the tissues holds them in that close relation to the roots which is necessary to permit the reunion to take place. Exposed margins of bone in the bottom of the pockets should be carefully curetted.

Attention must be called at this point to three valuable properties of the blood in the treatment of these chronic infections; it is cleansing, bactericidal and reconstructive. When the soft tissues are left in this close relation to the roots, it would be difficult to remove the loosened particles of calculus from the wound by washing. On the other hand, since liberated blood has the tendency to coagulate, it incorporates these loosened particles in the meshes of its fibrin and in this way it assists the instruments in bringing them to the surface. With this careful method of operat-

ing there is very little hemorrhage, but even this slight trace is sufficient for cleansing. Consequently, it is better not to wash the wound at any time after the operation is commenced.

One should avoid lacerating or bruising the separated soft tissues during the operation, in order that they may be left in a favorable condition for healing. When this precaution is taken, the patient experiences so little discomfort that anesthetics are quite unnecessary. Their introduction into the tissues hinders the process of healing. Antiseptics and germicides should also be avoided. It should be remembered that even a normal salt solution is not strictly isotonic to the exposed cells on which we rely for repair. We must then depend entirely on the bactericidal action of the blood and fixed cells to destroy the remaining pathogenic micro-organisms which our surgical work leaves in the wounds. We are dealing in these cases with chronic infections, where these organisms have lived for considerable time in close contact with unhealed tissues and open blood vessels. This has forced the tissues to fortify themselves with antibodies to meet the various strains of these invading organisms. I believe we have proof of this in the fact that if some of these pathogenic organisms were introduced into the tissues of one who had not previously been their host, a dangerous infection would follow; but, here, no increased infection occurs when they are carried deeper into the tissues by our surgical instruments. I also find that the inflammatory condition of the gums disappears within twenty-four hours after the operation and rapid healing ensues, if correct surgical assistance is given. This shows that a greater production of antibodies by stimulation with autogenous vaccines is quite unnecessary.

No polishing agents should be used around these teeth after the operation is performed, until the healing of the wounds has advanced sufficiently to tolerate it.

By avoiding the use of these agents, we permit the blood that is left in the wound to organize, and this plays an important part in the reunion of the structures. I have therefore called this "the blood-clot method," not because there is much hemorrhage, but because we carefully avoid destroying the clot.

This vital reattachment does not take place to the roots of pulpless teeth. The denuded portions of cementum in these cases could not continue to live after the pulps have been removed, as this shuts off the only remaining source from which they could receive nutrition. The tissues simply granulate and tighten around such roots, for living and dead tissues cannot unite. I also fail to secure this reattachment in cases in which the disease has penetrated the narrow bifurcation of roots at points where it is impossible to produce the necessary freshened surface on the cementum.

A case will serve to show the extreme possibilities which are offered to us by surgical treatment.

Mr. H., aged 35, presented himself for treatment in March, 1910. The gums had receded; all of the teeth were very loose; the lower right central incisor had been removed by his fingers; the lateral incisors could have been removed in the same manner; great quantities of pus constantly formed in the deep pockets around these teeth. A rapid reattachment of the tissues followed the surgical treatment and the teeth gradually became very firm. The rapid healing prevented any further recession of the gums. This patient spent a year and a half in Europe, during which time his teeth received no care beyond such cleaning as he was able to give them

himself. When he returned last January his gums were in perfect health. At the present time his teeth require no artificial supports, and are so firm that he can masticate the hardest kind of food with comfort.

CONCLUSIONS

It is necessary in the interest of science, that we study *Endameba buccalis* more thoroughly to determine, if possible, whether or not it is an etiologic factor in periodontal diseases.

More extensive experimental work should be carried on with the emetin hydrochlorid treatment in order that we may know whether the improvement which is noticed in the tissues is the result of the destruction of the endamebas by this agent, or due to the removal of the calcic deposits from the cementum.

The published reports of those who advocate the emetin treatment clearly state that although they have succeeded in destroying the endamebas, they have failed to obliterate the pockets which contained them. Periodontal diseases are not cured until the pyorrheal pockets have been entirely obliterated. It has been found that the separated tissues will form a reattachment to the roots of vital teeth when proper surgical assistance is given. This reunion removes all traces of the pyorrheal pockets.

Since this reattachment of the tissues can be secured to the roots of living teeth without the aid of endamebicides, it would seem that such healing does not depend on either the absence or presence of endamebas, but entirely on the character of the tissues and the thoroughness of the surgery.

ANATOMIC NOMENCLATURE

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On the various structures of the human body there has piled up such a mass of technical terms that the science of anatomy staggers beneath its own terminology.

The student who reads of the third eye, median eye and parietal eye readily learns that these three terms are given to the same structure. He soon finds that pineal body, pineal gland, pineal organ, parietal body, parietal gland, and parietal organ are six more terms used to designate the same structure. In the common textbooks he will find corpus pineale, glandula pineale, epiphysis and epiphysis cerebri, which are four more terms for the same structure. From his medical dictionary he adds to these conarium, pinus and penis cerebri. With these sixteen synonyms in mind he is prepared to read the English articles concerning this structure. If he wishes to gather what has been written by the French and German authors, he must at least double this number of synonyms.

This is only a typical illustration of the time and energy consumed in acquiring a working vocabulary. Contrast this condition with that found in electrical science, in which the student finds universal terms, such as ampere, ohm and volt.

Such a status is so harmful to teaching and so stifling to research that many attempts have been made to free the student, teacher and investigator from this incubus. Some progress was made by Henle, Gegenbaur, Krause, Sappey, Testut, Quain, Macalister,

Wilder and others. These individual efforts, however, have never obtained general recognition. It thus became more and more apparent that any list of terms must have more than individual prestige, and that some cooperative plan was necessary.

Such a plan was outlined by the German Anatomic Society at its first meeting in Leipzig in 1887, and its officers were requested to work out the details. The officers selected a revision commission which was enlarged from time to time, until it included the leading anatomists of the world. Those who took an active part in the work were von Bardeleben, Braune, Cunningham, Henke, O. Hertwig, His, von Kölliker, Kollman, Krause, von Kupffer, Lebocq, Merkel, von Mihalkovics, Rüdinger, Thane, Toldt, Turner, Waldeyer and Zukerkandl.

Certain limitations and fundamental principles were agreed on at the beginning; others arose as the work progressed. The work was limited to descriptive human anatomy, and further restricted to the names of those structures which can be seen by the unaided eye, or at most by the aid of a simple hand lens. Latin was adopted as the official language. As the work progressed, a number of rules were adopted, yet none became a rule without exceptions. The more important of these were the following: Each part to be named shall have only one name; the name must be grammatically correct; the name must be as short and simple as possible; the names shall be simply memory signs and need not be explanations. Related terms, as far as possible, shall be similar, for example, femur, arteria femoralis, vena femoralis, nervus femoralis. Adjectives, in general, shall be arranged with their antonyms, as dexter, sinister; major, minor; superficialis, profundus.

The commission, under the guidance of its editor, W. Krause, extended its work over a period of six years. From upward of 30,000 Latin terms about 4,500 were selected. Many of these terms could not be agreed on, either through correspondence or personal discussions, but had to be decided on the basis of special dissections. On one point the commission was unable to reach a conclusion, and this was concerning the retention of proper names. This was finally settled by including them in brackets following the objective names, thus leaving to time the final decision on this point. In some of the modern textbooks they are included. In the textbook by Krause, editor-in-chief of the commission, they are not included. When the list was nearly completed it was turned over to a special editing committee, consisting of His, Krause and Waldeyer. After each term had been subjected to a thorough reexamination by this committee, the whole list was presented for final criticism to the anatomic society at its annual meeting in Basle in 1895. After careful consideration it was finally adopted. It has since been known as the "Basle Nomina Anatomica," or by its official abbreviation, BNA. It was at once adopted by the great majority of European anatomists and has since been accepted by American anatomists. It is safe to add that the greater part of the anatomic literature of the world is accessible only to those who have acquainted themselves with the BNA.

During the twenty years since its adoption, each term has been carefully studied, and some pertinent suggestions have been made. Lesbre says that the terms should be applicable in comparative anatomy. Chaine would have the muscles so named that the

terms could be used in comparative myology. Braune suggests changing the names of the arteries of the hand and foot so that the names could be used for similar arteries in domestic animals. Some day we may be able to bring about these desired improvements, but this cannot be done until homologies are better known. The fields of comparative osteology and myology are still under investigation, while the unraveling of the homologies of nuclear masses and fiber tracts in the central nervous systems of vertebrates scarcely has begun.

Other suggestions have been made concerning the significance of certain terms. Von Bardeleben says that it is inconsequent to call the gland beneath the mandible "glandula submaxillaris," since it is obviously a glandula submandibularis. Austerlitz takes exception to the term "thalamus opticus," since it is no sleeping room; to "aquaeductus cerebri," since it contains no water. Had these names been changed by the commission why should they not have dropped "acetabulum," since it is no vinegar cup, "hippocampus," since it is not a sea horse, "zygoma," since it is not an ox yoke? "Plexus" lymphaticus is not a crazy plexus; "nervus pudendus" is not a shameful nerve. In short, any attempt to have substituted objectively correct terms would have been in direct opposition to the aim of the commission. Its aim was to select the most suitable terms from the many in current usage or from those which had previously been used.

Triepel, after carefully studying the BNA, suggests substituting certain terms for those adopted, namely: articulus for articulatio; bifurcus for bifurcatus; bipennis for bipennatus; dorsualis for dorsalis; glomeriformis for glomiformis; glomerulum for glomerulus; lumbaris for lumbalis; plicatura for plica. Were these changes made as suggested by Triepel, they introduce nothing more than a different spelling of the same words. On the whole, it may be said that the more critical the study of the BNA, the more apparent becomes its merits.

The question as to whether terms should be written in Latin or in the language of the author is a matter of choice. The commission expressly states that while its official language is Latin, it does not wish to impose the slightest restriction on the translation of these terms into any language. Anatomists, however, are using quite uniformly the Latin terms, and are thereby greatly facilitating the development of anatomic science through a common language.

Since the BNA has become the language of the anatomists, may they not hope for the cooperation of the clinicians in clearing the field of the thousands of useless synonyms? At the present day it is scarcely possible to find a students' textbook on any clinical subject which evinces the slightest concern as to the uniformity of its anatomic terms.

Several years ago Professor Barker of Johns Hopkins University made a most forceful appeal for the adoption of these anatomic terms. In order to facilitate their introduction, he reprinted the BNA, translated the terms into English, and gave the common English equivalents.

Despite the efforts to persuade the clinicians to adopt this language, little progress has been made. The words of Professor His of Leipzig to the anatomists in 1887 concerning their nomenclature might well be repeated to the clinicians of today: "An anarchy here reigns, under which teachers and pupils equally suffer, and which necessarily retards investigation."

CASE REPORTS OF SURGERY OF
THE SPLEEN

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The scarcity of case reports on splenic surgery has prompted me to report the following cases:

CASE 1.—*Abscess of the Spleen*.—Mr. E. L., Bessemer, Ala., aged 42, merchant, whose father had died of pneumonia, whose mother was living in good health, and who had four brothers living in good health, and one brother who had died of tuberculosis, never had typhoid fever or any other prolonged illness, and his past history was practically negative except for the usual diseases of childhood. He had syphilis twenty years ago. For the past nineteen or twenty years he has been a hard drinker. He has drunk daily in large quantities, and periodically has drunk to excess, has suffered from indigestion for the past fifteen years, has been a hearty eater, and vomits quite frequently early in the morning. In October, 1909, he had several chills followed by fever and excessive sweats. In November his condition became worse and he was compelled to remain in bed. His temperature, at that time, ranged from 99 to 102 F., and the pulse was about 100 with little variation. The doctor in attendance says he was never able to find him with a normal temperature. He ran a continuous fever for six weeks. He suffered with excessive headaches, but otherwise complained of no pain about the body up to this time.

At the end of the seventh week he complained of some pain in the splenic region. The Widal was negative. Three examinations were made. Bile cultures of the blood were also negative. An examination for the *Plasmodium malariae* was negative; the white blood count for some time ran about normal; a differential count showed a slight increase of the polymorphonuclear variety, and was not increased in the eosinophils. The pain over the area gradually became more severe since its onset.

The man was of a large frame and had possessed powerful muscles; his average weight had been about 240 pounds, but he showed a marked loss in weight; the skin was of a muddy color and his hemoglobin was about 70 per cent. An examination of his eyes showed that the pupils reacted to light and distance and that there was a considerable tortuosity of the veins in the eyegrounds. The lungs and heart were negative, the blood pressure 120. The liver was freely movable on inspiration and expiration, and seemed to be normal in size. There was no tenderness over the epigastric area, nor was it painful in this locality. The spleen was very much enlarged and quite tender (Jan. 5, 1910). As outlined by palpation and percussion, the upper border of dulness began at the lower border of the fifth rib in a midaxillary line and then followed a rather sharp curve inward and downward, crossing the margin of the ribs at the ninth costal cartilage; it continued thence in a straight line downward to a point corresponding to about 2 inches below the umbilicus, and thence across the ilio-costal space in a direction slightly upward and backward to the spine. From the uppermost point of dulness in the midaxillary line the organ extended posteriorly in a line slightly downward and backward to the spine. The spleen was not movable, or if so, slightly; the blood examination at this time showed white blood count, 12,000; red blood count, 4,300,000; hemoglobin, 70 per cent. Another Widal examination was made which was still negative, as also was the examination for malaria. The urine showed specific gravity 1.020, albumin, hyalin and granular casts, and no sugar. A diagnosis of abscess of the spleen was made, and operation advised, which was done Jan. 17, 1910. An incision was made over the mass external to the outer border of the left rectus muscle. The spleen was demonstrated and within this organ an abscess was found which contained about 500 c.c. of brownish pus, which was evacuated. There were also quite a number of large sloughs of the spleen removed from the cavity at this time. This large cavity bled quite profusely

following the relief of tension after escape of the pus. Several abdominal packs were placed in the abscess cavity to control this bleeding. Convalescence was rapid, and at the present time, five years since operation, the patient is in perfect health. The report of the bacteriologic examination of the pus made by Dr. McLester was as follows:

"Smears made from the pus show disintegrated tissue and a rather large number of cocci. These cocci are arranged in pairs and tetrads, and show no attempt at chain formation. A few were found within the polymorphonuclear leukocytes. These cocci take the stain by Gram's method. Inoculations on agar and on blood serum give most luxuriant cultures within twenty-four hours, grown either in the incubator or at room temperature. This growth consists of yellowish elevated, opaque, rounded colonies with sharply defined edges, and the appearance of the growth is practically the same on both mediums mentioned. There is no growth in ox bile. Microscopic examination of the growth shows it to be a pure culture of a coccus arranged in large masses and clusters; no formation whatever is seen. This organism takes the stain by Gram's method.

"Diagnosis: *Staphylococcus pyogenes aureus*."

CASE 2.—*Abscess of the Spleen*.—C. W. H., Bangor, Ala., white man, aged 67, farmer, weight 268 pounds, was referred to me April 1, 1912. His past history was negative except for chronic asthma for quite a number of years, which was accompanied by the usual bronchitis seen in these cases. His present illness began a few days before he was sent into the South Highland Infirmary. While walking through the field he was taken with sudden pain in the splenic region. He was carried to his home and his family physician called, who within a few days brought him to me.

He was a very large fleshy man. The heart was negative. The lungs showed a diffuse bronchitis, and he was suffering with an acute attack of asthma at this time. In the splenic region was quite a large mass which was quite tender on palpation. Blood examination revealed white blood count, 21,000; hemoglobin, 85 per cent.; blood pressure, 130. The urine contained albumin, and hyalin and granular casts. A diagnosis of abscess of the spleen was made. An operation was advised and the patient's friends informed of the risk attending this, owing to the general condition of the patient and the crippled condition of his lungs and kidneys. Under nitrous oxid and oxygen anesthesia an incision was made over the enlarged spleen, and after cutting through an abdominal wall about 6 inches in thickness, we came on a large accumulation of blood clot and serum, which after removal left quite a cavity. This cavity seemed to be within and posterior to the spleen. Several large packs were inserted into the cavity as the bleeding from the spleen was quite free after the blood clots and serum were removed.

The patient was returned to bed in good condition and his recovery was uneventful. It is now two years since operation and he is in good health.

CASE 3.—*Splenic Anemia*.—Mrs. T. J. R., white, aged 26, married, American born, entered the infirmary Nov. 5, 1911. Her father died when quite old of some unknown cause. Her mother died of congestive chill. Two brothers are dead; one died in infancy, the other through accident. She has eight sisters, all living and in good health.

The patient had jaundice when 4 years old, and a second attack two weeks previous to entrance into the infirmary. She does not think she ever had a spell of fever of any kind except following the birth of both of her children. Menstruation began at 14 years. It was regular, scanty and lasted for only one or two days; at this time she suffered quite a little pain. She has been married about five years, and is the mother of two children, the oldest being 3 years of age, the youngest 1 year. The labors were normal but were followed by infection each time which confined her in bed several weeks.

The present illness began five years ago with vomiting of blood, which was about a half a cupful. The blood vomited was very dark red. Since this time she had vomited blood almost daily in small quantities up to October, 1910, and since this time about once a month. She suffered no pain; the appetite was poor. The bowels moved from

three to five times daily; there was no blood in the movements. She suffered from nausea, headache and vertigo. She said her temperature was usually elevated in the afternoon. She had no cough.

Examination revealed a very frail, anemic woman whose skin showed a marked icteroid hue and one would think she had lost much flesh during the past few months. She said her weight now was 90 pounds, and that she had lost 25 pounds during the past year. Her lungs and heart were found to be negative. She had no enlarged glands in the neck. The thyroid was not enlarged. The tongue was very pale, and the gums and lips showed a marked anemia. The liver was uniformly enlarged but was freely movable on deep inspiration. The abdomen was much distended by a large tumor which occupied the left hypochondriac region, part of the epigastric, lumbar and the umbilical regions. The tumor was slightly tender from pressure and was fixed posteriorly. The inguinal glands were not enlarged. The patient's feet and ankles showed marked edema.

Vaginal examination revealed a retrodisplaced and fixed uterus which was quite tender. The urine showed a trace of albumin; otherwise it was negative. Blood examination, Nov. 5, 1911, revealed: white blood count, 5,850; red blood count, 1,776,000; hemoglobin, 25 per cent. (Sahli); color index, 0.89. Differential count revealed small lymphocytes, 30.6 per cent.; mononuclears, 20 per cent.; polymorphonuclears, 43.6 per cent.; eosinophils, 2.3 per cent.; mast cells, 0 per cent.; myelocytes, 3.5 per cent. On account of the long period of years covered by illness, the hemorrhages, etc., a diagnosis of chronic splenic anemia, or Banti's disease, was made and the patient was advised to stay in the infirmary in order to see if she could not be gotten in better condition for operation. She did not improve but seemed to grow worse.

Blood examination, Nov. 20, 1911, revealed: white blood count, 5,400; red blood count, 1,520,000; hemoglobin, 19 per cent. (Sahli instrument used.) Color index, 0.65. Differential count revealed: small lymphocytes, 22 per cent.; mononuclears, 20 per cent.; polymorphonuclears, 56.5 per cent.; mast cells, 5 per cent.; myelocytes, 1 per cent.

The patient was dismissed from the infirmary as an inoperable case, Nov. 26, 1911, a blood examination on this date showing the same as on the 20th. She returned home, and under treatment she improved to some extent and was returned for operation March 17, 1912. Her condition at this time was not good, but was somewhat more favorable for surgical interference. The blood examination at this time revealed: white blood count, 4,500; red blood count, 2,500,000; hemoglobin, 45 per cent. Her temperature on admission was normal, pulse 78, volume poor. The urine contained albumin. She was prepared for operation for the following morning, and under nitrous oxid and oxygen anesthesia the very large spleen was removed. It weighed 48½ ounces. Many adhesions were encountered and the bleeding gave some trouble, but the patient left the operating table in good condition. The temperature rose at once to 103.8, pulse 132, but they both came down to normal in a few days. For some days the patient would have a distinct rise of temperature, but the pulse remained normal or nearly so, even when one of the sharp rises of temperature would indicate that we had trouble.

The blood picture after operation was interesting (Table 1). The examination was by Dr. McLester.

The characteristic blood findings in splenic anemia are a leukopenia and anemia of the secondary type.

The patient was dismissed from the infirmary April 14, 1912, very much improved.

January, 1913, a report from the patient was to the effect that she had gained about 30 pounds and that her health was perfect.

Pathologic Report (by Dr. James S. McLester).—The spleen weighs 48½ ounces and measures 10¾ by 6½ by 3½ inches. Its surface is smooth and glistening and is perhaps a little darker in color than the normal spleen.

The fibrous capsule is very much thickened. The cut surface shows very distinctly the fibrous trabeculae. Micro-

scopic examination shows the greatly thickened capsule and some, though not marked, increase of the fibrous reticulum.

No proliferation of the endothelial cells can be noted. The malpighian bodies, while smaller than usual, are well preserved.

The most striking feature of the microscopic picture is the great number of eosinophils. These cells are very frequent and are scattered evenly throughout the tissue. An average of about eight is seen to the field (section of 6 to 8 microns, Winkel 3 mm. objective and No. 3 ocular).

The great number of eosinophils suggests Hodgkin's disease. On the other hand, the clinical history, the complete absence of glandular enlargement elsewhere, the increase in the fibrous elements and the absence of endothelial growth point to the splenomegaly seen in Banti's disease. In the light of our knowledge, I think we are forced to place this spleen in the latter class.

TABLE 1.—BLOOD COUNTS IN CASE 3

3/21/13	White blood count.....	11,200
	Red blood count.....	11,900,000
	Hemoglobin	45 per cent.
	Differential count 500 cells counted.	
	Polymorphonuclears	75 per cent.
	Small mononuclears	9 per cent.
	Large mononuclears	3 per cent.
	Eosinophils	12 per cent.
	Transitionals	0.3 per cent.
	Nucleated reds	0.4 per cent.
3/29/13	Basophils	0.3 per cent.
	White blood count.....	18,000
	Red blood count.....	3,000,000
	Hemoglobin	55 per cent.
	Differential count 500 cells counted.	
	Polymorphonuclears	78 per cent.
	Small mononuclears	15 per cent.
	Large mononuclears	1 per cent.
	Transitionals	1 per cent.
	Eosinophils	5 per cent.
4/ 8/12	White blood count.....	37,700
	Red blood count.....	3,500,000
	Hemoglobin	70 per cent.
	Differential count 500 cells counted.	
	Polymorphonuclears	86 per cent.
	Small mononuclears	11 per cent.
	Large mononuclears	1 per cent.
	Eosinophils	2 per cent.
	White blood count.....	17,000
	White blood count.....	10,000

CASE 4.—*Splenic Anemia*.—F. D., man, aged 26, born in Sicily, with negative family history, had been a farmer by occupation. He had been a hard worker. He never used alcohol. He had always been a hearty eater. He came to America two years ago. His past illness had consisted in periodic attacks of malaria. As a young man in Sicily he had a spell of fever lasting about four weeks. Six years ago he was rejected by the military authorities in his native country on account of a large tumor in the left side. Up to this time the patient said he knew nothing of the existence of a tumor. He thought that he had had smallpox at 19 years of age. He said that he had been growing weaker for years, but consulted a doctor only two months ago for severe pain in the left side over the region of the tumor. This pain would run upward toward the left shoulder. The bowels moved regularly. He had had occasional small hemorrhages from the bowels which he supposed to be "internal piles," and also one or two hemorrhages from the lungs.

On examination the patient's lungs and heart were found normal. The liver was very slightly enlarged and freely movable. There was no tenderness over the gallbladder or appendix. The kidneys were normal. A large mass could be felt in the left hypochondriac region, which also extended deeply into the left lumbar region. The mass could be seen to glide under the anterior abdominal wall on deep inspiration and expiration, but seemed to be firmly fixed posteriorly and quite tender on palpation and percussion. The urine was negative. Taking into consideration the blood picture and history, a diagnosis of Banti's disease of splenic anemia was made and operation advised.

Operation and Result.—Under gas-oxygen anesthesia an incision was made beginning under the costal region near the ninth costal cartilage and extending downward and outward for about 8 inches. The enlarged spleen was exposed.

Externally many adhesions were found to exist between this organ and the abdominal wall, and on breaking these up a pocket of pus was found. The adhesions throughout were found to be plentiful and the bleeding very troublesome as every denuded area seemed to weep blood. Where the adhesions were broken up between spleen and lateral abdominal wall, it became necessary to leave in two abdominal packs in order to control the oozing. The pulse rose from 50 to 140. Epinephrin was given while the patient was on the table, and continued after he was removed to his bed. Camphorated oil and strychnin were also given.

The patient had marked cyanosis for ten hours after operation, and oxygen was given continuously during this time. The foot of the bed was elevated and other measures for shock used. His convalescence was uneventful except for two elevations of temperature due to formation of stitch abscesses.

The spleen weighed 56 ounces. The report of Dr. J. S. McLester on the pathologic findings was as follows:

"The organ is firmer than normal, cuts very hard, is normal in color and has a greatly thickened capsule. In the interior of the organ is a cavity about the size of a hen's egg. Smears made from the contents of this cavity show softened splenic pulp and pus. Cultures made from this gave the typhoid bacillus in pure culture.

"Microscopic sections made from the organ show great increase in the size and number of the fibrous trabeculae. The fibrous framework seems to be enormously hypertrophied. The parenchyma cells are increased in size and number, and the glomeruli can be distinguished only with difficulty. Irregularly defined patches of pigmentation are seen. There seems to be some swelling and proliferation of the endothelial cells of the cavernous veins.

"Diagnosis: Chronic interstitial splenitis."

The blood picture of this case is interesting (Table 2).

TABLE 2.—EXAMINATION OF BLOOD IN CASE 4 BEFORE OPERATION

Aug. 23, 1909:	
White blood count.....	1,700
Red blood count.....	2,400,000
Hemoglobin	50 per cent.
Aug. 26, 1909:	
White blood count.....	1,800
Red blood count.....	2,400,000
Hemoglobin	45 per cent.
Blood pressure	115
Malaria	Negative
Widal	Negative

Unfortunately the record of differential count before operation was lost; therefore it cannot be given accurately and is omitted from this report.

TABLE 3.—EXAMINATION OF BLOOD IN CASE 4 AFTER OPERATION

Aug. 28, 1909:	
White blood count.....	1,700
Red blood count.....	2,850,000
Hemoglobin	60 per cent.
Polymorphonuclears	64 per cent.
Large mononuclears	7 per cent.
Small mononuclears	12 per cent.
Eosinophils	17 per cent.
Blood pressure	95
Sept. 1, 1909:	
White blood count.....	25,800
Red blood count.....	2,940,000
Hemoglobin	70 per cent.
Polymorphonuclears	68 per cent.
Large mononuclears	11.5 per cent.
Small mononuclears	6.5 per cent.
Eosinophils	14 per cent.
Blood pressure	120
Sept. 3, 1909:	
White blood count.....	12,000
Red blood count.....	4,000,000
Hemoglobin	70 per cent.
Polymorphonuclears	88 per cent.
Large mononuclears	4 per cent.
Small mononuclears	4.5 per cent.
Eosinophils	3.5 per cent.
Blood pressure	115
Sept. 11, 1909:	
White blood count.....	14,000
Red blood count.....	4,200,000
Hemoglobin	75 per cent.
Polymorphonuclears	72 per cent.
Large mononuclears	5 per cent.
Small mononuclears	20 per cent.
Eosinophils	3 per cent.

Sept. 15, 1909:	
White blood count.....	17,500
Red blood count.....	2,240,000
Hemoglobin	75 per cent.
Polymorphonuclears	71 per cent.
Large mononuclears	7 per cent.
Small mononuclears	18 per cent.
Eosinophils	4 per cent.

Sept. 30, 1909:	
White blood count.....	14,000
Red blood count.....	4,520,000
Small mononuclears	14 per cent.
Large mononuclears	9 per cent.
Polymorphonuclears	74.5 per cent.
Eosinophils	2.5 per cent.
Hemoglobin	85 per cent.

Oct. 10, 1909:	
White blood count.....	8,000
Red blood count.....	5,000,000
Hemoglobin	90 per cent.

April 15, 1910, about eight months after operation, the patient was in perfect health, had gained 53 pounds in weight and was at work as a day laborer.

In March, 1911, the patient returned for operation for hernia which had occurred through the drainage track. The hernia was repaired and the patient made a nice recovery, leaving the infirmary on the fourteenth day.

In April, 1914, the patient was still engaged in hard labor, and was perfectly well.

1127 South Twelfth Street.

LEAD NEURITIS FROM COSMETICS

WITH REPORT OF TWO CASES

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ST. LOUIS

It has long been known that lead salts in face powder could cause lead poisoning, and indeed, as early as 1881, Holland,¹ in the report of a case to the Kentucky Board of Health, says that "Flake White (lead carbonate) as a cosmetic has caused every form of chronic lead poisoning." Although this seems to be well known, the relative infrequency with which it is diagnosed leads one to believe that it must be often overlooked. We all have seen cases of gastrointestinal disturbance of obscure origin which subsided without any treatment whatever; likewise, jaundice with crampy abdominal pain, where the "gallstone attack" subsided in an unaccountably short time and no gallstones were ever passed. Is it not possible, therefore, that this condition is not so rare as it may seem, but owes its rarity to failure in diagnosis?

It is with this in mind, that I wish to call attention to the following two cases:

CASE 1.—E. F., an unmarried white woman, aged 21, with a negative family history, had had the usual diseases of childhood; typhoid and pleurisy in later life. Had no bad habits and had never used liquor or alcoholic drinks in her life.

Present Trouble.—Up to four years ago patient had always been in perfect health. At this time she was working in a down-town business office, when she was suddenly seized by violent abdominal crampy pains which completely incapacitated her for work. The attack was precipitated by ingestion of "very green" apples so that the true cause was obscured. For three weeks she was confined to bed with pain of griping nature in the pit of her stomach, succeeded by severe cramps in both big toes, which finally extended to calf and thigh muscles. After this attack had subsided, she resumed her work, but one week later had another similar attack. At this time she became intensely jaundiced, with pain localized in the right hypochondriac region. She was sent to the hospital for gallstone operation but refused at the last minute. No gallstones were ever passed, and she left the hospital in about three weeks.

1. Holland, James W.: Legal Medicine, Peterson and Haines, ii, 384.

From this time on she had periods of confinement and convalescence lasting from three weeks to three months. Twice she was proposed for gallstone operation, once for appendicitis, and once for exploratory laparotomy.

She first noticed pain and tingling in extremities and loss of power in hands and wrists one year after the first attack. These pains and weakness grew worse with each succeeding attack until the fingers were so retracted into the palm as to make extension entirely impossible. She finally became so bad that she could neither walk nor care for herself in any way and was admitted to the hospital May 20, 1914.

Physical Examination.—Patient is well developed but rather poorly nourished and extremely anemic. She is confined to bed and is hyperesthetic; evidences much pain on even the slightest pressure over extremities. Special sense organs negative. Blue "lead line" over three teeth very pronounced. Heart, lungs and abdomen negative. The upper extremities show marked atrophy of the muscles, especially in forearms and hands. Extension of hands at wrists entirely impossible. Grip of both hands good but only when extension is assisted. Pain on pressure over nerve trunks. Elbow and wrist jerks gone. Reaction of degeneration present. The lower extremities show no paralysis and power is fairly well preserved but there is considerable atrophy of the thigh muscles. Pain on pressure over nerve trunks, but not so marked as in arms. Knee jerks and ankle jerks present and active on both sides. No abnormal toe reflexes.

Diagnosis.—At this late stage diagnosis of peripheral neuritis from lead poisoning was evident. The patient was questioned closely regarding hair dye, filled teeth and even as to local conditions such as lead smelters in vicinity, water supply, etc. Finally she admitted that for ten years she had been using "Flake White" (lead carbonate) as a face powder. This was mixed with glycerin and applied so as to make a smooth velvety coating over the face. No other source of lead could be found. Stipple cells were found in the blood in great numbers and her anemia was so profound that the average red count was 2,750,000. Urine showed a small amount of albumin and casts, and the reaction of degeneration was present in muscles of both forearms and hands.

Treatment.—Practically the only treatment instituted was the withdrawal of "Flake White" as face powder and use of massage to the affected muscles. In seven days all stipple cells disappeared from the blood, and in six months the patient had gained 30 pounds; red blood count was 4,000,000, and the wrist drop had entirely disappeared, the only permanent injury being that there was inability to abduct both thumbs, and albumin and casts continued in the urine.

CASE 2.—Mrs. J. S., white, aged 50. The family history was negative. The patient had had the usual diseases of childhood but was always fairly healthy in adult life, never had rheumatism or any rheumatic tendency. Never used alcoholic drinks. Always was accustomed to "making up" and used all sorts of "beautifiers." Had used "Flake White" face powder for some ten years. Her average weight up to the present was about 160 pounds.

Present Trouble.—When first seen in January, 1907, patient had had for three years numerous attacks of abdominal pain, with cramp-like pains in muscles, and at times was jaundiced. She was operated on for gallstones and several stones were removed, but in spite of this she showed no decided improvement and the attacks of colicky pain continued. Eleven months later she developed extreme sensitiveness on pressure over nerve trunks of extremities, and loss of power in forearms and hands.

Physical Examination.—This showed an adult woman in a bad state of nutrition; musculature poor and patient very anemic, slightly jaundiced and totally confined to bed. Her weight at this time was 93 pounds. Special sense organs were negative. Blue "lead line" was present on both upper and lower gums, lungs were negative but the heart showed an ill-defined murmur along left border at right of sternum, thought to be hemic. The abdomen showed nothing of special interest.

The upper extremities showed extreme atrophy of forearm muscles and a typical wrist drop; pain on pressure over

nerve trunks and a hyperesthesia. Wrist and elbow jerks were absent. The lower extremities showed atrophy and pain on pressure but little or no paralysis. Knee and ankle jerks were still preserved and there were no abnormal toe reflexes.

Diagnosis.—The diagnosis of a peripheral neuritis from chronic lead poisoning was made on the presence of the lead line, wrist drop, pain on pressure over nerve trunks, colicky pains and anemia. Patient was questioned as to water supply, newly painted rooms, etc., but no source of poisoning could be found other than the Flake White she had used as face powder for ten years.

Treatment.—"Flake White" was withheld as a face powder and the magnesium sulphate, potassium iodid and strychnin treatment was instituted. In a period of seven months she gained nearly 100 pounds in weight, some 33 pounds more than her average weight. Her anemia grew less pronounced and she recovered completely from her wrist drop.

One year later patient was again seen, and this time for a "cold." Her true condition was a mild hypostatic congestion of the lungs, edema of extremities and shortness of breath. The heart was enlarged, there was a systolic murmur at the apex and an aortic systolic blow. She responded to digitalis and remained perfectly well for four years. At this time she again began using some sort of a French "face salve" (the identity of which has been lost) and developed again cramp-like pains in the legs. On discontinuing the use of the salve recovery was prompt. It was followed shortly, however, by a severe break in compensation which resulted in her death six months later from acute cardiac dilatation. The urine at all times was negative.

These two cases are of interest since they show the ill and even fatal effect intoxications of such an obscure nature may have. Indeed, one must consider that "out of the thousands of girls who use it" (as one of the patients expressed it) there must be more untoward effects which are not such evident causes of lead poisoning and are consequently overlooked. It may explain some instances of obscure conditions for which we find no cause. Patient 1, before her condition became quite evident, had had seventeen different diagnoses and been proposed for operation four times. It seems altogether wrong that a preparation which can produce such awful results should be sold to the laity at all, but to be dispensed without a poison label seems criminal. One patient asserted that in the ten years she had been buying it, only once did it bear a poison label, and the sample she gave me for examination was not so marked.

The report of Dr. G. Wilse Robinson² presents two similar cases with more happy results, but which nevertheless show the possibility of subjecting patients to unnecessary operation, and prolonging invalidism by failure to recognize the existing intoxication.

3545 McKean Avenue.

2. Robinson, G. Wilse: Lead Poisoning from the Use of Cosmetics, THE JOURNAL A. M. A., March 6, 1914, p. 814.

Infant Mortality in New York State.—The report of the state health commissioner, Dr. Hermann M. Biggs, shows that for the year 1914, the first year of the working of the new public health law, the infant death rate dropped from 137 per 1,000 births to 112 per 1,000. This means an actual saving of over 1,400 infants' lives. The educational campaign by which this was effected cost the state \$14,500. Forty-five cities were visited and 150 popular health lectures given. Leaflets and pamphlets to the number of 75,000 were distributed. The total death rate for New York City for 1914 was 14.0 per 1,000 population, while for the entire state, including the Greater City, it was 14.6. The birth rate for the entire state was 23.7 per 1,000 population.

CLINICAL OBSERVATIONS ON THE
CONTRACTILITY OF THE HEART

MAX B. LEVITON, S.B., M.D.

CHICAGO

That after exercise the normal heart occupies a diminished area has long been known (Herschfelder). The use of this fact in the estimation of pathologic heart muscle values is of the greatest importance and has been strangely neglected. Guthrie¹ has shown the clinical value of this property of the heart muscle. He measures the cardiac condition by the duration of dilatation of the auricles after coughing, until the heart returns to normal boundaries by virtue of the basic property of all heart muscle, that is, contractility. It should be recognized, however, that both tonicity and contractility are intermingled and inseparably concerned in such tests of cardiac soundness.

The method with which the present paper deals is contrary to the generally accepted dogma that the heart dilates after exercise, especially in pathologic conditions. But on the contrary, after *moderate* exercise there is nearly always a reduction in size, sometimes marked, sometimes very slight, and on occasions not at all, which can be made to disclose whether we are dealing with "new rubber or old, worn out and rotten rubber."

After exercising by alternately raising and lowering the arms until the patient is only *moderately* exhausted, say from thirty to forty times, not only is the pulse rate taken (as is commonly done), but also the transverse diameter and the heart tones are compared, before and after. If too greatly exercised, the heart may show a dilatation, instead of a contraction.

I have found this especially valuable in differentiating between organic and functional disorders, a distinct "murmur" or combination of bruits often being replaced by the normal or nearly normal heart tones, after exercise, as the following case shows:

CASE 1.—A boy, aged 11, came to the office, December 12, with marked albumin in the urine. The heart boundaries extended transversely one-quarter inch to the right border of the sternum to one-half inch to the left of the nipple line. The heart tones were a loud systolic bruit at the apex and a clear presystolic at the mitral and tricuspid areas. The arterial pulse was comparatively full, all through systole and diastole.

On exercise the heart contracted to the normal boundaries and the sounds became clear and normal (except for accentuation of the second aortic).

After rest in bed with restricted diet, the patient showed, December 14, two days later, a urine free from albumin and a heart almost normal.

Here the prognostic value of this sign is self-evident. The following case shows a pretty contrast:

CASE 2.—A boy, aged 10, was seen at home, January 31. He had had a bad productive cough for two weeks. There was a mucopurulent, tenacious sputum. The tonsils had been removed two years previously. The patient had alveolar abscesses. He had been in a hospital two years previously for some chest trouble. He was now gaining weight; the appetite was good; the bowels were regular; sleep was good; the urine was negative, with no sugar or albumin.

Examination of the teeth revealed pyorrhea. The throat was normal. The cervical glands were palpable. Reflexes were normal. Lungs: The left upper lobe showed organic

change (dulness, etc.), but von Pirquet and sputum proved negative. Blood pressure was 80 to 85. Heart: The boundaries extended one-half inch beyond the normal on both right and left borders. An undulating wave was seen over the cardiac area. There were no murmurs. There was slight bruit after exercise. *However, after exercise, there was no appreciable reduction in the size of the heart.*

February 5 the cough was much better. The blood pressure was 105. The heart boundaries showed only a slight reduction; there was a slight systolic bruit at apex.

Here was a heart at least seriously, perhaps permanently damaged which on exercise displayed only a small reduction in area.

The foregoing are typical selections from a number of clinical cases.

CONCLUSIONS

1. The contractility of the heart muscle varies within wide limits, depending on the pathologic process.

2. This can be fairly well estimated clinically, and is a valuable differential and prognostic sign. The findings on auscultation and percussion vary after exercise.

3. Heart muscle may react in three ways:

(a) In functional and early lesions, the heart boundaries may on exercise return immediately to normal, bruits disappear and normal tones at once replace them.

(b) In moderately severe cardiac (and particularly cardiorenal) cases, the boundaries may return to normal, not immediately, but after rest in bed. (The heart may be enlarged and yet retain elasticity.) Should a heart respond at once, even moderately, we may expect at least better response after rest in bed.

(c) The heart remains permanently enlarged and inelastic, not only after the exercise test, but even on prolonged rest in bed.

3401 Douglas Boulevard.

ANGIOMA RACEMOSA OF THE PIA

WITH EPILEPTOID CONVULSIONS OF THE
JACKSONIAN TYPE

THOMAS J. ORBISON, M.D.

LOS ANGELES

In the light of the information obtained at operation and necropsy, this case possesses unusual interest.

History.—Man, aged 30, married, clerk, with no history of any familial or hereditary taint of any kind, had always been in good health up to the beginning of his present trouble. Early in 1906, he first noted a spasmodic movement of his right arm that involved only the shoulder and upper arm. After the first attack, there were recurrences every few months which would last but a few moments and then entirely disappear. The slight spasm in the arm and shoulder was the only symptom. Up to Sept. 4, 1908, there was no disturbance of sensation of any kind, or any interference with consciousness during any of the attacks. On that date, following the usual tremor, he had his first general convulsion with unconsciousness. He did not have a second grand mal attack until October, 1909. In 1910 he had three severe attacks, in June, July and October, the last one keeping him in bed three days. In 1911, he began the use of amyl nitrite and carried the pearls with him. For some time these were able to abort or lessen his attacks. During the last year and a half the attacks had come with greater frequency and force, so that in the last month they had come almost daily.

Headache and vomiting had not been symptoms up to July 6, 1914 (two weeks before). Eight days before he had a

1. Guthrie, J. B.: Cough-Dilatation Time a Measure of Heart Function, THE JOURNAL A. M. A., Jan. 3, 1914, p. 30.

prolonged spell of vomiting and since then constant and intense headache. At the beginning of every grand mal attack he had a sensation as though there was a constriction about the right wrist that had severed the hand, and as though he could feel the blood running up his arm.

Every attack began with a rhythmic abduction of the right arm, together with some flexion at the elbow. These movements were slow at first, but became rapidly quicker and stronger, until they merged into a general convulsion. The preliminary twitchings constituted the only prodromal symptoms, as there were no visual, aural or epigastric sensations to usher in the attacks. There had been no complaint of any gastro-intestinal disturbances, and his appetite was good. He had noticed that his right arm and leg tired easily, and after a long walk he would drag the leg.

Examination.—There had been no gross mental defect; but, according to his wife, his personality had changed greatly; for instance, he had become greatly dependent on her when any decision was required or problem was to be considered. He had lost his snap and vim. At times, he became childishly irritable and querulous. Otherwise, there had been no symptoms of mental disturbance.

Station with eyes closed was slightly unsteady, with a tendency to sway to the left side (this was not very pronounced). His gait was not abnormal in any way. His speech had never been interfered with, and there was no involvement of any area supplied by the cranial nerves. Sensation for touch, pain and muscular sense had not been disturbed anywhere.

The reflexes did not give much information, except that the knee jerk and Achilles jerk were more pronounced on the right side than on the left. The biceps jerks were equal and there was no Babinski on either side. The abdominal and cremasteric reflexes were present on both sides.

When he stooped over, he experienced pain in the head; this had been more pronounced of late, and interfered with such postural movements as untying and removing his shoes.

The result of the examination of the eyes (Dr. Mansur) proved to be very interesting. The pupils were equal and reacted to light and in accommodation. Both fundi were normal, there being no papilledema or optic neuritis. There was no fault of vision in either eye.

The fields for form and color were very much contracted on both sides, but the color fields on the right side were more contracted than those on the left. In addition to this, the blue and red fields interlaced on the right side and were inside the green, whereas on the left side, the red was innermost and the blue the outermost.

Examination of the spinal fluid (Dr. Brem) gave a negative Wassermann and a one plus positive butyric acid test. The cell count was 32 mononuclears for 1 c.c. The cerebrospinal fluid was under a pressure of 165 mm.

The diagnosis was cortical irritation on the left side of the cerebrum, small in area and probably soft in texture, and situated at the center for the shoulder and upper arm. Considering the length of time since the first signs of cortical irritation began (eight years) and the absence of papilledema, pupillary inequality, headache, vomiting and other distressing symptoms of brain tumor, it seemed rational to believe that the cause of irritation was not a large, hard tumor, especially as the focus of cortical irritation had remained in the center for the upper arm and had not invaded other areas. The moderate intraspinal pressure seemed to add weight to this idea. No diagnosis was made as to the exact nature of the growth.

Operation.—Inasmuch as his convulsive seizures were becoming so frequent as totally to incapacitate him for his work, and because of the beginning symptoms of headache, vomiting and mental incapacity, surgical interference was advised and carried out by Drs. E. C. Moore and Van Kaathoven.

An opening was made over the arm center in the left side of the skull. Directly in the middle of the field the dura was seen to bulge in an irregularly rounded area having a diameter of 3 cm. When the dura was opened, two loops of engorged and tortuous blood vessels sprang up

from their former position. They did not pulsate and their color looked redder than their fellows. They seemed to emerge from the cortex at one point and disappear into it at the distance of 1 cm.

The two loops were nearly 3 cm. apart, and between them the blood vessels were a darker blue, engorged and widened, but did not take on the almost erectile appearance of the loops. The pia was opaque and bluish throughout the affected area. There was no hemorrhage from any of these vessels, and the whole field was plain and clear. The appearance of the field was very similar to that of a case described by Fedor Krause¹.

Following Krause, the offending vessels were ligated and excised. There was no tumor mass, as such, and the only sources of irritation found were the two loops described and evidences of an old pial inflammation.

A curious circumstance, in the light of the operation and post-mortem findings, was the absence in the history of any data that would lead one to suspect inflammatory areas in the meninges.

The operation did not last long, and hemorrhage during it was not excessive, but the patient did not survive it quite two days.

Necropsy.—This revealed some most unexpected findings. There were numbers of old inflammatory areas in various places, as evidenced by adhesions between dura and pia.

At the apex of the left cerebral hemisphere, and seeming to impinge on the motor cortical center for the foot was a discolored area that felt more dense than the surrounding brain. Section revealed what looked like a hemorrhagic infarct about the size of an English walnut. This had the appearance of an embedded venous angioma. It was a mass composed of enlarged and engorged blood vessels which were filled with old blood. There was no capsule and no definite line of demarcation between it and the surrounding brain. This, and the areas of inflammation, were unexpected, as the history of the case gave no evidence of any symptom or physical signs which would lead one to suspect them.

The cortical area nearest to the hemorrhagic mass was likewise nearest to the cortical motor centers for the right foot. The body of the mass was close to the mesial surface of the left hemisphere and did not seem to impinge on the arm center. There had never been any spasm of the right foot or leg, except when the convulsions became general. In the light of necropsy findings, it is considered good reasoning to impute some of the general nervous imbalance to the presence of this apparently silent mass. But the fact remains that none of the focal symptoms seemed to be caused by either this hemorrhagic mass or the areas of old inflammation.

All the focal symptoms were accounted for by the evident and satisfactory lesions found at the time of operation over the cortical motor centers for the right arm. It is an interesting speculation as to what symptoms, if any, would have remained in the event of the patient's recovery from the operation, and, also, what cause would have been considered in the event of a continuation of old symptoms, or the appearance of new ones. The necropsy showed a perfect result in the surgical field of operation, as far as this could be judged under the circumstances. There were no other abnormalities found than those noted above.

The lesson of this necropsy, as of so many necropsies, seems to be that we are not always able to diagnose plural and more or less complicated or combined etiologic factors in apparently simple cases. In passing, it might be added that in many cases *sui generis* such inability is pardonable and proper.

1219 Brockman Building.

1. Krause, Fedor: *Surgery of the Brain and Spinal Cord*, i, 87-88, and Plate VIII.

INFANTILE HEMIPLEGIA

A CASE WITH UNUSUAL ONSET AND OBSCURE
ETIOLOGY

HAROLD W. WRIGHT, M.D.

SAN FRANCISCO

Cases of hemiplegia in young infants and children following traumatism at birth or later, or following convulsive attacks from any cause, are frequent in the literature. The following case, however, appears unusual because of the absence of known cause and also by reason of the gradual onset of the hemiplegia with intermittency of the initial symptoms, because of which brain tumor and tuberculoma were considered as causative lesions.

History.—The patient, a male infant of 19 months, was brought to me Dec. 1, 1914, because of paralysis of right side. Both parents were intelligent. Insanity, syphilis and tuberculosis were denied. The maternal grandfather had been alcoholic. The mother was alcoholic. The child was the first born, was delivered without any difficulty, and appeared quite normal at birth. A few days after birth a petechial eruption was noticed on trunk and limbs. This eruption subsided in a day or two. The child was nursed at the breast for four months. Then cow's milk, half strength, was given. This disagreed at first, but later the child digested it well. There had been no infectious diseases. At one time recently the child bled rather profusely from a very slight cut. Otherwise he had been entirely well. The first tooth appeared at 7 months without trouble.

Present Illness.—While cutting a tooth, Aug. 24, 1914, the child was found to have a partial paralysis of the right side of mouth, right arm and leg. This occurred or was first noticed on the child's awaking in the morning after a quiet night without any convulsion being noticed. The following day the paralysis disappeared almost entirely, the only residual of it being a tendency to fall more easily than formerly.

September 13, three weeks after the initial symptoms, there was a recurrence of paralysis, first in the right arm and hand; there were clonic movements on right side, a temperature of 99.5 and loss of appetite with vomiting once. No sensory disturbance was noted. After a week, without any further symptoms, the paralysis had disappeared; meanwhile the child had cut some teeth.

October 24, almost six weeks after the second attack, a return of weakness was noticed on the right side. This again disappeared in two or three days.

November 14, the child had an attack of diarrhea. This lasted several days. November 25, the patient seemed to have difficulty in seeing his toys and frequently turned his head to the right as if to see better; there was also some difficulty in swallowing. On this day the paralysis on the right side returned, with twitching of the facial muscles of the right side.

Examination.—Dec. 1, 1914. This revealed a well-nourished child of normal development. The fontanel was closed. There was a spastic paralysis of the right arm and hand and the right leg and foot; the arm was much more spastic than the leg. There was a weakness of the lower facial muscles on the right, especially marked when the child laughed, but not evident when he cried. The Babinski reflex was positive, and the patellar tendon reflex was increased on the right. There was no sensory disorder or ataxia. The pupils were unequal; the right was larger; both reacted well to light. The action of the external ocular muscles was normal. The examination of the fundi of the eyes showed pallor of the optic disks, the left more so. These findings were interpreted by the ophthalmologist as evidence of previous choked disk.

The urine showed a great excess of indican and uric acid, but was otherwise normal. The blood showed no abnormal-

ity, the Wassermann also being negative. The temperature was 98.6 and pulse 120, respiration 28. Spinal puncture was made but was not successful. The child was fretful, and had green stools of a pronounced odor.

Subsequent History.—On the morning of December 2, after a quiet night, the patient had a series of tonic convulsions recurring about every five minutes between 8:30 and 9:30 a. m., and involving both sides of the body. Thereafter the focal symptoms remained as before the convulsions. The general symptoms after the convulsive seizure consisted only in a rise of temperature to 100.5, pulse 158, respiration 38. These symptoms subsided the next day.

After colonic irrigation and castor oil with cereal diet for a week, the child's restlessness was much less. There was no return of convulsions and no apparent blindness. At no time was the child in stupor and at all times appeared very intelligent and observant. After two weeks without additional symptoms, the patient was discharged to the care of the parents. At this time the spasticity of the leg was very slight; there was a little voluntary motion in both directions (flexion and extension) at the ankle joint; the arm was more spastic but less so than two weeks previously, and there was considerable voluntary motion at shoulder and elbow, the fingers being more involved in the spastic paralysis than any other part. The paralysis of the face was still evident when the child smiled. A von Pirquet test before discharge proved negative.

COMMENT

It seems most probable that the lesion causing the right hemiplegia of the upper neuron type was a hemorrhage from the lenticulostriate artery into the middle portion of the left internal capsule and lenticula, with subsequent clot formations causing pressure of varying degree and finally destruction of some of the fibers; possibly the hemorrhage was of a recurrent type, recurring at each attack of paralysis. That the clot by pressure on the optic tracts or interference with the circulation in the optic nerves was the cause of the findings in the optic fundi is a reasonable supposition.

Since no convulsion was observed prior to the hemorrhage, it is justifiable to assume that the child had a hemorrhagic diathesis which became aggravated by the digestive and nervous disturbance accompanying the cutting of teeth. An acute encephalitis with thrombotic or hemorrhagic lesions following it might explain the case, but the presumption is against this because of the apparently restricted area of brain tissue involved.

Tumor or tuberculoma are excluded by the subsequent course of the disorder.

Physicians Building.

OVARIAN CARCINOMA IN A CHILD AGED ELEVEN

VAN BUREN KNOTT, SIOUX CITY, IOWA

Carcinoma of the ovary occurring at the early age of 11 is extremely unusual. The following brief history is of such a case. No effort has been made to include either a summary of the cancer problem in general or of the literature pertaining to the case in particular.

The patient, Gladys C., aged 11, a schoolgirl, had a negative family history. Her mother stated that she had always been an unusually healthy, vivacious child; had suffered from the ordinary diseases of childhood but had never been seriously ill.

April 3, 1910, she was brought to St. Joseph's Hospital by Dr. J. F. Taylor, who stated that he had first seen the child the day before, when she was complaining of severe abdominal pain not localized. This pain had been present for three days, before which time she had been feeling perfectly well. There was no menstrual history. Examination showed a well-nourished girl with rosy cheeks and unusually well developed for

her age. Examination everywhere was negative with the exception of the abdomen, where the palpating hand at once encountered a large movable tumor, which rose from the pelvis to the level of the umbilicus. This tumor occupied the median line, but could be easily displaced to either side. It was quite tender on deep pressure and fluctuation could not be elicited. When the tumor was displaced to the left, marked tenderness was found in the right inguinal region over the appendix, with rigidity of the right rectus.

The diagnosis was of tumor of the left ovary, with subacute appendicitis.

Operation was performed April 4, 1910. Through a median incision, the tumor was at once exposed. It was found to consist of the left ovary, which together with the tube was easily removed, as it was at no place adherent. The appendix was found somewhat distended and acutely inflamed, and was removed. There was no free fluid within the peritoneal cavity and the peritoneum everywhere was glossy and apparently normal. No lymphatic involvement or evidence of disease elsewhere within the cavity could be discovered.

Convalescence following the operation was entirely uneventful. From April until the following February, the child seemed well; had no pain; gained in weight and stature and was noted for her happy, fun-loving disposition. Early in February she began to complain of vague abdominal pain, which was not at all constant. Soon her appetite which had been as her mother said, "enormous," began to fail, until by the first of March she could scarcely be induced to take food. Dr. Taylor saw her about this time, but could, on physical examination, detect nothing pointing toward recurrence. She continued to lose weight and strength and became very irritable. There was no constipation or vomiting. About April 1 some abdominal distention was noticed, which steadily increased. The pain by this time was becoming more constant and severe.

April 19, she was again brought to the hospital. Examination revealed marked emaciation, an anxious, drawn, facial expression, and marked abdominal distention, evidently due to a large amount of free fluid within the cavity. In short, the familiar picture of recurring malignant disease within the peritoneal cavity.

Operation was again performed April 20, 1911. When the abdomen was opened through a median incision, a large amount of straw-colored fluid escaped. Scattered throughout the cavity were nodules involving parietal peritoneum, visceral peritoneum, intestine and mesentery. These nodules were hard and irregular in outline. The ileum was adherent in many places and at each point of adhesion was a large nodular mass. The mesentery was filled with large nodular growths. The upper abdomen was involved as well, nodules being present in the liver and stomach. As relief was out of the question, a large mesenteric nodule was removed for examination and the abdomen closed.

The child failed steadily following the second operation. The abdomen rapidly refilled with fluid, emaciation became more marked, pain required frequent administration of anodynes and death occurred thirty-six days following the second operation. No necropsy was permitted.

The tumor was given to Drs. F. S. Johnson and W. G. Rowley of this city, who reported as follows:

"The specimen is a large cystic tumor weighing 3 pounds, 2 ounces. It is ovoid in shape and nodular in contour showing beneath the peritoneal surface many cysts varying in size from 2½ inches in diameter down to microscopic size. The contents of these cysts are not uniform, and vary from a thin mucin-like fluid to a thick heavy yellow content that has proved to be degenerated broken-down tissue. Attached to the tumor is a Fallopian tube very much elongated and overdeveloped for an eleven year old girl. Accompanying the large tumor is an appendix from same subject as the large tumor. There are irregular nodular masses of tissue projecting above the surface of the tumor and into the cyst cavities. Sections made of appendix show no disturbance in the epithelium or the connective-tissue stroma. A round-cell infiltration with dilatation of tissue spaces showing inflammation are the only departures from normal. Sections made of the Fallopian tube show no

pathologic deviation from normal. Sections made from many portions of the large tumor show a connective-tissue stroma rich in blood vessels and supporting areas of hyaline cartilage, groups of glia cells, strands of smooth muscle fibers, tubules lined with stratified columnar cells, cyst-like spaces filled with mucin-like contents and areas showing mucoid degeneration. Sections from one of the node-like projections into cyst space, show the columnar epithelium lining the tubules to be breaking through basement membrane and invading neighboring connective tissue and blood vessel walls. In one field, an artery of considerable size is plugged with proliferating epithelial cells. Diapedesis of red blood cells and infiltration with round cells is a noticeable feature in almost all sections examined.

"Our diagnosis is: Teratoma in a state of carcinomatous degeneration."

The small nodule removed at the second operation was examined by Drs. Johnson and Rowley, who reported as follows:

"On April 21, 1911, a small tumor ½ inch in diameter was handed us for microscopical examination and diagnosis. It was soft, friable, bloody, looking much like a blood clot. Section showed it to consist of a stroma of connective tissue with a rich network of blood vessels and supporting groups of columnar epithelial cells. Some were simply nests of proliferating columnar cells, while in other fields quite regular looking glands lined with stratified columnar epithelium were noted. A most extensive diapedesis of red cells was everywhere to be seen. Diagnosis: Carcinoma secondary to ovarian tumor removed one year previous."

The one slide preserved from sections taken from the growth removed at the second operation has been examined by Dr. E. R. LeCount whose report follows:

"The tumor is malignant and most like the proliferating cyst adenomas of the ovary. It belongs to the carcinoma group and in these sections as in those from one or two similar growths (they are very rare in young girls), also in young girls, I have found some changes or appearances indicating some small, but close relationship to the so-called teratomatous growths."

The subsequent history of the case together with the gross appearance of the abdominal contents at the second operation, when a condition of typical general abdominal carcinosis was found, coupled with the report of Drs. Johnson and Rowley concerning the microscopic diagnosis of the tissue removed at that time, would seem to justify the diagnosis of teratoma or embryoma of the ovary undergoing carcinomatous degeneration.

Added to this is the fact that the metastases took place by way of the lymphatics and were most extensive in distribution. As a point of further interest it might be added that had the child not suffered an attack of acute appendicitis, the pain arising from which attracted the attention of her parents, this tumor would doubtless have much longer escaped detection.

Treatment of Hemorrhage by Blood Transfusion.—A baby, 16 months old, was admitted to Murray Hospital July 22, 1913. For a week black and blue spots had been appearing on its body. Ten hours before admission to the hospital it began bleeding from the nose, and the hemorrhage was uncontrollable even after packing the nose with cotton pledgets saturated with epinephrin chlorid. There was a constant oozing of a thin bloody fluid from the nasal mucosa, but no single point of bleeding was visible. In the mucous membrane of the mouth there were punctate and larger hemorrhages, the entire body was covered with hemorrhagic spots of various sizes, and the stools were black from the large proportion of old blood; the child was nearly exsanguinated. Ten c.c. of the father's blood was withdrawn from the basilic vein and injected into the buttock of the child. The hemorrhage ceased within half an hour and the child slept most of the following night. The hemorrhagic spots were slowly absorbed, the stools also gradually becoming normal. There has been no recurrence of the condition.

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heated to permit bending, as spring brass cracks and breaks instead of bending at acute angles. The end of the clamp is so constructed that it will allow free play in its move-

ment over the corrugations except when there is some pressure underneath the curved portions of the clamp, at which time it should catch and hold firmly.

The paper inset is best made of No. 160 oiled paper, cut to size and folded to fit the tray. All its sides are folded $1\frac{1}{2}$ inches from the edge of the paper, and the corners turned to one side or the other.

The tray is simple in construction, costs very little and can be used indefinitely, as there is nothing that requires special attention. The only things that might possibly need replacing are the brass clamps, which can be turned out by any laboratory technician. The paper insets can be folded by hand or can be supplied in quantities at little cost by some paper box manufacturer.

Though from a sanitary standpoint no special advantage can be claimed for this tray over the ordinary piece of board, newspaper and nails, always used in bacteriologic laboratories, yet the tray described acts as a much better piece of apparatus for purposes of demonstration, and adds to the general neatness in laboratory technic.

RETAINING CLAMP FOR A TWO-PIECE TRANSFUSION TUBE

BERTRAM M. BERNHEIM, M.D., BALTIMORE

Instructor in Clinical Surgery, Johns Hopkins University, Medical Department

Three years ago (*THE JOURNAL*, April 6, 1912, p. 1007) I devised an emergency two-piece transfusion tube which has fulfilled every prediction—so much so that I now use no

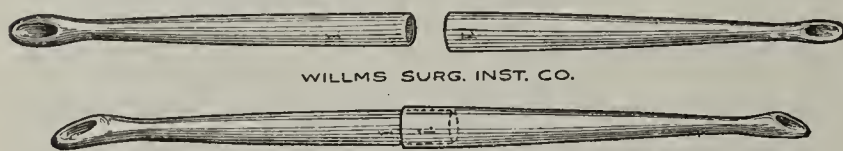


Fig. 1.—Two-piece tube.

other method of direct transfusion. But it is troublesome and a bit time-consuming to place the tie that retains the tubes in their respective vessels; and, in spite of the fact



Fig. 2.—Retaining clamp.

that the heaviest silk is always used for this purpose, some one usually contrives to break it just when speed is most desirable.

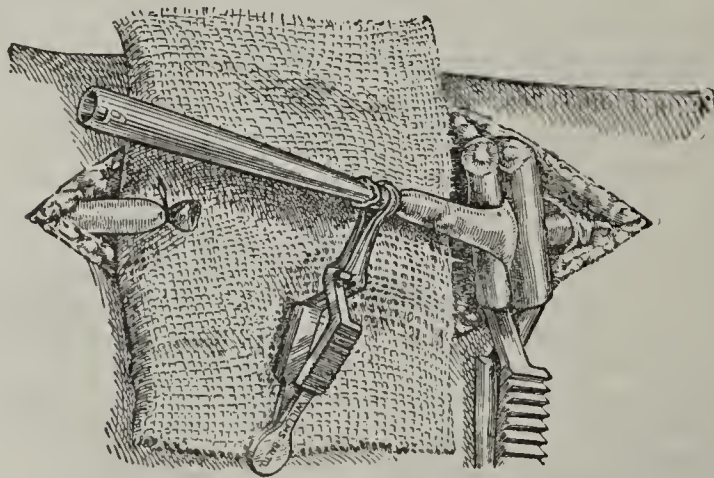


Fig. 3.—Retaining clamp in use.

To avoid this contingency, I have devised a retaining clamp for the tubes. Description is rendered unnecessary by the illustrations. It is sufficient to relate that one-half of the tube is inserted into the radial artery of the donor

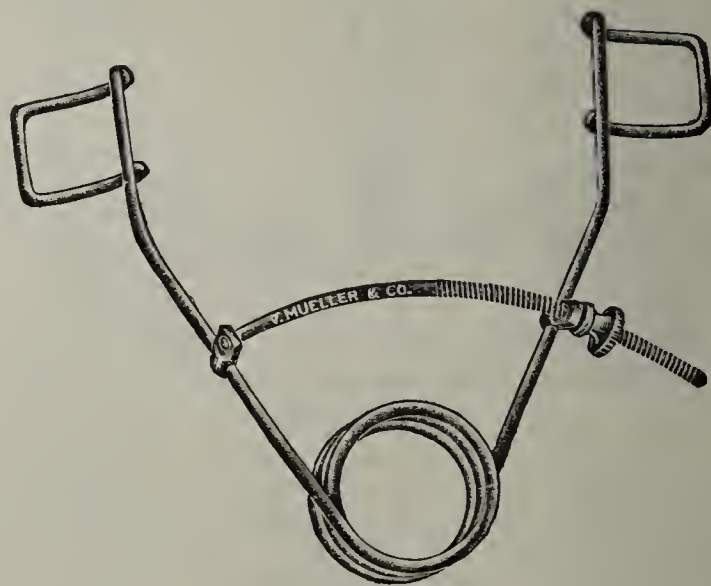
and clamped there; the other half is inserted into a vein of the recipient and also clamped; the two halves are then invaginated for about one-quarter inch, the retaining clamps acting as efficient handles. Repeated use of these clamps has demonstrated their practicability. Blood can now be transferred directly from one individual to another by this method without using a single tie and almost in less time than it takes to tell about it. Furthermore, no assistants are required.

2319 Linden Avenue.

A MOUTH SPECULUM

H. W. WOODRUFF, M.D., JOLIET, ILL.

The instrument shown in the illustration is designed to give better exposure of the field in operations on the throat or in the mouth. It is to be used in connection with the



Mouth speculum.

Whitehead or similar mouth gag. It is simply a selfretaining wire speculum with stop to prevent too great pressure when used on children.

Many tonsil operators have the angles of the mouth held away by an assistant with the finger or retractor. This instrument, when in position over the gag, obviates this necessity and helps to remove every obstruction in the line of vision without interfering in the least with other instrumentation.

Fluoroscope Switch Preservation of Specimens.—In looking over a recent catalog of a Roentgen-ray supply firm, I saw advertised a switch intended to control the fluoroscope tube from the main rheostat. The price is \$20. I have accomplished exactly the same results at a cost of \$3 by the following installation: The rheostat is tapped underneath the buttons at four points, to give 1, 2, 6 and 10 milliamperes in the tube. These points are connected by electric wires with the two two-way switches which are attached at some convenient point near the fluoroscope. The four wires leading from the rheostat to the switches may be passed through a rubber tube or wrapped up with tape. This is not essential, but looks neater. By throwing in one or the other of the switches, the tube in the fluoroscope will light up to the desired point.

PRESERVATION OF PATHOLOGIC SPECIMENS

I found that small specimens can be preserved in pure glycerin to which a small amount of formaldehyd is added (from 0.5 to 1 per cent.). An "interesting" appendix which I placed in glycerin two years ago is still in a condition of wonderful preservation, showing the areas of necrosis and the infection of the blood vessels. The fresh appearance of the tissue is remarkable.—ALBERT ROBIN, M.D., Wilmington, Del.

Special Article

PRACTICAL PHARMACOLOGY *

(Continued from page 1499)

XVIII

DRUGS WHICH ACT MAINLY ON THE HEART

THE DIGITALIS GROUP

The digitalis group is one of the best defined in the materia medica because the cardiac actions of all its members are quite similar qualitatively, though they show wide differences quantitatively, and nearly all of the drugs of the group are used for their cardiac actions almost exclusively.

The characteristic action of these drugs on the heart is called the digitalis action, and all drugs exerting this action are called digitalis bodies, regardless of the source from which they are derived.

A drug is said to possess the digitalis action if it causes the frog's heart to come to a standstill with the ventricle in systole and the auricles in diastole, following a characteristic behavior. This usually includes a period of slowing of the heart-rate; a period of increased rate, and a period during which there are typical irregularities in the rate and force of contraction. The beat of the auricles and that of the ventricle usually show complete dissociation shortly before they stop. This digitalis action on the heart is interesting, for it exhibits all of the actions for which the drug is used therapeutically, and those of toxicologic importance.

Fatal doses of digitalis cause the intact mammalian heart to stop in diastole because it is incapable of beating after the coronary circulation is interrupted, but when the mammalian heart is perfused with a solution of a digitalis body it also stops with the ventricles in systole. This systolic standstill is an expression of the increased tonicity of the heart which is the foundation of the therapeutic use of the drug in a large proportion of cases.

Our knowledge of the drugs of this group has been extended greatly within the past few years with the result that their therapeutic uses and limitations have been determined far better than those of most drugs. Digitalis, however, cannot be used successfully without an understanding of its pharmacologic actions, and there are few drugs concerning which there have been a greater number of erroneous conceptions. With the advance in our knowledge of the drug it has become necessary to revise much of the teaching that was current but a decade ago; therefore the pharmacologic and therapeutic actions of the digitalis bodies will be discussed in somewhat greater detail than those of many other important drugs.¹

The digitalis bodies have no important direct actions on the higher parts of the brain, though they have a slight tendency to induce somnolence when large doses have been administered.

They stimulate the vomiting center in the medulla, and nausea and vomiting are commonly observed when the therapeutic dose is exceeded slightly with any member of the group, and it is difficult or impossible to elicit the full therapeutic effect of some of them without causing nausea. These symptoms afford a guide to the limitations of therapeutic doses, and these and other signs will enable the physician to elicit the full therapeutic effects on the heart while avoiding the dangerous side actions in the majority of cases.

Digitalis bodies stimulate the vagus center and the vagus endings in the heart, but the latter effect is probably of minor importance. The vagus stimulation does not always suffice to cause pronounced slowing of the heart-rate, but there is a group of cases in which it occurs almost invariably. These will be discussed later. Excessive doses cause an increase in the rate, with various forms of irregularity.

The rate of the heart-beat is controlled normally by impulses which arise in a small mass of tissue, known as the sino-auricular node, or the pace-maker of the heart, which is situated in the region about the mouths of the great veins which empty into the auricle.

The impulses or stimuli for contraction which arise in the pace-maker pass down to the auricles, causing them to contract, and the impulses are then transmitted through the minute bundle of muscle fibers known as the auriculoventricular bundle to the ventricles, causing them to contract.

Digitalis depresses the conductivity of the auriculoventricular bundle, delaying or preventing the passage of impulses through it and causing what is known as heart-block. With moderate doses impulses are delayed, and a few of them may be prevented from passing; the block is then said to be partial. In such cases the interval between the beat of the auricles and that of the ventricles is increasingly prolonged with successive beats until one of the ventricular beats drops out, the auricles then beating three or four times to two or three beats of the ventricles. In such cases the ventricles may appear to be beating with almost perfect regularity, but careful observation will show a slight irregularity at least, and a difference between the number of the auricular and the ventricular beats.

With larger doses of digitalis there may be a complete block, so that impulses do not pass from the auricles to the ventricles, and the latter then take up an independent rhythm, usually much slower than that of the auricles.

Partial or complete heart-block may result from disease, or a small dose of digitalis may convert a partial into a complete block. This action of digitalis is exerted through the vagus, and it is interfered with by atropin.

Heart-block is beneficial in cases of auricular fibrillation, in which condition it relieves the ventricle of innumerable stimuli which cause it to beat irregularly and usually very rapidly, but it must be understood that digitalis has no perceptible influence on the fibrillating auricle, which continues to fibrillate independently of the improved circulation.

Auricular fibrillation is a condition which has only recently come to be recognized as of common occurrence in man, the condition being formerly diagnosed as myocarditis. The fibrillating auricle does not con-

* This is the eighteenth of a series of articles on useful drugs—on practical pharmacology for the general practitioner. As soon as completed, these articles, elaborated by additional subjects, will be published in book form.

1. It may be remarked in passing that advances in our knowledge of digitalis have gone hand in hand with equal advances in our knowledge of the cardiac conditions for which the drug is useful, and physicians who are not familiar with the recent progress in the diagnosis and treatment of cardiac disease will find a little volume entitled "Clinical Disorders of the Heart," by Thomas Lewis, extremely valuable. The subject is discussed in a simple and easy manner which one can understand without being a specialist in cardiac diseases.

tract as a whole, but a fine tremor constantly involves the surface of the auricle, and instead of the rhythmic impulses which normally pass from the auricle to the ventricle, numerous impulses arise without any sort of order in the fibrillating auricle, and passing to the ventricle cause it to beat with extreme irregularity of rate and force, and usually very rapidly.

A heart which beats with abnormal rapidity does not contract adequately during systole, and the blood is dammed back into the veins, with the well-known evil consequences.

Digitalis causes the ventricle to beat more slowly, to dilate more completely in diastole, and to contract more forcibly and completely in systole, hence to empty itself more perfectly, discharging a larger amount of blood at each beat. It is easily understood that these changes result in a better circulation unless the slowing has been too great, and this improved circulation is the object of digitalis medication regardless of the symptoms of which the patient complains. There are few conditions in which digitalis is so dependable as in auricular fibrillation occurring in patients under 40 years of age.²

If the heart is slowed to an excessive degree the volume expelled in a unit of time may be less than before the digitalis was given, but with moderate slowing which usually results, the improvement in the circulation is pronounced. It is impossible to state in exact terms what constitutes excessive slowing, but a reduction of 50 per cent. in the rate may be beneficial when the rate has been extremely rapid.

During cardiac dilatation, acute or chronic, the heart dilates excessively during diastole and contracts very imperfectly during systole, and much of its energy is then lost through the regurgitation of the blood through the incompetent valves. In such cases digitalis does not cause increased dilatation during diastole, but its capacity for increasing the tonicity of the heart becomes more prominent, and its effects are more pronounced in increasing the systole, whereby the amount of blood expelled at each beat is greatly increased. It is said by some to be much more effective in acute than in chronic dilatation, but others report good results in both conditions.

Since the heart rests only during diastole, the slowing of the rate, which is largely due to prolonged diastole, permits of a greater opportunity for rest. The blood is squeezed out of the tissues of the heart during systole, and when this is rendered more complete, a larger volume of fresh blood will flow through the capillaries and the heart will be nourished more efficiently. The opportunity thus afforded for the improved nutrition of the heart probably explains in

part the increased force of contraction after digitalis, this being supplemented by the better general circulation in which that of the coronaries participates.

The complete recovery of the heart requires some time and the full *effect* of digitalis may be induced, slowly, even though its maximum *direct action* may be elicited promptly.

The mechanism of this increased nutrition should be borne in mind, for it will serve to explain why a rise of blood-pressure is seldom injurious to the heart even when the heart was previously overtaxed, for with the improvement in its nutrition the slight additional energy required to force the blood out against the increased pressure will be more than compensated for by its increased capacity for contraction.

The effect of the digitalis bodies on blood-pressure has been the subject of a great deal of discussion. One difficulty which the investigation of this subject presents is that pharmacologists are unable to secure animals which suffer from cardiac diseases similar to those in which digitalis is used therapeutically, and we have seen that it tends to restore the heart-beat toward normal; hence the pharmacologic experiments have given conflicting results.

It is commonly stated that digitalis causes an increase in the blood-pressure, but it is true that it may produce the desired therapeutic effects while the blood-pressure rises or falls, dependent on whether it was previously too low or too high.

When the heart fails to supply enough blood to the central nervous system a greater or less degree of asphyxia with cyanosis results, and this causes constriction of the blood-vessels so that the increased blood-pressure may maintain a sufficient circulation in the central nervous system which must be supplied if life is to be maintained at all. Since the blood-supply elsewhere is insufficient, it is obvious that certain organs must suffer injury, one of these being the heart itself. When the heart begins to beat more efficiently the asphyxia is relieved, and the high blood-pressure may return to normal while the patient's condition improves.

When the vasomotor control of the pressure is impaired while the heart supplies an insufficient amount of blood, the blood-pressure is low, and such a condition must result in injury to some of the organs, especially the heart. When the heart-beat is improved in such cases by digitalis, the blood-pressure rises.

There is an extensive literature dealing with the constrictor action of the digitalis bodies on the vessels, especially concerning the capacity of certain members of the group to constrict the coronaries. This vascular action of the digitalis bodies is not very important, but it has given rise to so much misunderstanding that it deserves a word of explanation.

All digitalis bodies act directly on the blood-vessels with which they are brought in contact in *sufficient concentration*, causing constriction; hence, when organs are perfused with blood or Ringer's solution containing any digitalis body in sufficient amount, the vessels are constricted, digitoxin being very active, while some other members of the group, notably strophanthin, are much less active. It has been supposed that when these digitalis bodies are administered to patients they cause a similar vascular change, but this supposition is based on two erroneous conceptions. The first is that when digitalis is given in

2. It may not be amiss to refer briefly to the means of diagnosing this condition, which is said to occur in 60 per cent. of the patients who enter the general hospitals with evident signs of cardiac insufficiency. It occurs rarely in those under 17 years of age, and not often before the fortieth year without a history of rheumatism or chorea. With advancing years it becomes more frequent in the absence of such a history. The most characteristic symptom is an absolute irregularity of the rate and force of the ventricular beat, that is, not even regularly recurring groups of beats can be made out. When a patient more than 15 years of age has a ventricular rate above 120 beats per minute at the apex and an absolutely irregular heart, one may strongly suspect auricular fibrillation. The occurrence of such symptoms in one who presents a history of rheumatism or chorea points even more strongly to that condition, and when to these are added other symptoms of cardiac insufficiency the diagnosis can be made almost with certainty. If the rate is slow but absolutely irregular the diagnosis may be aided by letting the patient take gentle exercise which causes the ventricle to beat more rapidly; the irregularity increases if the auricles are fibrillating, but decreases if it arises from other causes. Many beats can be heard at the apex which cannot be felt at the wrist, and the number of these is an index of the insufficiency of the heart. Auricular fibrillation usually persists from the time of its appearance until the death of the patient, but it is only temporary in about 10 per cent. of the cases.

therapeutic doses, it enters the circulation in concentration comparable to that used in perfusion experiments, and the second is that the vasoconstrictor action persists for some time.

Digitalis has been shown to leave the blood-stream within a few minutes after its intravenous injection—and it acts on the vessels only while it is contained in the circulating blood; in the next place it is never present in the blood of patients in the concentration in which it is used in perfusion experiments. From this one may say with a reasonable degree of assurance that the digitalis bodies exert no *direct* vascular action of any importance, and that when they exert any such action it is only through the general improvement in the circulation.

The diuresis which follows the use of the digitalis bodies is sometimes explained as being due to the constriction of the vessels of the liver and certain other areas, and dilatation of the vessels of the kidney. The renal vessels are normal in cardiac disease; if digitalis acted on them then it would affect them in the same way in health, but digitalis does not act as a diuretic in healthy men. Further, if it were capable of causing dilatation of the renal vessels some increase in the secretion of urine would be seen even in those cases in which digitalis failed to improve the condition of the heart; but, as a matter of fact, diuresis does not occur when the drug fails to improve the heart-beat and the circulation.

There is no evidence whatever that digitalis has any direct action on the kidneys. The diuresis which it induces in patients suffering from dropsy due to the insufficient action of the heart is explained as follows:

When the heart fails to pump the blood from the veins into the arteries as rapidly as the veins supply it, certain organs begin to suffer, as previously stated, and water begins to pass from the circulating blood into the tissues in abnormal amounts; in other words, the patient becomes edematous. When digitalis causes an improvement in the action of the heart and in its capacity for removing the blood from the veins into the arteries, the water which previously tended to pass out into the tissues now begins to pass back into the veins, causing hydremia, and hydremia always causes diuresis if the kidneys are capable of secreting urine abundantly.

If the kidneys have suffered irreparably from the deficient circulation they may be incapable of secreting an additional amount of urine even though digitalis may cause some improvement in the heart-beat.³

The tardy appearance of the therapeutic effects of digitalis has long constituted one of the serious objections to its use. It has been taught that the delay is due to the slow action of digitalis after it comes in contact with the heart, but this is an erroneous view. Any delay in inducing the therapeutic actions of any of the members of the group in suitable cases must be attributed to the failure to secure the prompt absorption of an effective dose. The intravenous injection of a very large dose of any member of the group causes death by cardiac action within a few minutes, and sometimes within a few seconds, especially when digitoxin is used in excessive amounts,

though digitoxin was formerly supposed to be the slowest to act of any of the digitalis bodies in common use. The ultimate effects of digitalis action on the heart must be distinguished from the direct action itself.

Digitalis is absorbed within the course of a few hours fairly completely, a small part being probably destroyed in the gastric juice; strophanthus, or strophanthin, is absorbed very irregularly after the oral administration. Five times as much strophanthus as would be required by intravenous injection to cause death may be given by the mouth to a cat or dog without causing any perceptible symptoms as a rule, but occasionally rapid absorption and death will occur from such doses. A patient received by the mouth six doses of strophanthus in twenty-four hours without showing any effect that could be detected by the most careful observation with frequent pulse-tracings, but the seventh dose of the same amount as the previous ones was followed promptly by alarming symptoms of toxic action which continued for several days before improvement began.

These experiences both in the laboratory and in the hospital show that strophanthus and strophanthin are wholly unsuited for oral administration. Digitalis and its galenical preparations are the most absorbable of the digitalis bodies known.

CUMULATION, SO CALLED

When any digitalis body is given in repeated doses, toxic symptoms may appear rather suddenly, and these have been commonly attributed to cumulative action, so called, which has been looked on as a more or less mysterious property of the drugs which exhibit it. This so-called cumulation is nothing but the accumulated effects of several doses. The following will illustrate the action: A cat received 75 per cent. of the fatal dose of digitalis intravenously at one dose; a week later it received 50 per cent. of a normally fatal dose (or two-thirds as much as it had received a week previously), and succumbed promptly, the reason being that at least 50 per cent. of a fatal dose remained in the heart, or that the action of that much remained in effect, and when 50 per cent. of the usually fatal dose was given its effects were added to those already present and the heart was brought to a standstill. A similar summation of effect results when several therapeutic doses are administered to man, and a given symptom appears when the added effects suffice to produce the symptom.

Laboratory experiments show that the effects of a single very large dose of digitalis or digitoxin may persist in part for two weeks or more, and clinical tests have shown that the effects of full therapeutic doses of digitalis may not completely disappear for ten days or more. The effects of strophanthin disappear much more rapidly, usually within from thirty-six to forty-eight hours.

Little is known concerning the fate of the digitalis bodies in the human body, but the persistence of the action on the heart and central nervous system suggests that some of them at least are destroyed or eliminated slowly. It is important to note, however, that they leave the blood-stream of all animals hitherto examined within a few minutes after intravenous injection, and they also appear to act on the blood-vessels only while they are present in the blood-stream.

(To be continued)

3. Hydremia, however caused, as by the rapid absorption of water from the gastro-intestinal tract, causes a similar diuresis. The physician may convince himself of this by the simple experiment of drinking several glasses of hot water while avoiding active perspiration, and observing the amount of urine secreted. The experiment should be begun when the stomach is nearly empty.

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SATURDAY, MAY 8, 1915

THE BACTERIOLOGY OF APPENDICITIS

The credit of establishing the tremendous significance of inflammation of the vermiform appendix belongs to the medical profession of the United States which, it now seems likely, is also to make noteworthy contributions to the study of the etiology of the disease. The part played by foreign materials is no longer emphasized, since they are only rarely encountered. Even fecal concretions, which were formerly charged with responsibility for a large percentage of attacks, are now regarded as being produced within the appendix itself, rather than entering this organ from the cecum. Despite the fact that concretions and foreign bodies are always a menace and are capable of initiating destructive as well as irritating effects on the mucosa, the chief interest in the etiology of appendicitis at the present moment centers in its bacteriology.

The preponderant micro-organism found in cases of appendicitis is undoubtedly the colon bacillus. Sometimes it is present in pure culture; frequently it is associated with other organisms such as streptococci or staphylococci. The majority of cases appear to represent a mixed infection. It has been assumed as probable by some writers that the milder cases with more definitely localized peritonitis and relatively benign clinical symptoms are principally due to colon infection, while the more intense cases are of streptococcic or anaerobic nature.

In comparison with the appendix, no part of the gastro-intestinal tract is supplied so richly with lymphoid tissue except the tonsillar region. This fact perhaps accounts for the local susceptibility to infection in each of these anatomic localities, particularly in the young, in whom little involution of the lymphoid tissue has yet taken place. Appendicitis has been reported in association with other diseases in which special tissues are invaded by micro-organisms. This is not equivalent, however, to saying that appendicitis is merely a blood infection and is a part of widespread lesions due to the existence of large numbers of bacteria in the blood stream. Some factor is needed to account for the specific localization of the micro-organisms in the appendixes.

Dr. E. C. Rosenow¹ of the Memorial Institute for Infectious Diseases, Chicago, has thrown some light on the development of appendicitis by a careful differential bacteriologic study of the fluids and tissues in and about the appendix and of the tonsils and other possible foci of infection, together with introduction of the isolated strains of micro-organisms into animals. In the lumen of the appendix the colon bacillus was always found in predominating numbers, whereas the cultures from the wall showed that the chief bacteria there were streptococci. The nature of the bacterial flora of the tonsils in the different cases was not so characteristic, though streptococci were found in all the cases examined.

Rosenow's experiments indicate that, in the absence of foreign bodies, appendicitis commonly is a hematogenous infection, secondary to some distant focus like the tonsil. The striking feature is the demonstration that the disease develops when for some reason the organisms in this focus, usually streptococci, have acquired an elective affinity for the appendix and at the same time gain entrance into the circulation. In animal injections the tonsillar strains of micro-organisms from human cases produced appendicitis in nineteen of twenty-nine, the appendix strains in twenty-two of thirty—a total of forty-one out of fifty-nine trials. In further accord with the view advanced is the observation that after cultivation on artificial mediums for a short time the elective affinity is soon lost, and strains isolated from human tonsils some time after appendectomy also appear without elective affinity. The colon bacillus is to be regarded in most cases as a secondary invader, because it is found both by cultures and in sections either in decreasing numbers from the lumen outward, or is displaced entirely by streptococci. Experimentally it appears to be almost impossible to produce appendicitis by intravenous injection of colon bacilli without injuring the mucous membrane.

These important newer researches help to explain the stated frequent occurrence of appendicitis, at times almost in epidemic form, when throat infections are particularly prevalent. They emphasize the importance of a thorough search for, and the removal of foci of infection from which appendicitis may originate in the indirect ways pointed out. If the conclusions prove to be correct, it is a distinctive contribution on the part of Rosenow that a focus of infection is to be looked on not only as the place of entrance of bacteria, but also as the place where they may acquire the varying affinities necessary to infect distant organs and tissues. Finally, we may quote from Rosenow, in accord with the assertions of Heyde,² Aschoff,³ and others,

1. Rosenow, E. C.: The Bacteriology of Appendicitis and its Production by Intravenous Injection of Streptococci and Colon Bacilli, *Jour. Infect. Dis.*, 1915, xvi, 240.

2. Heyde: *Beitr. z. klin. Chir.*, 1911, lxxvi, 1.

3. Aschoff: *Ergebn. d. inn. Med. u. Kinderh.*, 1912, ix, 1.

that appendicitis is a serious disease, not so much on account of the virulence of the infecting micro-organisms, as on account of the anatomy of the appendix, which favors strangulation and thus the growth especially of facultative and strict anaerobes.

A METHOD OF CEREBRAL DECOMPRESSION

The usual methods of relieving intracranial pressure in instances of hydrocephalus and inoperable brain tumors are not entirely satisfactory since huge deformities may result, the symptoms in some midbrain lesions may become exaggerated, and motor tracts may be injured by distortion or dragging of the ventricles following release of pressure. In some cases the operation of decompression is itself of serious nature. Therefore, any method that minimizes these dangers and is easily performed merits consideration.

Anton and von Bramann have described a procedure for the relief of internal hydrocephalus which seems to be an improvement over similar operations, and these workers and later Elsberg¹ have found it equally suitable for cerebral decompressions, as it is free from the undesirable features just enumerated. A small scalp incision is made at right angles to the frontal suture, 1 or 2 cm. from the midline and from 1 to 2 cm. from the coronary suture, and a small button of bone is removed with a trephine; the dura is slit and a small curved cannula is pressed through the opening and down to the corpus callosum, the tough falx cerebri which lies between the cerebral hemispheres being used as a guide. With gentle pressure the cannula is pushed through the corpus, and when through, the ventricular fluid begins to escape. The opening in the corpus is enlarged by moving the lower end of the cannula backward and forward until a slit 1 cm. in length is made. The cannula is then withdrawn and the dura and skin incisions closed. Owing to the increased intraventricular pressure, the fluid continues to escape through the opening in the corpus and keeps it patent. The objection to this method lies in the possibility of an early closure of this artificial opening. Von Bramann, however, reports seventeen cases of internal hydrocephalus in which the operation was performed in this manner, and notes marked improvement in fifteen. Spasticity, ataxia and the visual disturbances diminished and the intelligence improved. Some of the patients developed normally, and in such instances it would seem that the opening in the corpus must remain patent.

The applicability of this method for the relief of intracranial pressure due to neoplasms is supported by a number of facts. The main cause of the increased tension may not be due to the encroachment of a growing tumor, but cerebral edema, first described by

Reichardt, hyperplasia of the affected lobe, recently demonstrated by Spiller, and internal hydrocephalus play important rôles. Any interference with the flow of spinal fluid from the lateral ventricles through the aqueduct of Sylvius to the fourth ventricle and spinal cord results in a stagnation of the fluid and a distention of the ventricles. Increased intraventricular pressure causes a collapse of the thin walled cerebral veins, which, in turn gives rise to congestion, edema and a further increase of intraventricular fluid. Thus a vicious circle is established. Tumors pressing on the choroid plexus or the veins of Galen give similar results, and hence are equally important with tumors pressing on the aqueduct of Sylvius, so far as intracranial pressure is concerned. If these hypotheses are correct, then dilated ventricles should be present in instances of intracranial tumors, and Elsberg found ventricular distention in 372 of 500 cases, that is, in 75 per cent. Thus, in a considerable number of cases, temporary relief from symptoms of pressure may be expected to follow drainage of the ventricles and a consequent reduction in their size.

The procedure is simple, quickly done and is not attended with the usual dangers of decompression. Elsberg has used it thirty-seven times, mostly in instances of brain tumor. Two of his patients, comatose at the time of operation, needed no anesthetic, and relief was so prompt following drainage of the ventricles that they talked before leaving the operating room. Several patients were improved for as long as six months. If no increase of fluid is found in the ventricles, no harm is done, and one of the usual methods of decompression may be employed.

The length of time the opening through the corpus remains patent is not definitely known, the statistics at present being too few; but those who have used it have faith in its efficiency and hold it the operation of choice in midbrain, subtentorial and unlocalized intracranial tumors and in all cases of nonobstructive hydrocephalus.

THE HUMAN GASTRIC SECRETION

Since the pioneer investigations of Dr. William Beaumont, that "backwoods physiologist," as Osler has named him, and his epoch-making contributions to our knowledge of the functions of the human stomach, nothing has added so much to these early beginnings as did the classic researches of Pawlow on dogs. A medical audience might take exception to this sweeping statement in order to point out the advances that are represented in the introduction of the stomach tube and the help which it has given in elucidating the problems of gastric function. In the light of these facts, it is surely a matter of no small moment that in recent years a competent physiologist has had an opportunity to reexamine in man the questions that have been raised by the investigations of the past,

1. Elsberg, C. A.: Puncture of the Corpus Callosum with Special Reference to Its Value as a Decompressive Measure, *Jour. Nerv. and Ment. Dis.*, 1915, xlii, 140.

and to supplement the findings of those who worked under conditions less favorable in respect to either opportunity or subjects. For several years Professor Carlson of the University of Chicago has had under observation a second Alexis St. Martin in the person of a young man who has had a complete cicatricial stenosis of the esophagus and gastrostomy since the age of seven.

New facts learned in a careful study of this chance subject, who is a normal man except for the defects and the fistula just referred to, have been mentioned in *THE JOURNAL*.¹ The additional contributions that are being published from time to time, supplemented as they frequently are by corroboratory evidence on other human individuals and on laboratory animals, are so replete with matters of interest to the student of medicine that we must revert to them. Quite lately, for example, novel data have been reported in respect to the secretion of gastric juice in man.² The methods employed cannot be detailed here; but, taken in conjunction with other known facts, they lead to the estimate that an adult person secretes on an average meal (dinner) 700 c.c. of gastric juice, or an average total of 1,500 c.c. (about three pints) in twenty-four hours.

It will come as a surprise to many to read that the gastric glands in the normal person are never completely quiescent. The continuous secretion varies from 2 to 50 c.c. per hour, though the higher figures are exceptional. Obviously such facts, if they are well established, have an important bearing on the interpretation of the thousands of gastric analyses which clinicians are continually dealing with. They bring to mind the statements of Rehfuess, Bergeim and Hawk³ on the presence of secretion in the stomach independent of the intake of food.

According to Carlson, the mere act of chewing indifferent substances, and the stimulation of nerve endings in the mouth by substances other than those directly related to food, cause no secretion of gastric juice. This is in complete accord with the teachings of the Pawlow school, which has derived its information from experiments on dogs. Other investigators who have chanced to study human cases of gastric fistula have now and then maintained that seeing, smelling and possibly thinking of palatable food, as well as the mastication of vapid substances, cause something more than the very slight transitory secretion of gastric juice noted under these conditions in the Chicago subject. There may, of course, be great individual variations where, as here, psychic factors are involved. At any rate, in any of the conditions

referred to, nothing is evoked in a degree comparable to the secretion of gastric juice on mastication of palatable food. Appetite is a potent factor in this process. During mastication of acceptable food, the average rate of secretion was 3.5 c.c. per minute. On cessation of chewing, the rate diminished rapidly, so that in from fifteen to twenty minutes the gastric glands reached the level of the continuous secretion again.

Some of the practical aspects of these observations may be brought into prominence here. The mastication of bread and butter, or the taking of milk into the mouth yielded much less gastric juice than the chewing of meat or oranges. Desserts, of which the subject was particularly fond, were even more effective. It may be that the taste nerve endings are stimulated more intensely by the readily diffusible substances in some of these foods which reach the gustatory organ in marked concentration. We are reminded that the mastication of a palatable dessert or fruit at the end of the meal truly serves to augment and prolong the appetite secretion of gastric juice.

THE EXPOSURE OF DENTISTS TO MERCURIAL POISONING

The importance of mercury as a cause of chronic mercurial poisoning has decreased somewhat in recent decades, owing to a better appreciation of its dangers and to changes in the industrial processes in which it was formerly widely applied. The chief industries in which this poisoning is now seen are mercury mining and smelting, the manufacture of thermometers, barometers and other apparatus of which mercury forms an essential part, chemical plants, and the manufacture of felt hats, in which nitrate of mercury is used at certain stages of the treatment of the felt. Chronic poisoning from the medicinal use of mercury is extremely infrequent at present; and the evidence of ptyalism commonly serves as a warning to withdraw the drug before the more extreme types of symptoms manifest themselves.

There is a peculiarly insidious feature to the industrial danger of mercury in that this element can, without question, enter the system through inhalation as vapor. When mercury itself is used there are ready opportunities for its entrance in this way into the organism, because the metal volatilizes at ordinary temperatures; and furthermore, the heating processes employed in some of the industries largely increase the volatilization. To this may be added the creation of mercury-laden dust, which facilitates the inhalation of minute particles. It is believed by some hygienists that inhalation represents the chief mode in which occupational poisoning by mercury occurs, although the possibility of absorption through the skin cannot be denied, particularly in view of the fact that admin-

1. The Stomach in Hunger, editorial, *THE JOURNAL A. M. A.*, Feb. 8, 1913, p. 448; Another Alexis St. Martin, Feb. 22, 1913, p. 598; Inhibitory Phenomena of the Stomach, March 1, 1913, p. 669.

2. Carlson, A. J.: Contribution to the Physiology of the Stomach, xxi, The Secretion of Gastric Juice in Man, *Am. Jour. Physiol.*, 1915, xxxvii, 50.

3. Rehfuess, M. E.; Bergeim, Olaf, and Hawk, P. B.: Gastro-Intestinal Studies, *THE JOURNAL A. M. A.*, July 4, 1914, p. 11; Sept. 12, 1914, p. 909.

istration of mercury by skin inunctions has long been a therapeutic procedure.

The widespread daily use of amalgams by dentists has often raised the question as to whether they are exposed to the dangers of chronic intoxication with mercury. Any one who has watched the process of "filling" a tooth with the amalgam materials is familiar with the opportunity which it offers for the distribution of the mercurial substances on the hands of the operator. The gold, silver or platinum preparations are rubbed with mercury in a mortar until amalgamation occurs and a more or less plastic mass is obtained. This procedure is followed by a further manipulation of the mass in a small rubber receiver held in the palm of the hand; all too frequently one sees the dentist use his unprotected fingers to manipulate the plastic amalgam and give it the desired consistency. The materials used in the process are commonly measured out by guess, whereby an excess of mercury not infrequently is present and is squeezed out in the form of fine droplets that are easily scattered about.

The use of the fingers in the preparation of an amalgam for immediate use in filling dental cavities is defended on the ground that it is almost impossible to secure a proper consistency in any other way. It will be observed, therefore, that opportunity for the absorption of mercury is offered in at least two ways. First, it is conceivable that some of the element may be taken up through the skin. Secondly, the possibility of inhalation on the part of both operators and assistants is indicated by the presence of mercury in containers that may not be closed, and the haphazard scattering of mercurial substances in the neighborhood of the dentist and sometimes on the floor, where it remains to be slowly vaporized from the crevices. Copper amalgams offer an even more obvious danger in that they are heated before use.

An indication that the possibility of the absorption of mercury under conditions such as have been indicated may become a reality has been furnished by Blomquist.¹ His analyses of the urines of persons engaged in institutes in which mercury is employed and of the air in such places gave positive indications of the absorption of the element. A more elaborate investigation of the question with special reference to dentists has been reported by Schulte² working under the advice of the Würzburg hygienist, K. B. Lehmann. Without exception he found evidences of the presence of mercury in the urines of all the individuals—ten dentists and eight dental assistants—examined by him. The quantities were small, rarely exceeding 0.05 milligram per day. The output in the urine was no larger in the case of dentists who were accustomed to work up their amalgam in the unprotected hand than for

those who did not permit a direct contact of the metals with the skin. From this fact it is concluded that the mercury is absorbed by way of the respiratory passages rather than through cutaneous channels.

From the point of view of their possible hygienic significance, quantities of mercury of the magnitude indicated by Schulte's analyses are not very ominous. Patients under mercurial inunction treatment frequently excrete far more of the element without exhibiting any signs of mercurial intoxication. Clinical literature seems to be correspondingly free from indications of mercurial poisoning among dentists. Ptyalism and stomatitis are apparently not encountered among members of the dental profession.

In the light of Schulte's report, the need of insistence on the use of protective gloves by dentists during the preparation of amalgams cannot be sustained. The reason that absorption does not follow readily through the skin of the dentist's hand is perhaps to be found in the fact that mercury as such, rather than greasy ointments, is presented to the cutaneous surfaces and fails to adhere firmly, owing to the different surface tension in the two cases. From a prophylactic point of view, the measure to be instituted to avert the possible though apparently remote danger of undue intake of mercury by dental workers consists in liberal ventilation, whereby the volatile mercury and mercurial dust are suitably dissipated. This is equivalent to saying that in a well-ventilated room, such as any working place or human habitation should represent, the dangers to the dentist are minimal. With this, actual experience in practice seems to correspond.

Current Comment

THE ACTION OF MOLDS ON CERTAIN CRUDE DRUGS

Although the increasing use of isolated active principles and of synthetic drugs in place of the cruder natural pharmaceutical products of former years tends to diminish somewhat the significance of the quality of the latter so far as exact standardization for official use is concerned, the time has not yet arrived when the variation of crude drugs can be overlooked. This is particularly true of such materials as opium, on the supply of which medicine is so extremely dependent. In view of the availability of its component alkaloids such as morphin, codein, narcotin, etc., as isolated compounds, it matters somewhat less than it did a few years ago whether or not the composition of marketed opium is absolutely unvarying so that the tinctures and extracts made from it shall have a uniform composition. Nevertheless changes in the drugs are unwelcome for a variety of obvious reasons. The harvesting of inferior products is, of course, undesirable; but a deterioration of the drug in the course of its storage is an actual damage to those concerned. Molds of the type of *Penicillium* and *Aspergillus* have

1. Blomquist: Ber. d. deutsch. pharm. Gesellsch., 1913, No. 1, p. 29.

2. Schulte, H.: Ueber die Gefahr einer Quecksilbervergiftung bei Zahnärzten, Arch. f. Hyg., 1914, lxxxiii, 43.

been found growing on levantine opium, and the question has been raised as to whether or not the alkaloid content is decreased by such vegetation. These molds freely utilize the ordinary plant constituents such as proteins and carbohydrates in their metabolism; and they grow freely on a great variety of vegetable substrates, as everyday experience demonstrates. This does not necessarily signify that they can also utilize the alkaloids, most of which have a decidedly toxic effect on animal forms. By the test of the actual experiment of growing representative molds on opium and also on such mixtures of opium and diluent sugar as find their way into commerce, von Friedrichs¹ has found that either no loss or at most insignificant changes in the quota of such alkaloids as morphin, narcotin and codein occurs. Assumed damage by molds to improperly conserved opium need therefore no longer be feared.

THE VASOMOTOR CENTER IN SHOCK

"The successful observations in physiology — the observations that largely influence opinion — are commonly attended by parasitic hypotheses. Useful as these may be, they have in themselves no demonstrated truth, but derive their apparent credibility from their associations. Bathed in the radiance of the Great Fact, they seem to shine with their own light, and, as years pass, their doubtful origin is almost or quite forgotten."² This suggestive statement by Porter might well be applied to some of the hypotheses which have been drawn on to explain that indefinite complex of phenomena spoken of as "shock." Inasmuch as the latter not infrequently bring about complications which have a decided clinical interest, the practitioner has been quick to reach out for theories which might help him combat the symptoms. Among the explanations ventured for the condition of shock is the assertion that this manifestation is the result of a fatigue of the vasomotor center. On the surface, such a theory exhibits an element of plausibility, wherefore one finds it recurred to again and again as if it were a demonstrated fact. Porter³ and his collaborators in the Harvard Medical School, as well as other investigators, have denied this repeatedly. They have shown that blood-pressure changes of a normal sort can still be brought about by stimulation of the depressor nerve in animals during shock, so that exhaustion of the vasoconstrictor neurons cannot, therefore, be the essential cause of the symptoms. If more evidence were needed, it might be found in the newer experiments of Seelig and Joseph⁴ at the St. Louis University School of Medicine. They induced deep shock in anesthetized animals with opened abdomen by manipulation of the abdominal viscera and application of cold water. Without reviewing here the details of their method, the out-

come may be taken as failing to indicate any paralysis of the vasomotor center. Even in the course of the severest symptoms of shock, this center was not only not paralyzed but, on the contrary, was maintaining a tonus in some of the peripheral vessels of sufficient strength to prevent dilatation of them when the blood pressure was artificially raised from the shock level of 18 mm. of mercury to 75 or 85 mm., or in some cases even higher. We believe that this chapter of the shock problem is at least temporarily closed.

LAY VIEWS ON VACCINATION AGAINST SMALLPOX

Although it considers antivaccination legislation a remote possibility at the present session of the Pennsylvania legislature, the *Philadelphia Record* advises caution, since "the antivaccinationists are as industrious as beavers and as persistent as terriers"; as their measures are cropping up continually, "unless public attention is kept on their campaign they will here and there succeed in their efforts to popularize smallpox." This disease in the eighteenth century is spoken of as "the most appalling foe to the human race," but in recent times has been so thoroughly suppressed that in some communities havoc resulted because it was not recognized by physicians, who had never seen a case. The specious argument of the antivaccinationists that, because smallpox is rare there is no occasion for vaccination, is answered by saying, "Let vaccination be abandoned for a few years, and there will be enough smallpox to make the people, lay and medical, familiar with it." Indeed, the people of a great many communities are becoming familiar with it to their serious cost, for the disease, because of neglect of vaccination, seems to become more widespread each year. The right of the people to protect themselves from the disease is thus put by the *Record*: "Persons who insist on their right to have smallpox if they wish it, or choose to take their chances, assume precisely the attitude of the man who insists on his right to build a frame house in the middle of a city. If he is willing to take the chance of a fire, he says, whose business is it? Well, it is very plainly the business of the neighbors whose houses would be endangered by the presence of a combustible structure. The unvaccinated child is a menace to a school because he may at any time develop the disease, and if so, he has probably communicated it to a dozen other children of parents who insist on their constitutional rights to take and disseminate smallpox. No man has the right needlessly to make himself or his child a possible conveyor of an appalling pestilence." The *New Haven Courier*, while not condemning vaccination or upholding the antivaccinationists, criticizes the working in New Haven of the compulsory vaccination law, which caused a reputable citizen to be imprisoned because he refused to have his child vaccinated in order to enter the public schools. The *Courier* believes that such laws "savor of an earlier generation." Vaccination itself the *Courier* does not discuss, because confessedly it knows little of the subject; but it deems it a safe contention that if "vac-

1. Von Friedrichs, O.: Ueber die Einwirkung von Schimmelpilzen auf den Alkaloidgehalt des Opiums, *Ztschr. f. physiol. Chem.*, 1914, xciii, 276.

2. Porter, W. T.: The Relation of Afferent Impulses to the Vasomotor Centers, *Am. Jour. Physiol.*, 1910, xxvii, 276.

3. Porter, W. T., and Quinby, W. C.: The Condition of the Vasoconstrictor Neurons in "Shock," *Am. Jour. Physiol.*, 1903-1904, x, 12; *Boston Med. and Surg. Jour.*, 1903, cxlix, 455.

4. Seelig, M. G., and Joseph, D. R.: On the Tonus of the Vasomotor Center in Shock, *Proc. Soc. Exper. Biol. and Med.*, 1914, xii, 49.

cination is so important for the welfare of the community at large that it is within the right of the state to compel public school pupils to submit to it on pain of jailing their parents, then it should be within the power of the state to compel general vaccination." Both editors seem to be in favor of compulsory general vaccination; one willingly, because of the clear verdict of history; the other because the logic of the situation compels him to accept it.

HOW MEDICAL LITERATURE WAS MADE

On Sept. 26, 1872, there was reported in the *Boston Medical and Surgical Journal* under the heading of "Medical Miscellany" the birth, in Trumbull County, Ohio, of three girls and five boys in a single birth. "They are all living, and are healthy, but quite small," said the *Boston Medical and Surgical Journal*; and it continued, "Mr. Bradlee was married six years ago to Eunice Mowery who weighed 273 pounds on the day of her marriage. She has given birth to two pairs of twins, and now eight more, making twelve children in six years. Mrs. Bradlee was a triplet, her mother and father being twins, and her grandmother the mother of five pairs of twins." Naturally this report excited considerable interest and was widely copied in medical literature. Gould and Pyle included it in their "Anomalies and Curiosities of Medicine," and stated that all cases thus far reported of more than six children at a birth are to be regarded as of very doubtful value. Recently an attempt was made to ascertain the truth of this story. On investigation, it appears that a practical joker of those days went into one of the newspaper offices in the city mentioned and set up an article which he succeeded in having printed in one or two copies of the paper. He then took the article out and distributed the type. Securing the copies which had the article in them he sent them to a New York paper, from which it was copied in the *Boston Medical and Surgical Journal*, and following this publication passed into medical literature. In its current issue our Boston contemporary states that it is glad to publish a correction of the item even at this late date. The incident points to the necessity of accurately checking unusual reports before publishing them as scientific literature.

Criticism Regarding Unvaccinated Nurses.—The *Bulletin* of the Chicago School of Sanitary Instruction caustically comments on the failure of a Chicago hospital to have all the nurses vaccinated, and asks when everybody will become wise and careful enough to adopt this simple preventive measure.

It says:

"This week, for the thousandth time or more, a reason was presented for the consideration of those who desire to escape a disease that is easily preventable. A Chicago hospital with a training school for nurses neglected the formality of having all the nurses vaccinated. An unrecognized case of smallpox came in contact with these nurses, and three were taken to the isolation hospital suffering with smallpox. All the nurses in the hospital had been vaccinated except the three who contracted the disease. These never were vaccinated and were not required to be vaccinated when they entered the nurses' training school."

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Portrait Given Medical Society.—Mrs. Duke W. Goodman, Mobile, has presented a portrait of her husband, the late Dr. Duke W. Goodman, to the Mobile Medical Society, of which he was formerly president.

Hospital Notes.—Birmingham is to have a large, new, free dispensary. It will cover a large area and will be three stories in height and will cost about \$35,000. The institution will be operated as a branch of the medical department of the University of Alabama.

Personal.—Drs. Isaac C. Watkins and Henry B. Wilkinson have been elected members of the membership council of the Chamber of Commerce of Montgomery.—Dr. Robert L. Huddleston Speigner, has been reappointed prison physician at Gadsden.—Dr. Frank F. Blair, Coalburg, has been appointed physician to the Flat Top Mines Prison, succeeding Dr. John W. Watts, Montgomery.

Alumni Organization.—The Alumni Association of staff physicians of the Alabama state hospitals was organized at Birmingham, April 23, and the following officers were elected: president, Dr. William D. Partlow, Tuscaloosa; secretary, Dr. Le Baron. It was decided that the association should meet every year at the same time as the State Medical Association and a committee was appointed to draft constitution and by-laws for the organization.

State Association Meeting.—At the annual meeting of the Medical Association of the State of Alabama held in Birmingham, April 20 to 23, the following officers were elected: president, Dr. J. Norment Baker, Montgomery; vice-presidents, Drs. Edward B. Ward, Selma and Abner N. Steele, Anniston; secretary, Dr. Henry G. Perry, Montgomery, and treasurer, Dr. Jacob U. Ray, Woodstock. The association opposed by a vote of 140 to 25, the endorsement of a new health bill which would divorce the State Medical Department from the association. A new scheme was adopted by which each county will have as many delegates to the state association as it has to the state legislature, providing no county has less than two delegates. The next annual meeting will be held in Mobile.

CALIFORNIA

Antivaccination Bill to Senate.—By a vote of 36 to 25 the Gelder anticompulsory vaccination bill was denied reconsideration in the house of representatives at Sacramento and the bill will go to the senate. It provides that there shall be no discrimination by school authorities against schoolchildren whose parents do not have them vaccinated. The law now requires unvaccinated children to leave school on the appearance of smallpox in a community.

Steamers Quarantined.—The steamer *Northern Pacific* was detained at San Diego, April 8, on account of the presence of a case of smallpox among its passengers. The passengers were examined and vaccinated at San Diego and the ship was allowed to go to San Francisco where she laid in quarantine until April 13, when she was given a clean bill of health. —A case of smallpox on board the steamer *Chiyo Maru*, which arrived from Japan in San Francisco, April 19, caused the detention of the vessel in quarantine pending the examination of the passengers.

Personal.—Dr. Albert H. Sweeney has been elected health officer, Dr. William L. Adams, assistant health officer and emergency physician, and Dr. Grace L. Thorne Hopkins, city bacteriologist of Fresno.—Dr. John L. Pomeroy has been appointed health officer of Monrovia.—Dr. Samuel H. Hurwitz, formerly of Harvard Medical School, has been appointed instructor in medical research in the George William Hooper Foundation for Medical Research of the University of California.—Dr. Fred W. McKibbin, Oakdale, has purchased the Oakdale Hospital.—Dr. Robert A. McLean, San Francisco, who has been seriously ill with hemorrhage of the stomach, is reported to be improving.—Dr. Walter B. Power, Redlands, has returned from Europe.—Dr. Arthur L. Brown, Riverside, has been appointed health officer of Riverside County.

ILLINOIS

New Hospital.—Work on the new Iroquois Hospital, Watseka, for the building and maintenance of which Mrs. Anna Donovan contributed \$50,000, is almost completed and the equipment will be installed this month.

Personal.—Dr. Walter H. Watterson, Waukegan, has been appointed head physician of the tuberculosis department of the Cook County Tuberculosis Sanatorium, Oak Forest, succeeding Dr. Glenford L. Bellis, resigned.

Physicians' Club Election.—At the annual meeting of the Physicians' Club of Geneseo, April 12, the following officers were elected: president, Dr. Charles S. Young; vice-president, Dr. John H. Murphy, and secretary-treasurer, Dr. Wilbur F. Spencer.

Building for Physicians.—A building has been erected on East Capitol Avenue, Springfield, especially for the use of physicians and dentists. The building will be 60 by 40 feet, two stories in height and will contain thirty rooms arranged in suites.

Chicago

More Funds for Hospital.—The County Board is expected to approve the submission to voters of a bond issue of \$1,000,000 for the completion of Cook County Hospital, including a new morgue and power house.

Physicians Day at Fellowship Club.—At a meeting of the Irish Fellowship Club, May 1, an open forum for Chicago professional and business men was inaugurated. Patrick H. O'Donnell, the recently elected president, called Dr. Patrick J. H. Farrell to the chair and addresses were made by Drs. William A. Evans, A. Augustus O'Neill, John Dill Robertson and Truman W. Brophy.

Hospital Negotiates Loan.—The sister superior in charge of Mercy Hospital has negotiated a loan of \$200,000 with the Massachusetts Mutual Life Insurance Company for an addition to the institution. The loan is temporary and will be repaid from a bequest made by the late Charles Haines of St. Charles, Ill. The new addition will be a five-story brick building, 175 feet long and will provide more than 100 additional rooms.

Personal.—Dr. Alice M. Smith, a member of the staff of the Chicago State Hospital, Dunning, has been made a Fellow of the Royal Society of Arts of London, England.—Dr. Henry G. W. Reinhardt, chief coroners' physician, celebrated his silver wedding anniversary, May 1.—Health Commissioner John Dill Robertson has succeeded Dr. George B. Young as chairman of the morals commission.—Dr. Henry B. Favill was elected president of the National Dairy Council at its meeting in Chicago, April 24.

Work of the Health Department.—The last annual message of Mayor Harrison, who retired April 25, contains much of interest concerning the work of the health department under the direction of Health Commissioner Dr. George B. Young, who also retires to take up his work again with the Public Health Service. The total number of employees of the department in 1911 was 536 and in 1914, 746. The per capita appropriation for the health department work proper for 1911 was .287; for 1912, .314; for 1913, .308, and for 1914, .438. Though there has been a considerable increase in the total appropriation it has not kept pace with the proportionate increase in population, as the estimated increase in population, 1911 to 1915, was 6.6 per cent., while the increase in appropriations amounted to only 5.2 per cent. The death rate per thousand of population was 14.49 in 1911 and 14.18 in 1914, not an extraordinary decrease, but as the message points out, the benefits to the city from increased health appropriations are not to be measured exclusively by a decreased death rate. It is said that if there had been the same death rate in 1914 as in 1911 there would have been 1,549 more deaths, and taking the average value of a life as \$5,000 the total saving in this respect was \$7,745,000. In a comparison of the death rate of babies in Chicago of 2.87 per thousand of population with that of New York of 2.43, it is said that this difference may be accounted for by the fact that the appropriations in Chicago in 1914 for infant welfare work was \$4,000, while in New York it was \$215,000. In the limited districts of the congested area in which summer infant welfare work was conducted, the infant mortality was 17 per cent. less than in the city as a whole. The improvement in the typhoid death rate during the four years covered by the administration was from 1.078 in 1911 to 0.697 in 1914, with a low point also in 1912 of 0.762. Among other notable changes in methods and improvements in conditions, were the relaxation of quarantine measures in infectious diseases

so that by isolating the patient, other members of the families were not compelled to lose time from work, a desirable measure which resulted in no increased spread to susceptibles. The excellent housing ordinance of the city has been enforced in such a way that it is said that new construction of typical tenement conditions that deface many cities is impossible in Chicago. Among other measures inaugurated or pursued vigorously under the administration were the inspection and condemnation of foods not up to the standard, the sampling of water and sanitary surveys of water supply conditions, the sanitation and heating of street cars, hospital control and inspection and garbage disposal. During the term of Mayor Harrison the garbage question was placed in an improved state by the acquisition of a reduction plant and the erection of a number of crematories or disposal plants, so that with improvements now under way garbage disposal in Chicago bids fair to be a source of income rather than expense. In the settlement of this garbage question the health department had a great share. The handicap of legal difficulties surrounding the enforcement of the milk ordinance was finally cleared away by a supreme court decision in 1914, making it much easier to carry out necessary steps, though through the vigorous exercise of authority of a general nature the department kept the milk supply in a fairly good condition.

IOWA

Medical Society to Care for City and County Patients.—A contract has been entered into by the Black Hawk County Medical Society and the Waterloo Medical Society, and the city of Waterloo to furnish medical attendance to city and county patients. The contract becomes effective April 27 and calls for the payment of \$1,500 annually to be paid jointly by the city and county.

Personal.—Dr. David S. Fairchild, Jr., Clinton, entertained the Iowa State Surgeon's Association, April 24.—Dr. William S. Morton, Muscatine, has been appointed local surgeon for the Rock Island system.—Dr. John H. Shipley, Rippey, sustained serious injuries by the overturning of his automobile near Perry, April 22.—Dr. Edward D. Middleton, Davenport, is serving as chief medical officer on the steamship *Anglo-Australian*, sailing between New Orleans and Bristol.

Society Approves Sanatorium.—At a special meeting of the Pottawattamie County Medical Society held in Council Bluffs, April 15, a formal endorsement was given to the proposed county tuberculosis sanatorium and a committee was appointed, consisting of Drs. Vernon L. Treynor, Henry B. Jennings and John S. McAtee, to take the matter up again with the county board and confer regarding the kind of sanatorium to be established and its location. A tent colony is favored and the location proposed is on the farm at the county home near McClelland.

KENTUCKY

County Society Reorganized.—At a meeting of the physicians of Nicholas County April 1, called by Dr. George B. Spencer, Carlisle, the Nicholas County Medical Society was reorganized.

Course on Fractures and Dislocations.—A special course of lectures and clinics on fractures and dislocations during the week of May 31 to June 5, will be held for the members of the Kentucky State Medical Association which meets in Louisville at that time.

Personal.—Dr. Simeon K. Fisher, Milton, is reported to be seriously ill with heart disease.—Dr. George L. Barr, Owensboro, was painfully injured in a collision between automobiles, April 16.—Dr. Moreau S. Browne, Winchester, who has been seriously ill, has recovered and resumed practice.—Dr. John L. Brown, Rothwell, was seized with cerebral hemorrhage and is reported to be critically ill.—Dr. Charles A. L. Reed, Cincinnati, was the guest of honor at a medical temperance banquet held in Lexington, April 6, over which Dr. Joseph A. Stucky presided as toastmaster.—Dr. W. N. Craig, Stanford, has been appointed deputy internal revenue collector under the Harrison antinarcotic law.

Tuberculosis Notes.—An appropriation of \$1,000 was made to the city council of Hopkinsville April 16, toward the establishment of a summer camp for Christian County. The county has already appropriated \$1,500 for this purpose.—Henderson County has appropriated \$1,000 for the use of the County Tuberculosis Sanatorium.—At the annual meeting of the Louisville Antituberculosis Association April 12, the reopening of the Hazelwood Sanatorium was announced.

Dr. Oscar O. Miller, Louisville, has been appointed resident physician at the sanatorium and a medical advisory board of eighteen, headed by Dr. A. Morgan Vance, has agreed to assist the directors in the conduct of the institution.

LOUISIANA

Hygiene Lectures.—A course of lectures on the medical and social aspects of hygiene, organized by the superintendent of public schools of New Orleans, began March 26 and will continue for nine weeks. The first lecture was given by Dr. Charles C. Bass on "The Prevention of Malaria."

Dowling Advocates Health Exhibit.—Dr. Oscar Dowling, Shreveport, president of the Louisiana State Board of Health, addressed the members of the Florida Legislature by invitation April 15, at Tallahassee, urging the adoption of health legislation advocated by State Health Officer Dr. Joseph Y. Porter and also urging the preparation of an exhibit similar to that used in Louisiana.

Railway Surgeons Hold Meeting.—At the annual meeting of the Association of Louisiana and Mississippi Railway Surgeons held at Lake Charles, April 22, the following officers were elected: president, Dr. Charles McVea, Baton Rouge; vice-presidents, Drs. Manasseh L. Hoffpauer, Crowley; and Inman W. Cooper, Newton, Miss.; secretary, Dr. James J. Robert, Baton Rouge; and treasurer, Dr. Paul T. Talbot, New Orleans.

State Society Election.—At the thirty-ninth annual meeting of the Louisiana State Medical Society held in Lake Charles, April 20 to 22, the following officers were elected: president, Dr. James Clinton Willis, Shreveport; vice-presidents, Drs. Thomas H. Watkins, Lake Charles; Adolph Henriques, New Orleans; and John M. Mosely, Arcadia; secretary-treasurer, Dr. Laurence R. De Buys, New Orleans; chairman of the house of delegates, Dr. Addley H. Gladden, Monroe, and councillors, third district, Dr. J. W. Kenward Shaw, New Iberia; sixth district, Dr. James J. Robert, Baton Rouge; and eighth district, Dr. Eugene L. Henry, Lecompte.

Personal.—Dr. Herbert C. Cole, Bogalusa, underwent operation April 16.—Dr. Morton Paul Lane, New Orleans, has returned from Serbia where he served as assistant physician in the American Red Cross.—Dr. G. Farrar Patton, New Orleans, who has been ill with influenza affecting the middle ear and necessitating a mastoid operation is convalescent.—Dr. Joseph A. Danna, for many years house surgeon of the Charity Hospital, New Orleans, is to have conferred on him by the king of Italy, membership in the Order of Knights of the Crown of Italy, in recognition of his services to the Italian population of New Orleans.—Dr. Edward M. Hummel of the State Hospital for Mental Diseases, New Orleans, was publicly commended by the mayor recently for his excellent work at that institution during the last three months.

Yellow Fever Suspected.—Under date of April 15 two cases of yellow fever were reported to have been diagnosed by the marine hospital physicians at Morgan City. The disease was discovered on the American schooner *Persis A. Colwell* which arrived at quarantine from Demarara, British Guiana. The captain is said to have reported that the cook died from the disease March 25 and was buried at sea. P. A. Surgeon Richard H. Creel and Surgeon Rudolph H. von Emdorf of the Public Health Service proceeded to Morgan City to investigate. Dr. McClelland, the only physician allowed on board the vessel reported that the two patients were improving, and it was believed that no new cases would develop. The cases have been determined not to be yellow fever. One of the suspects had typhoid fever and the other an inflammation of the throat.

MAINE

Alterations at Hospital.—Extensive alterations and changes are being made at the Maine Eye and Ear Infirmary, Portland, at a cost of about \$10,000.

Personal.—Dr. George C. Precourt has been elected city physician of Biddeford, succeeding Dr. Omar E. Boivin.—Dr. Donald B. Cragin, Waterville, expects to resume practice this month.—Dr. Charles E. Williams, Houlton, is confined to his home by a severe attack of neuritis.

Increase Work of County Examiners.—The recent legislature passed a bill according to which the various county medical examiners will have their duties very materially increased after July 3, when the new act becomes a law. The office of coroner becomes automatically abolished on that date. The new law is patterned after the Massachusetts Medical Examiner bill.

Osteopathic Bill Defeated.—The osteopaths were defeated in their attempt to have a board of registration of their own. This bill has been presented at every meeting of the legislature for the past several years and with a strong lobby has received great support. Very fortunately the medical profession had several men in the upper and lower house who were able to muster enough support to defeat the measure again.

Hospital Opened.—The Madigan Memorial Hospital, under the charge of the Sisters of Mercy, recently opened its doors in Houlton. The hospital was given as a memorial to his father and mother by the late A. M. Madigan and consists of the beautiful Madigan Homestead with some 45 acres of land. The old building was entirely remodeled, a new brick wing containing a modern operating suite and men's surgical ward added which gives the institution a capacity of thirty beds.

State Sanatorium.—According to an act passed by the recent legislature the state will in the near future probably take over the sanatoriums at Bangor and Fairfield and conduct them as state hospitals for tuberculosis. Up to the present no reservations have existed for the care of needy persons suffering from this disease or those who were in an incurable condition. Under the provisions of this bill patients unable to pay the recognized fee will be admitted without charge, and the money that has in the past been given to private institutions will be used by the state in the running of the state institutions.

MARYLAND

Urologic Institute Open.—The formal opening of the James Buchanan Brady Urologic Institute at the Johns Hopkins Hospital, took place May 4.

To Discuss Child Problems.—One of the important events in connection with the meeting of the National Conference of Charities and Corrections in Baltimore, May 12 to 19, will be the meeting of the national conference on the education of dependent, truant, backward and delinquent children. This conference will begin its sessions May 10. E. E. Gardner, Howard, R. I., is president of this conference, and W. L. Kuser, Eldona, Iowa, is the secretary and treasurer.

Segregation of Habitual Drunkards.—The first step of the commission appointed by the governor to study the problem of dealing with the habitual drunkards of the state will be the segregation of this class from other prisoners at the Maryland House of Correction. The commission recommends that the drunkards be given outdoor work as far as practicable. Dr. Nathan R. Gorter, Baltimore, health commissioner, has been appointed one of the members of the commission.

Faculty Elects Officers.—At the one hundred and seventeenth annual meeting of the Medical and Chirurgical Faculty of Maryland, held in Baltimore April 27, 28 and 29, the following officers were elected: president, Dr. J. Whitridge Williams, Baltimore; vice-presidents, Drs. Lewis C. Carrico, Bryantown; Milton D. Norris, Eldersburg; and Joseph A. Chatard, Baltimore; secretary, Dr. Joseph I. France, Baltimore; and treasurer, Dr. William S. Gardner, Baltimore; delegate to the American Medical Association, Dr. G. Lane, Taneyhill, Baltimore; alternate, Dr. Herbert Harlan, Baltimore. Drs. John L. Riley, Snow Hill and Lewis A. Griffith, Upper Marlboro, were chosen to fill the vacancies on the State Board of Medical Examiners.

Personal.—Dr. Henry J. Berkley, Baltimore, has been appointed a member of the State Lunacy Commission to succeed Dr. John D. Blake, Baltimore.—Dr. William S. Thayer of the Johns Hopkins University School of Medicine, has been placed on the slate of eighteen Harvard alumni for a postal card ballot, the ten men receiving the highest number of votes to stand for election to the Harvard Board of Overseers on commencement day.—Dr. J. Percy Wade, superintendent of the Spring Grove State Hospital at Catonsville, has just completed twenty-three years' service at that institution, going in 1892 as assistant superintendent to the hospital and five years later becoming superintendent.—Dr. Thomas A. Ashby has returned from a visit to Georgia and South Carolina, where he went to assist in organizing alumni associations of the University of Maryland. In the near future he will go to North Carolina and West Virginia.

NEW YORK

Guests of Honor.—Drs. A. Walter Suiter and George Graves, who have served for forty-four years respectively as secretary and treasurer of the Herkimer County Medical Society, were given a testimonial banquet by that organiza-

tion, April 21, at which a Masonic pin was given Dr. Suiter and a Shriner's pin was presented Dr. Graves from the physicians of Herkimer Village.—A banquet was tended by the Fulton Academy of Medicine in honor of Dr. George G. Whitaker, who has practiced for fifty years in that city.—Dr. and Mrs. Lucien Howe, Buffalo, gave a reception, April 27, in honor of Dr. Victor C. Vaughan, Ann Arbor, Mich., president of the American Medical Association.

Medical Women Hold Meeting.—At the annual meeting of the Woman's Medical Society of the State of New York held in Buffalo April 27, the following officers were elected: president, Dr. Maud Josephine Frye, Buffalo; vice-presidents, Drs. Eveline P. Ballantine, Rochester; Annie Sturgis Daniel, New York City, and Mary Sutton Marcy, New York City; secretary, Dr. Mary Gage Day, Kingston; treasurer, Dr. Florence L. McKay, Rochester, and councillors, Drs. Josephine Walter, New York City; Inez A. Bentley, King's Park; Agnes E. Page, Albany; Lois L. E. Gannett, Adams; Florence L. Staunton, Utica; Anna M. Stuart, Elmira; M. Louise Hurrell, Rochester, and Nathalie K. Mankell, Buffalo.

State Society Meeting.—At the one hundred and ninth annual meeting of the Medical Society of the State of New York held in Buffalo April 27 to 29, under the presidency of Dr. Grover W. Wende, Buffalo, the following officers were elected: president, Dr. William Stanton Gleason, Newburg; vice-presidents, Drs. Montgomery E. Leary, Rochester; Henry L. Winter, New York City and Thomas H. McKee, Buffalo; secretary, Dr. Wisner R. Townsend, New York City (reelected); treasurer, Dr. Alexander Lambert, New York City (reelected); councillors, Drs. James E. Sadlier, Poughkeepsie; James S. Cooley, Mineola; Alvah H. Traver, Albany; Julius B. Ransom, Dannemora; William D. Garlock, Little Falls; Thomas F. Manley, Norwich; William T. Shanahan, Sonyea, and Carl G. Leo-Wolf, Niagara Falls, and delegates to the American Medical Association, Drs. Grover W. Wende, Buffalo; William F. Campbell, Brooklyn; Edgar A. Vander Veer, Albany; Henry L. Elsner, Syracuse; Floyd M. Crandall, New York City, and John O. Polak, Brooklyn. The oration in medicine was delivered by Dr. Victor C. Vaughan, Ann Arbor, president of the American Medical Association.

New York City

A Week Without Typhoid Mortality.—For the week ended April 24 not a death from typhoid fever was reported in the entire city. The only other week in the history of the Bureau of Records in which such a record was made was in 1909.

NORTH DAKOTA

State Board Approves Compulsory Vaccination.—At a meeting of the State Board of Health in Bismarck, April 3, the board decided to enforce to the letter compulsory vaccination for schoolchildren and to prohibit non-vaccinated children from attending school.

New Health Journal.—The North Dakota Antituberculosis Association has begun the publication of *The Pennant*, the initial number of which contains articles on the "Last Session of the North Dakota Legislature," "Antinarcotic Law," "Juvenile Health Crusade in England," "Ten Health Commandments" and "Causes that Kill Babies."

Hospital News.—Arrangements have been completed for the erection of a hospital for Kenmare to cost \$25,000. The building will be able to accommodate fifty patients.—The new St. Alexius Hospital, Bismarck, opened to receive patients last month. Two floors of the building are already filled.

Personal.—Dr. William R. Shortridge, Flasher, who was operated on recently at St. Mary's Hospital, Rochester, Minn., has recovered and resumed practice.—Dr. and Mrs. Daniel H. Bell, Kenmare, have returned after several years abroad.—Dr. Joseph T. Newlove, Minot, has been appointed a delegate to the American Academy of Political and Social Science.—Dr. Alfred M. Call, Rugby, has been appointed vice-president of the State Board of Health.

OHIO

Must Report Ophthalmia of Infants.—The House of Representatives on April 15 passed the Deaton bill which requires that physicians report to local health authorities all inflammations of the eyes of newborn infants within six days. The bill carries the appropriation of \$5,000 and 50 cents is to be paid for each report of a case.

Physicians Fill Pulpits.—Sixty physicians spoke from the pulpits of Cincinnati churches May 2, the day before the opening of the Ohio State Medical Association. The plans for the placing of the speakers were made by the religious work committee and the executive secretary of the Federation of Protestant Churches.

Carlson in Cleveland.—Professor A. J. Carlson of the University of Chicago, will address a joint meeting of the Alpha Omega Alpha chapter of the Western Reserve Medical School and Experimental Section of the Cleveland Academy of Medicine at the Medical Library, Cleveland, May 14, on "Some Recent Contributions to the Physiology of the Stomach."

Home from War Zone.—Drs. Samuel L. Ledbetter, Jr., William E. Lower, Leroy B. Sherry, Charles W. Stone, James N. Worcester and Edward F. Kieger, all of Cleveland, have returned home after a term of service in the American Ambulance Hospital, Paris.—Dr. George J. Roberts, Westminster, was seriously injured in a collision between automobiles, April 6.

Centralization of Medical Interests.—Plans are being made for the amalgamation of all physicians of Dayton into a common body and for the securing of a clubhouse where the various medical organizations, while not losing their individual identities, may still have a common meeting place and a center for scientific and research work. The societies included in the new organization are the Montgomery County Medical Society, Dayton Homeopathic Medical Society, Dayton Academy of Medicine, Dayton Medical Society and the Miami Dental Society.

Personal.—Dr. Clyde R. Kitsmiller, Fresno, has been appointed division physician for the Pennsylvania system with headquarters in Pittsburgh.—Dr. Jay S. McCullough has been appointed local surgeon for the Pennsylvania lines, west, at Wellsville.—Dr. Kachig H. Yeretizian, Columbus, has resigned after five years' service as staff physician at the Columbus State Hospital and will enter general practice in the city.—Dr. Edwin A. Hamilton, Columbus, who has volunteered for duty with the National Red Cross, sailed from New York, April 20, to take charge of the Red Cross Hospital at Gleivitz, Silesia.—Dr. William G. Zanting, Jefferson, who was operated on at the Ashtabula General Hospital recently, is convalescent and will soon resume practice.—On the eve of his departure for his new home in Chicago, Dr. Asher F. Sippy, Akron, was given a dinner by members of the medical profession of Akron, Barberton and Cuyahoga Falls. Dr. Charles E. Held, Akron, on behalf of the physicians present, presented Dr. Sippy with a gold watch.—Dr. Winfield S. Ritenour, Bellbrook, has been appointed assistant superintendent of the staff of the McClellan Hospital, Xenia, vice Dr. Frank R. Bailey, Xenia, resigned.—Dr. Harry H. Snively and party, Columbus, have reached Bergen, Norway, en route to Kiev, where they take charge of the Russian Red Cross Hospital.

Cincinnati

New Interns at the Cincinnati General Hospital.—Out of the class of sixty-one who took the examination for internship in the new Cincinnati General Hospital, 14 interns and 10 alternates were selected. Of the interns, 6 were graduates of the University of Cincinnati, 5 of Rush Medical College, 2 of Johns Hopkins University and 1 of Northwestern University. Of the 10 alternates, 7 were graduates of Rush Medical College, 2 of the University of Cincinnati and 1 of Northwestern University. The service is for one year and it is probable that some of the alternates will be needed to fill places in the house staff.

Personal.—Dr. John D. Spelman, captain, M. C., Ohio, N. G., has accepted an appointment under the American Red Cross for service in Belgium and sailed from New York, April 17. At a dinner given April 14, by the officers and men of the First Field Hospital, in honor of Dr. Spelman, he was presented with a gold wrist watch.—Dr. Edward H. Thompson, consulting physician to the German Protestant Orphan Asylum, resigned April 24.—Dr. John H. Berry, assistant superintendent of the Longview Hospital, has been appointed to a similar position at the State Hospital for the Criminal Insane, Lima.—Dr. Horace F. Tangeman, has been appointed eye, ear, nose and throat specialist at the Municipal Tuberculosis Sanatorium.—Dr. Peter A. Keck, one of the oldest practitioners of the city, is reported to be critically ill in the Cincinnati General Hospital.

PENNSYLVANIA

Appropriation Recommended.—The House Appropriation Committee on April 26 reports favorably on the bill appropriating \$2,975,807 to the State Department of Health for the maintenance of the State Tuberculosis Sanatoriums and Dispensaries and \$845,000 for the Polk Institution for the Feeble-Minded.

Personal.—Dr. Thomas H. Leidy, Reading, was run down by an automobile, April 26, and painfully injured.—Dr. James A. Carnes, Mt. Carmel, has been appointed superintendent of a hospital at Massillon, Ohio.—Dr. Amelia A. Dranga, Pittsburgh, has been elected treasurer of the Pittsburgh Woman's Medical Society succeeding Dr. Fannie Davis, resigned.—The summer home of Dr. Charles J. Hunt, Harrisburg, associate chief medical inspector, was entirely destroyed by fire April 23.

Optometrists Lose Fight.—On May 1 Governor Brumbaugh announced that he had vetoed the Daix optometry bill, which would establish a separate bureau to license optometrists, holding that he sees no reason why the practitioners should not place themselves under the State Bureau of Medical Licensure. The bill was one of the early ones presented to the legislature, having been introduced on February 8. It was passed in April and recalled from the governor for amendment on April 15. Five days later it was amended and passed.

Philadelphia

Banquet to Da Costa.—Dr. John C. Da Costa was the guest of honor at the annual banquet of the Northern Medical Society at the Hotel Walton April 27. Dr. Thomas Shriner presided as toastmaster. The speakers who praised the career of Dr. Da Costa as surgeon, educator and literary man included Drs. James Tyson and William H. Walsh.

Educational Bulletins Ready.—The *Health Bulletins* adopted by the Child Federation for the education of mothers and housekeepers are ready to be posted in the 350 places in the city. Iron bulletin boards have been erected and the first bulletin giving warning of the dangers to health by the fly menace is off the press. The bulletins, yellow in color and 18 by 24 inches in size, will take up one subject at a time.

Clean-Up Week.—Philadelphia's clean-up week, May 3-8, has been widely advertised. Posters of "Billy Penn" armed with a broom and urging a spick and span city were placed in all street cars and public places. During the week collections were made by the ash and rubbish men, extra teams, wagons and men being put to service by the Highway Bureau. The big corporations, including life insurance companies, recognized the full intent of what "clean-up week" means by advertising and personal appeals urging city-wide cooperation in the project. Monsignor McDevitt, director of the parochial schools, in a circular declared that the cordial endorsement of Clean-Up Week stimulated the personal interest of citizens in their city and made for efficient administration.

Woman's Medical College News.—Moving pictures illustrating the work of the Woman's Medical College will be exhibited in the Young Women's Christian Association Building at the Panama Pacific Exposition, San Francisco. These films take as their subjects the girl student as she enters college, following her through work and play to her graduation, and then depicts the busy woman physician in some of the emergencies she is called on to meet.—A subscription dinner was held in behalf of the Woman's Medical College of Pennsylvania at the Hotel Rittenhouse May 4. Mrs. William Ellis Lucans acted as toastmaster and address were made by Drs. William W. Keen and Edward E. Montgomery, and a letter of greeting from President Wilson was read.

SOUTH CAROLINA

State Sanatorium.—The Tuberculosis Hospital at State Park will have its two-story administration building and one ward completed and ready for occupancy early this month. The sanatorium has been erected at a cost of about \$10,000, and the building thus far erected, will accommodate twenty patients.

Personal.—Dr. C. Frederick Williams, Columbia, resigned as a member of the State Board of Regents to accept the position of superintendent of the State Hospital for the Insane, Columbia, succeeding Dr. Thomas J. Strait, Lancaster, retired.—Dr. James E. Daniel, Greenville, has been appointed second assistant surgeon, Belgian Unit, No. 1,

American Red Cross, and sailed for Europe, April 17.—Dr. Milton T. Edgerton, Jr., Greenville, N. C., has been elected whole-time health officer for Pitt County.—The office of Dr. George Y. Hunter, Prosperity, was destroyed by fire recently.

State Medical Society Meeting.—The sixty-seventh annual meeting of the South Carolina Medical Association was held in Greenwood, April 20 to 22, and the following officers were elected: president, Dr. Gottlob A. Neuffer, Abbeville; vice-presidents, Drs. Rufus B. Epting, Greenwood; J. J. Cleckley, Bamberg, and David A. Coleman, Blackstork, and secretary-treasurer, Dr. Edgar A. Hines, Seneca, reelected; councilors, first district, Dr. Archibald E. Baker, Charleston; third district, Dr. Miles J. Walker, Yorkville, and seventh district, Dr. Samuel C. Baker, Sumter. The following board of examiners was also elected: Drs. Joseph T. Taylor, Adam's Run; John Lyon, Jr., Greenwood; Ebenezer W. Pressly, Clover, and Joseph J. Watson, Columbia. The next meeting is to be held in Charleston.

CANADA

Special Medical Convocation.—A special convocation was held in the assembly hall of the new medical building of McGill University, Montreal, to confer the degree of M.D., C.M., on the students of the fifth year medical class, who are to be attached to the McGill General Hospital on the lines of communication.

Tuberculosis Clinic in New Brunswick.—Dr. David Townsend, superintendent of the Jordan Memorial Hospital, River Glade, N. B., visits Fredericton on the first Wednesday, St. John on the first Thursday and Moncton on the second Thursday of each month for the purpose of conducting clinics for tuberculosis in the interests of the sanatorium. These clinics are opened free of charge to anyone for opinion and advice regarding tuberculosis.

Personal.—Dr. John W. S. McCullough, Toronto, has been appointed assistant sanitary expert to the international joint commission on waterways and pollution of boundary waters.—Major Frank S. Patch, Montreal, commanding the fifth field ambulance, A. M. C., has been appointed acting assistant director of medical surgeons for the fourth military division with headquarters in Montreal, succeeding Lieut.-Col. H. B. Yates, Montreal.—Dr. John R. M. Collie, Jr., River John, Pictou, N. S., has returned home after three years abroad.—Dr. Darius A. Coon, Elgin, Ont., has been appointed medical superintendent of the Kingston General Hospital.—Dr. William G. Anglin, Kingston, Ont., who will be chief surgeon with Queen's University Stationary Hospital, which leaves for France shortly, has been granted the rank of lieutenant-colonel by the Canadian Militia Department.—One hundred additional Canadian doctors are being selected to go to England in response to another request from the War Office. When the second Canadian Army Division is at the front Canada will have about 300 surgeons and 450 nurses in England and France. There is still a waiting list of 1,200 nurses on file in the Militia Department at Ottawa.—No. 2 Casualty Clearing Hospital under command of Lieut.-Col. George S. Rennie, Hamilton, has gone abroad. Lieut.-Col. Alexander B. Osborne, Hamilton, retired officer, is second in command. In addition there are Drs. James E. Davey, Hamilton; Frank E. Wilson, Niagara Falls; George S. Strathy, Toronto; Harvey L. Jackes, Toronto; and Lawrence B. Robertson, Toronto. Lieut.-Col. John T. Fotheringham, chief medical officer of the Second Canadian Overseas Force, left Toronto last week for the front.—Drs. John A. Amyot and P. Walter H. McKeown, Toronto, with the University of Toronto Base Hospital which will soon leave for the front, were recently banqueted by a large number of friends and presented with wrist watches.—The president of the Academy of Medicine, Toronto, Dr. Harry B. Anderson, and the Council of the Academy, gave a banquet in honor of Lieut.-Col. James A. Roberts and the other members of the University of Toronto Base Hospital, April 6.—The following comprise the McGill Base Hospital which will leave for England in a few days: In command, Lieut.-Col. Herbert S. Birkett; second in command, Lieut.-Col. H. B. Yates; Drs. Edward W. Archibald, Harry C. Burgess, H. C. Browne, H. C. Dixon, John M. Elder, Wm. T. Ewing, Chemoinus, B. C.; William W. Francis, Arthur T. Henderson, W. Henry P. Hill, Donald A. Hingston, Campbell P. Howard, Ottawa; William B. Howell, J. Wm. Hutchison, David Law, Herbert M. Little, John McCrae, J. A. Mac-Millan, Laurie H. McKim, Ronald St. J. Macdonald, Port

Hood, N. S.; R. H. Malone, John C. Meakins, Revers Osler, Alexander H. Pirie, L. J. Rhea, Colin K. Russel, Lewis L. Reford, R. B. Robertson, A. Stevenson, L. H. Thornton, William G. Turner, J. C. Wickham, Walter A. Wilkins, J. L. Todd and F. W. Tidmarsh.—Among the 5,000 men recently in camp in Exhibition Park, Toronto, thirteen cases of cerebrospinal meningitis developed up to the end of March, the first case appearing February 8. Altogether seventy-two carriers were discovered and isolated in the old Toronto General Hospital. No cases developed among those men.—Dr. Andrew Macphail, Montreal, editor of the *Canadian Medical Association Journal*, has sailed for France with the Montreal Clearing Hospital.—Much sympathy is expressed in Toronto toward Dr. George A. Sterling Ryerson, president of the Canadian Red Cross Society, who is at present on a tour of inspection of hospitals in England and France, over the death of one son killed in the battle of Langemarck and another severely wounded.—Dr. Irving Heward Cameron, professor of surgery in the medical department of the University of Toronto, has resigned.—Dr. W. Harley Smith, for several years secretary of the Academy of Medicine, Toronto, and who has for several years acceptably filled the post of Italian consul in Toronto, has resigned that office.—Up to March 1, No. 2 General Hospital, operating in France under Dr. Wallace A. Scott, Toronto, had handled 13,000 patients.

GENERAL

Pediatric Society Meeting.—The American Pediatric Society announces its twenty-seventh annual meeting, to be held in Lakewood, N. J., May 24 to 26, under the presidency of Dr. George N. Acker, Washington, D. C.

Warning.—It is reported that a young man, claiming to be a member of the Coast Guard Service has victimized several members of the medical profession by passing worthless checks in Washington, D. C. and Baltimore.

Medico-Psychologists to Meet.—The seventy-first annual meeting of the American Medico-Psychological Association will be held at the Hotel Chamberlin, Fortress Monroe, Va., May 11 to 14, under the presidency of Dr. Samuel E. Smith, East Haven, Ind.

Meeting of Immunologists.—The second annual meeting of the American Association of Immunologists will be held in the New Willard Hotel, Washington, May 10, under the presidency of Dr. Gerald B. Webb, Colorado Springs, Colo. Morning, afternoon and evening sessions will be held.

Meeting of Gastro-Enterologists.—The eighteenth annual meeting of the American Gastro-Enterological Association will be held in Osler Hall, Medical and Chirurgical University, Johns Hopkins University, Baltimore, May 10, under the presidency of Dr. Joseph C. Bloodgood, Baltimore.

Academicians to Meet.—The American Academy of Medicine, a society for the study of questions of social medicine, will hold its annual meeting in the St. Francis Hotel, San Francisco, the Friday and Saturday before the meeting of the American Medical Association, under the presidency of Dr. Woods Hutchinson, New York City. The annual address will be delivered by Dr. David Starr Jordan, chancellor of Leland Stanford University, on "The Relation of Medicine to the Peace Movement."

Examination for Physiologists.—The United States Civil Service Commission announces an open competitive examination for physiologist, for men only, to fill a vacancy in the Dairy Division, Bureau of Animal Industry, Department of Agriculture, Washington, D. C., with a salary of from \$2,500 to \$3,000 a year. The examination is to be held June 8, and those who desire to enter should apply to the United States Civil Service Commission, Washington, D. C., or to the secretary of the United States Civil Service Boards at the cities at which the examination will take place.

Examination for Medical Corps of the Navy.—The next examination of persons desiring to enter the Medical Corps of the Navy will be held in Washington, Boston, New York, Philadelphia, Norfolk, Va., Charleston, S. C., Great Lakes (Chicago), Ill., Mare Island, Cal., and Puget Sound, Wash., on or about July 6. Candidates for appointment must be citizens of the United States, between 21 and 30 years of age, graduates of reputable schools of medicine and must apply for permission to take the examination. The application should be addressed to the Chief of the Bureau of Navigation, Navy Department, Washington, D. C., via the Surgeon-General, U. S. Navy.

FOREIGN

New President for College of Physicians.—Dr. Frederick Taylor, F.R.C.P., has been elected president of the Royal College of Physicians, succeeding Sir Thomas Barlow.

Donations from the Profession in Cuba to the French Red Cross.—A large committee of physicians in Havana has been busily engaged in soliciting donations for the work of the Red Cross in France. The *Revista de Medicina* states that tobacco has been donated in large quantities, so that 6,500 pounds of tobacco, 19,000 packages of cigarettes and five large boxes containing 11,300 "tabacos" have been forwarded, along with 164 bags of sugar, four bags of coffee and considerable rum and cash.

Death of Sir William Gowers.—Sir William Richard Gowers, M.D., F.R.C.P., F.R.S., eminent as a specialist on diseases of the nervous system, whose manual on that subject is a standard work and has been translated into many foreign languages; a frequent contributor to the literature in varied lines of medical research; member of many learned societies; consulting physician to the University College Hospital, London, and physician to the National Hospital for the Paralyzed and Epileptic; died May 4, aged 70.

Prize Offered by the Association of the Medical Press in Cuba.—The medical editors of Cuba keep in close touch with each other by means of occasional meetings to discuss subjects of mutual interest. At the April meeting it was decided to offer a prize for the best clinical work presented for publication before Oct. 1, 1915. The association also passed a resolution appealing to all physicians to discuss scientific matters in medical societies or in medical publications only, and refrain from discussing medical matters in the lay press, except, of course, matters of hygiene affecting the public health or for the education of the public in sanitary matters.

Deaths in the Profession Abroad.—Sir Thomas Smith Clouston, a well-known psychiatrist, died at Edinburgh, Scotland, April 19, aged 75. He married the daughter of William Storer of New Haven, Conn.—C. de Andrade, director of the Laranjeiras maternity at Rio de Janeiro and of the public clinic, aged 45.—M. Roth, professor of pathologic anatomy and later of the history of medicine at the University of Basel.—R. Ruberl, assistant medical director of a Vienna hospital, aged 37. He contracted typhus while tending the sick in one of the hospitals at Nish, Serbia, after he had been captured by the Serbians.—Another victim to typhus is H. Sprinzels, for many years assistant at the Vienna dermatologic polyclinic.—R. Lederer of Teplitz, a young specialist in gastro-intestinal diseases, succumbed to a galloping pulmonary affection contracted during strenuous service in the eastern arena of war.—The death is also reported of the well-known ophthalmologist, Prof. L. Guaita, professor of ophthalmology at the University of Florence and director of the eye clinic, aged 64. He was associate editor of the *Annali di Ottalmologia* and many of his works on ophthalmologic topics have been translated into various languages.—P. Guimarães, formerly professor of surgery at the University of Rio de Janeiro, and of the highest grade in the medical corps of the navy, ranking as admiral.—P. Strübing, professor of internal medicine at the University of Greifswald, aged 62.—H. Hammerl, professor of hygiene at the University of Graz, succumbed recently to smallpox, aged 48.

WAR NOTES

New Red Cross Manager.—On May 1, Brig.-Gen. Carroll A. Devol, Q. M. C., U. S. Army, was detailed for service as general manager of the American Red Cross.

Antitetanus Serum Successful.—In a letter from Sir William Osler it is stated that wounded soldiers in English hospitals have recovered from tetanus after treatment of the serum developed from a formula used in animal experimentation in Johns Hopkins Medical School, Baltimore.

Personal.—Dr. William Jason Mixter, of the Massachusetts General Hospital, is on duty with the Harry Payne Whitney Hospital at Juilly, France. This hospital is known as Hospital B of the American Ambulance.—Dr. Charles S. Pancoast, Camden, N. J., has been given the position of assistant to Dr. Dollinger at the Royal Hospital, Budapest.

Sterilizing Motor Cars Needed.—In response to an appeal sent from the French Red Cross for sterilizing motors for disinfectants in and around battlefield hospitals, the American Red Cross expects to be able to furnish the money for one of these especially equipped automobiles. The American Red Cross has contributed from its contingent fund, \$1,000 of the \$2,000 required. Mrs. Levi P. Morton has contributed

\$500 and Mrs. George C. Lodge is undertaking to raise the remaining \$500.

Reenforcements for the War Zone.—On steamers which sailed from New York May 1, the following Red Cross surgeons were dispatched for service in the war zone: for Serbia, Drs. Shadworth O. Beasley, San Francisco, and William A. Jolley, Boulder, Colo.; for Vienna, Dr. Walpole C. Brewer, Tuskegee, Ala., and for England, Drs. Dunlap P. Penhallow and Herbert H. Howard, both of Boston. The two latter have been assigned to duty at the Paignton Hospital.—By the same steamer, eight trained nurses were sent to Austro-Hungary, four to Germany, five to Serbia and one to England, to take the place of other nurses whose term of service has expired.

Supplies Received.—Sir William Garsten, chief of the supply division of the British Red Cross, writes from London, April 16, acknowledging receipt of 236 cases of stores sent by the American Red Cross.—Dr. V. M. Soubititch, vice president of the Serbian Red Cross, acknowledges receipt of gifts sent by the steamers *Finland* and *Earl of Elgin*.—The American Red Cross shipped on the steamer *Canopic*, from New York, May 1, 353 cases and bales of hospital supplies to the Austro-Hungary Red Cross in Vienna, Austria, the shipment being sent in care of the United States consul at Genoa, Italy.—On the same day, on the Holland-American steamer *Rotterdam*, twelve cases of war relief supplies were shipped to the American minister at the Hague, Holland.—Acknowledgment is made of the receipt of eight cases sent to the American Red Cross Hospital at Pau, France.

The Work Against Typhus in Serbia.—An international board of health has been organized at Nish, Serbia, to cope with the plague of typhus. The president of this board is Prince Alexander of Serbia; vice-president, Sir Ralph Paget of England; and medical director, Dr. Richard P. Strong, Boston, head of the American Commission. The members of the board include the heads of French, Russian and English sanitary commissions and representatives of the civil and military medical departments of Serbia and Skopelje members.—Dr. Strong appeals for at least twenty-five more physicians and medical inspectors and a large quantity of disinfectant cholera vaccine, ten large field autos, and ten Ford motor trucks. The board also needs an experienced sanitary engineer. Dr. Strong also asks for the services of 150 physicians, inspectors and fourth year medical students for the Serbian government. The remainder of the American Commission has reached Saloniki, Greece, and will shortly join Dr. Strong in Nish.

Aid for Belgian Physicians.—In a letter just received by a member of the Committee of American Physicians for the Aid of the Belgian Profession, Dr. Jacobs, Brussels, summarizes the situation of our Belgian colleagues. Many doctors have been killed, and the widows and orphans have been deprived of everything, are without a home and without means. All country doctors or those living in small towns are ruined by loss of every possession they had. Many doctors in large cities are ruined by commandeering, war levies, etc., and a large part of the Belgian population has become the prey of infectious diseases and epidemics, with a large infant mortality. Ruined civilian populations cannot pay for medical advice, consequently many physicians are working for nothing, others are obliged to undertake any labor for gain as a means of livelihood. The opportunity is here created for the medical profession to show the brotherly feeling which exists by helping with the necessary funds. The report of the treasurer for the week ending May 1, 1915, lists the following contributions:

Dr. N. D. Murphy, Bangor, Mich.....	\$ 25.00
Col. W. H. Arthur, M. C., U. S. A., San Francisco, Cal.....	10.00
Dr. Augustus A. Eshner, Philadelphia, Pa.....	10.00
Dr. S. W. Goddard, Brockton, Mass.....	10.00
Dr. Albert M. Judd, Brooklyn, N. Y.....	5.00
Dr. Calvin F. Barber, Brooklyn, N. Y.....	10.00
The Mount Vernon Medical Society, Mount Vernon, N. Y....	10.00

Receipts for the week ending May 1.....	\$ 80.00
Previously reported receipts.....	6,505.50

Total receipts	\$6,585.50
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Disbursements for the week ending May 1:

Thirty-five standard boxes of food at \$2.30.....	\$ 80.50
Previously reported disbursements:	
1,625 standard boxes of food at \$2.20.....	\$3,575.00
1,274 standard boxes of food at 2.30.....	2,930.20

Total disbursements.....	\$6,585.70
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Deficit	\$.20
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F. F. SIMPSON, M.D., Treasurer,
5 Jenkins Arcade Bldg., Pittsburgh, Pa.

LONDON LETTER

LONDON, APRIL 16, 1915.

The War

THE HEALTH OF THE ARMY IN FRANCE

According to the report of Sir John French, commander of the British forces in France, the general health of the army is excellent, typhoid fever has decreased and there has been no recurrence on any appreciable scale of the "foot trouble" (gangrene due to exposure to wet and cold in the trenches already described in *THE JOURNAL*). The latter result is attributed to close supervision of the men, seeing that the precautions advocated, such as not wearing too tight boots, or standing too long without exercise, are duly observed, and the establishment of bathing places and wash houses to enable the troops to maintain cleanliness with their bodies and clothing. Sir John French particularly commends the energy displayed by the medical corps in their efforts to discover and check disease in its earliest stage by a system of experimental research which has never before been so thoroughly developed in the field. In this they are aided by distinguished specialists of the civil profession, who are now employed as military medical officers. Another improvement is the establishment of "convalescent hospitals" near the fighting line, where slight wounds and mild ailments are treated. By this means efficient soldiers whose services would otherwise be lost for a long time are kept in the country, while a large number of men are given immediate relief and rest when required without removing them from the area of operations. The arrangements for the treatment of the wounded are also commended. "No organization could excel the efficiency of the arrangements—whether in regard to time, space, care and comfort, or transport—which are made for the speedy evacuation of the wounded."

THE HEALTH OF THE ARMY AT HOME

The most cordial cooperation exists between the military and civil health authorities in the care of the large number of troops of the new armies in this country. Health officers of counties have been ordered to obtain from district health officers each week information of the occurrence of any military cases of any infectious disease which comes under their notice and of any movement of troops into and out of their districts. In view of the occurrence of sporadic cases of cerebrospinal meningitis in various parts of the country, arrangements have been made for the attendance of bacteriologists when required and the examination of material from contact cases.

A HOSPITAL TRAIN DE LUXE

The latest thing in hospital trains is the "Princess Christian Hospital Train," so called after the lady to whose energy and imagination it owes its being and by whom the necessary funds have been collected. It has been described as more than a hospital on wheels—a traveling hotel for sick men equipped with all the comforts of a private nursing home. The train consists of fourteen coaches, is one-sixth mile long and is painted a light gray. Inside white paint has been used almost exclusively so that absolute cleanliness may be assured—a matter of supreme importance where there are open wounds to be tended. The first coach contains an office for the quartermaster-sergeant, provided with bed, desk, safe and wash basin. Immediately behind this apartment is the first ward, with beds for thirty patients. These beds are specially designed. It is possible to lift them from their attachments to the wall of the carriage, and to use them stretcher fashion. A patient can thus be put into his bed outside the train and taken, in his bed, to the hospital when the journey is ended. By this means the great difficulty of lifting a heavy man to a "top bunk" is dispensed with and the pain which a patient with a broken bone or a severe wound would be bound to suffer during the lifting process is eliminated. Each bed, too, is fitted with a wooden top-piece to prevent the pillows falling off and to afford support to the pillows, and so to the patient's head. Each bed has a little table attached, placed crosswise over the patient's knees, and a fixture for a cup and tumbler. The latter enables a sick man to keep water or other drinks beside him during the night. These ward-coaches have linoleum floor coverings and are equipped with wash basins which can be folded up when not in use. They are lighted both with gas and electricity and have, in addition, candle fittings for emergency use. Roomy lockers have been fitted in each of the four corners of the coaches. The

first three and the last two carriages of the train are devoted to the patients. In the central two carriages the staff is accommodated. There are sleeping rooms for the nurses, heavily curtained off from the central passages, dining rooms for nurses and doctors, an office with sleeping accommodation for the chief medical officer, and sleeping rooms for the other doctors. There are also a large and convenient linen room, a fully equipped surgery and dispensary and two kitchens with good serviceable ranges. In addition, four extra couches have been designed for patients capable of sitting up. The train is steam-heated throughout, and for all general purposes each ward-carriage is a separate unit, having drinking water and service tanks of its own. The beds and bedding are especially attractive, and, indeed, equal in quality and comfort to those of any first-class hotel.

The Manufacture of Salvarsan Products

With the cutting off of the German supply of salvarsan products, these drugs are being manufactured in this country. The Board of Trade has suspended the patents of salvarsan and neosalvarsan and granted a license to Burroughs Wellcome & Co. for the manufacture of these preparations, which they sell under the names of kharsivan and neokharsivan, and to the Société anonyme des établissements Poulenc Frères of Paris for the sale in Great Britain of the same products under the names of arsenobenzol-Billon and novarsenobenzol-Billon. According to a report issued by the National Medical Research Committee (which, it may be remembered, was established under the insurance act), although the manufacturers have in both instances adopted distinguishing trade names for their preparations, the latter are not merely substitutes for, but are chemically identical with salvarsan and neosalvarsan, differing in no known respect from Ehrlich's original products, either in their final constitution or in the details of their preparation. The proof of such absolute identity, is, however, in the case of these substances, a matter not only of great importance, but also of unusual difficulty. Salvarsan is a highly reduced substance. If the reduction, which constitutes one stage of its manufacture, is carried out with insufficient vigor, or if the product is later exposed to the danger of oxidation by contact with air, it is readily contaminated with a much more toxic oxidation product. The water-soluble derivative neosalvarsan is even more liable to this defect. It is impossible, by the most careful procedure, altogether to exclude the presence of the more toxic oxid; but the best specimens, from any source, contain it in the proportion of about 0.5 per cent., and it is an obligation resting on the manufacturer to see that no batch of his product contains it in an unsafe proportion. According to Ehrlich, the proportion varies from 0.5 to 0.8 per cent. in good specimens. If the presence of an excess of this easily recognizable and determinable oxid were the only source of difficulty or danger, a chemical standard of purity, on similar lines to many in the pharmacopeia, could easily have been defined and enforced. Unfortunately there are indications that other toxic products, of unknown constitution, may arise through uncontrollable accidents of preparation. The presence of these is indicated only by the fact that the toxicity of the salvarsan products cannot be accounted for by the percentage of the known toxic oxid which they contain. While, therefore, the determination of the latter is a necessary safeguard, it can be regarded only as a preliminary precaution, and the final appeal, in the present state of knowledge, must be to animal experiment, the result of which gives evidence of the total toxicity from whatever source it comes. The license in both the cases mentioned was, therefore, granted, subject to the condition that all samples of these drugs sold in this country should be submitted to biologic tests by an approved authority. The committee entrusted the details of the work to most competent pharmacologic workers, who took as a basis for the biologic control, supplementing the chemical tests of the manufacturer, the methods and standards which had previously been found adequate in Ehrlich's institute. It was decided, accordingly, that specimens should be passed as satisfactory, under the official certificate of the committee, which were not more toxic to mice than the average sample of German manufacture. This decision has involved the rejection of some samples which exhibited no greater toxicity than some of those previously issued in this country with Ehrlich's authority, and used therapeutically without adverse result. In addition, however, to this application in all cases of the official German test, every sample has been further tested by the intravenous injection into a rabbit of a

large dose only slightly less than that which may be expected, according to Ehrlich's publications, to be lethal for the animal. The object of this test was to guard against the presence of any immediate toxic constituent which might escape detection when doses were given hypodermically to mice. In the opinion of the Medical Research Committee, the experimental work which has been done under its direction has already shown that the problem of the successful manufacture of the salvarsan compounds in England and France has been solved.

An Inquiry Department of the British Red Cross

According to the official announcement, the number of British casualties in this terrible war, which Britain is in a sense only beginning, amount to 139,000. Among the afflictions of the friends and relatives of those who have gone to the front, greater even than the grief of loss, is the suspense when some soldier has disappeared of whom nothing can be heard. It is not known whether he is alive and well, wounded or dead. In order to deal with this problem, the British Red Cross has established an inquiry department which is doing most excellent work. The cases are divided into three main categories: soldiers who have disappeared and whose friends are unable to learn anything about them; soldiers who have been reported wounded, and soldiers who have been reported missing. There is a fourth category for inquiries concerning the whereabouts of the graves of men who have fallen. The bureau has important centers in Boulogne, Paris, Rouen and Havre. There are also workers in most of the smaller towns in northern France, who are supplied with lists of names of "wanted" men. They watch the arrivals at the hospitals carefully and are afforded facilities for getting into touch with them. Often a wounded man is able to say that he saw the soldier who is being looked for at the front, or that he was near when he was wounded and thinks the patient may have been taken to such and such a dressing station, or that he saw him fall and knows where he is buried. Information thus obtained is sent to one of the centers and there compared with reports which may have been received from other workers. Searchers appointed by the bureau then proceed to act. They go to the places named and make full inquiries of the hospital and other authorities; if need be they follow the case down the lines of communication, and in a great number of cases finally get into touch with the missing man. The central office in London is then informed and the anxiety of friends relieved.

PARIS LETTER

PARIS, April 15, 1915.

The War

REORGANIZATION OF THE ARMY MILITARY SERVICE

The minister of war has just introduced certain reforms in the army military service. These reforms concern at the same time the general organization of the service and the personnel. The interior of France is divided, from a military point of view, into twenty-one districts. Until now, some of these districts were grouped and reunited under a single control from the point of view of the medical service, but each one of these districts will be hereafter provided with a surgeon-general inspector (rank corresponding to that of general of a division) or a surgeon inspector (rank corresponding to the general of a brigade).

On the other hand, Dr. Février, who was director of the medical service of the military government of Paris, is succeeded in this position by Dr. Dziewonski, medical inspector. He is charged with the general inspection of the fourth district (Le Mans). Dr. Vaillard, who was director of the technical committee of health, is charged with the general inspection of the district of Paris.

THE WAR AND SCIENTIFIC MEETINGS OF ARMY SURGEONS

In a preceding letter (THE JOURNAL, Jan. 30, 1915, p. 451) the scientific activity of army surgeons in certain centers, particularly at Bordeaux was noted. An important center for scientific meetings of army surgeons is Amiens. The institution of these is due to Dr. Monprofit, surgeon and professor at the surgical clinic at the preparatory school of medicine and surgery at Angers. It dates from the end of September or the first of October; that is a date very near to the liberation of the city of Amiens. Since this date the meetings have not ceased to take place every Saturday under the presidency of Professor Monprofit. The number of army

surgeons who are present has increased and the most prominent army surgeons of the district honor them by their presence and their effective participation. The subjects treated are sometimes clinical, sometimes surgical, but most frequently the latter.

INDUSTRIAL EDUCATION OF THOSE BLINDED BY THE WAR

Under military authority, M. Brissac, director of public aid and hygiene of the Department of the Interior, has decided that all blinded by wounds in war, as soon as they are cured of their wounds, shall be directed under the title of convalescents, to an annex of the noted national hospital, Quinze-Vingts at Paris. This annex, created for the purpose, will bear the name of "Maison de convalescence de la rue de Reuilly." The stay in this hospital will only be temporary. When the blind man has learned a trade, efforts will be made to replace him in the neighborhood where he lived before the war and where it is to be hoped he will be able to take root. The expenses will be borne by the Department of the Interior and by the hospital of Quinze-Vingts, aided by the war department. But in order to give opportunity to extend their efforts, the founders of the Maison de convalescence have created, under the patronage of the ministers of the interior and of war and under the presidency of M. René Vallery-Radot, the son-in-law of Pasteur, a private society "les Amis des soldats aveugles" (the Friends of Blind Soldiers) thanks to which they hope to successfully arm these victims of the war for life by aiding them to reconstitute their existence themselves and to build their own hearthstone.

On the other hand, the "Association Valentin-Haüy pour le bien des aveugles," which in all France has charge of about 7,000 blind persons, from the beginning of the war placed itself at the disposal of the government to take care of our soldiers who should lose their sight. At present, it is teaching a certain number of them, as all who have occupied themselves with the blind have concluded, in which opinion M. Vaughan, who was also director of the national hospital of Quinze-Vingts, coincides, that there does not exist, so to speak, a career fatally and irrevocably closed to the blind. In fact, there are reckoned among them eminent men. Some of them have occupied high positions; others have distinguished themselves in letters, in the sciences and in the arts. The loss of sight does not take away from those who suffer it any of their intellectual activity. It does not take away from them, moreover, the power of adapting themselves to the most varied functions. Many of them who must secure their living by manual occupation learn the trade of bottomers and recaners of chairs, of broom makers and basket makers, some become typographers or typewriters, some, taking advantage of the delicacy of their hearing, make excellent piano tuners; others, following the example which has been brought us from the extreme east, study massage and prove skilful practitioners.

ANTI-ALCOHOLIC MOVEMENT IN THE ARMY

With the approval of the commanding general, the commander of the army of the Vosges has forbidden, in the territory occupied by his troops, the circulation, purchase and sale of alcohol and alcoholic drinks, including *vins de liqueur* and brandied fruits. Very severe penalties, amounting to bringing the offender before a courtmartial, will be visited on those violating this regulation.

The Struggle Against Depopulation

At one of the last sessions of the Academy of moral and political science, the following statement was adopted on motion of M. Imbart de la Tour:

Considering that the lowering of the birth rate cannot be attributed solely to economic causes but to moral causes, and that the measures taken by the law will run the risk of being inefficacious without acting on the ideas and morals, the academy expresses its opinion that (1) the most energetic effort should be given to measures whose purpose is to preserve the morality of youth, the stability of the family, to facilitate marriage among young people, and that these efforts should be favored by the care of public authorities; (2) all the forces of religion, intellectual or moral, churches, schools and popular educational societies should combat by an energetic propaganda, the social curse which threatens the existence even of the nation.

The academy has also expressed the opinion that in revision of laws governing election, a larger number of votes should be granted to the heads of families than to celibates in consideration of the number of children.

Creation of the Municipal Health Office

On motion of M. Ambroise Rendu, the municipal council of Paris is considering the project of creating a municipal office of health of an autonomic character endowed with the necessary means for keeping the overpopulated and insalubrious quarters of the city in a sanitary condition. M. Ambroise Rendu is inspired with the American institution, the board of health, which has full power in matters of health and which watches over everything which concerns public hygiene. This organization, he says, has succeeded in lowering by 3 per cent. the death rate of New York. In Paris, M. Ambroise Rendu hopes to obtain an annual gain of 8,400 inhabitants. To secure this, there is needed an independent office because the administration with its complicated machinery would not have the necessary initiative to find practical and economic solution of the questions involved. There is needed a bureau with power to borrow money, make contracts and acquire property and even buildings. This municipal office of health will include four municipal councilors, two physicians, two architects, two engineers and two building contractors.

BERLIN LETTER

BERLIN, April 6, 1915.

The War

AFTER-TREATMENT OF WAR INJURIES AND DISEASES

On this important subject, the central committee for graduate work in Prussia has instituted a series of lectures in Berlin to which noted authors from abroad have been invited. Professor Kraus, who has been serving in the West as consultant for internal medicine since the beginning of the war and now has been given a furlough of a few days for personal reasons, reported on the experiences which he has had with reference to heart disease during the war. According to his idea, there is no specific war heart. Reasons for disease of the heart are variations of blood pressure, congestions, overexertion and infection. Acceleration of the heart action is extraordinarily frequent. Murmurs have only slight diagnostic value. The determinations of blood pressure and roentgenograms are important for forming a judgment. By means of the latter, the so-called bullet heart was often observed, and among weakly individuals the so-called drop heart. One should pay close attention to the blood pressure in those convalescing from typhoid in order that severe disturbances of the circulation may not result from premature dismissal of the patients. On the other hand, wounded and sick soldiers should not be left too long in their homes because they may easily become effeminate.

Professor Moritz of Cologne reported on diseases of the lung. The most important diseases of the lung are pneumonia and pleurisy, but tuberculosis also is frequently observed, partly because slight changes are overlooked at the time of enrolment which are aggravated by fatigue and exposure, and less frequently because quite latent foci are brought into activity from the same influences.

According to the experience of Professor Finner of Berlin in the field of nose and throat diseases there are no special war affections, but there are frequent disturbances; for instance, stoppage of the nose is more notably unpleasant in soldiers than in time of peace. Frequently there are recurring catarrhs under unfavorable weather conditions, and in this respect the diseases of the accessory cavities are especially unpleasant.

Prof. Adolph Schmidt of Halle emphasized the fact that frequently severe gastro-intestinal disturbances may develop under emotional and psychic stress. Most frequently, hypacidity, motor insufficiency of the stomach and acute intestinal catarrh are observed. For catarrhal diseases he recommends, among other things, kaolin or bolus and animal charcoal. Gunshot wounds may cause abscesses and chronic stenosis in the gastro-intestinal canal.

According to Professor Richter of Berlin, nervous excitement and injury in war may provoke or aggravate diabetes. In nervous glycosuria antidiabetic measures are not indicated, but treatment for neurasthenia. Genuine traumatic diabetes is very rare. Frequently trauma plays a rôle in gout, in addition to exposure, excitement and fatiguing marches, which may often develop an acute attack of gout. As a result of frequent psychic stress, acute exophthalmic goiter has been observed among the soldiers.

Among skin diseases, according to Professor Blaschko of Berlin, scabies and pediculosis play the chief rôle, together

with the possibility that occasional cases of leprosy may be met in the East. Venereal diseases are widespread in the East and the West, although not to the extent reported in the foreign press. The reason for this is the defective campaign against venereal diseases in Belgium, France and Russia.

Professor Weintraud of Wiesbaden said that it is notable that neither articular rheumatism nor other diseases of the joints are especially frequent in the present war. Acute articular rheumatism must be sharply distinguished etiologically from muscular rheumatism; in the former, infection is to be regarded as the cause, in the latter, exposure. In the first, angina plays a rôle. In fact, this disease is remarkably rare and of a mild course in the present war.

According to the investigations of Professor Alt of Uchtspring, the number of cases of mental disease appearing in the present war is small. In many psychoses, improvement has set in; in others, relapses have been observed. It is worthy of note, he added, that among the French prisoners a positive Wassermann reaction was obtained in 80 per cent. of the cases of psychoses.

The Total Mortality of Tuberculosis and Cancer in Prussia in 1913

Tuberculosis has shown a further reduction of mortality in Prussia in 1913. There died from this disease in 1913, 56,583, as opposed to 59,911 in 1912, that is, 3,328 less. Computed per ten thousand living, these figures are 13.59, as compared with 14.58 in 1912.

The deaths from cancer in 1913 were altogether 30,742, as compared with 30,045 in the previous year; that is, 697 more. Computed per ten thousand living, these figures are 7.38, as compared with 7.32 in the year 1912.

Physicians and Wage Earners' Insurance

The Berlin agreement of Dec. 23, 1913, which terminated the threatened conflict between the physicians and the Krankenkassen, has now led to a further agreement between the representatives of the insurance societies involved and the Leipzig League. It refers to satisfying the claims of those physicians who were employed as emergency medical officers by the societies during the period of conflict with the physicians. The parties to the contract agree, with the assistance of the government, on the immediate release of these physicians from their activity as insurance physicians, to make provision for the support in other ways of the physicians whom the insurance societies imported from outside during the difficulties with reference to contracts and with whom they have made legal contracts, and to secure the closing of these contracts as soon as possible, and to satisfy the necessary demands resulting from them. The discharged emergency assistants are to be treated in accordance with the principles of medical ethics.

Marriages

ROBERT H. McDONALD, M.D., Manchester, Ga., to Miss Carobel Glover of Macon, Ga., at Warm Springs, Ga., April 11.

CLAUDE EVERETT RICHMOND, M.D., to Miss Bernice Marlowe Hosman, both of Colorado Springs, April 29.

HARRY F. EMERT, M.D., Sarles, N. Dak., to Miss Edith Pearl Ferris of Lakota, N. Dak., April 6.

CHARLES RICHARD LOCKWOOD, M.D., Kankakee, Ill., to Miss Mary Elsie Curry of Chicago, April 24.

FREDERICK A. STEELE, M.D., Oakland, Cal., to Miss Harriet N. Martin of Fresno, Cal., April 15.

FRED WILLIAM PHILLIPS, M.D., Battle Creek, Mich., to Miss Louise E. Pilon of Detroit, April 14.

WALTER C. LAMBERT, M.D., Wyandotte, Mich., to Miss Jennie Leece of Detroit, April 15.

GEORGE WASHINGTON BAKER, M.D., to Miss Martha Robertson, both of Leon, Okla., recently.

SAMUEL M. GREEN, M.D., Dixon, Ill., to NELLIE E. GREEN, M.D., of Fowler, Ind., recently.

AUSTIN ALBERT HAYDEN, M.D., to Miss Mary Phillips, both of Chicago, April 28.

DILLARD WATTS, M.D., to Miss Emma Garriey, both of Laverne, Okla., recently.

Deaths

James Henry Ford, M.D. Indiana Medical College, Indianapolis, 1872; a Fellow of the American Medical Association; professor of surgery in the Indiana University School of Medicine, Indianapolis; president of the Indiana State Medical Association in 1897 and for two terms president of the International Association of Railway Surgeons; for nearly thirty years chief surgeon of the Big Four system, Peoria and Eastern, and Cincinnati Northern railways; president of the Board of Health and Charity of the City of Indianapolis; surgeon to St. Vincent's and the Indianapolis City hospitals; one of the most prominent surgeons of Indianapolis; died at his home in that city, April 21, aged 67.

James Wilkes O'Neill, M.D. University of Pennsylvania, Philadelphia, 1877; mayor of Bergenfield, N. J.; for twenty-seven years brigade surgeon in the National Guard of Pennsylvania; a charter member of the American Red Cross and at one time editor of the *Pennsylvania Red Cross Journal*; president of the New Jersey and New York Bridge Association; died at his home in Bergenfield, April 25, after a long illness which followed the amputation of his left leg.

William Winslow Ogden, M.D. University of Toronto, 1860; for forty-four years a member of the Toronto Public School Board and from 1906 to 1911 a member of the Board of Education of Toronto; lecturer on medical jurisprudence and toxicology at the Toronto School of Medicine from 1869 to 1887; and thereafter professor of forensic medicine in the University of Toronto; died at his home in that city, April 22, from heart disease, aged 77.

Alexander H. Small, M.D. University of Pennsylvania, Philadelphia, 1881; of Riverside, N. J.; a Fellow of the American Medical Association; one of the founders of, and chief surgeon to the Zurburg Memorial Hospital, Riverside, N. J., and chief surgeon to the Burlington County Hospital, Mt. Holly; died suddenly in a hotel in Atlantic City, April 20, from heart disease, aged 54.

John Miller Faison, M.D. University of Virginia, Charlottesville, 1884; a member of the Medical Society of Virginia; formerly a member of congress from North Carolina; died in his home in Faison, April 21, from the effects of a gunshot wound of the head, self-inflicted, it is believed, with suicidal intent while despondent on account of ill health.

Frank Huske Holmes, M.D. University of Maryland, Baltimore, 1895; of Clinton, N. C.; a Fellow of the American Medical Association; formerly president of the Sampson County (N. C.) Medical Society; major and surgeon, N. C. N. G.; superintendent of health of Sampson County; died in a sanatorium in Asheville, N. C., April 18, aged 45.

William Rauch, M.D. Eclectic Medical Institute, Cincinnati, 1882; formerly president of the Eclectic State Board of Medical Examiners of Pennsylvania; one of the organizers and president of the Johnstown Hospital Association and twice a member of the common council of Johnstown; died at his home, April 19, from nephritis, aged 55.

Charles Franklin Creveling, M.D. Bellevue Hospital Medical College, 1887; for several years town physician and a member of the town council of Phillipsburg, N. J.; died at his home, April 19, from the effects of a gunshot wound of the head, self-inflicted, it is believed, while despondent on account of illness with nephritis, aged 52.

Edward F. Sheehan, M.D. Albany (N. Y.) Medical College, 1888; a member of the Medical Society of the State of New York; physician to the Ossining (N. Y.) Hospital and during two administrations a member of the staff of the state comptroller; died at his home in Ossining, April 25, from heart disease, aged 53.

Mason Wilbur Gray, M.D. University of Michigan, Ann Arbor, 1880; a Fellow of the American Medical Association, first president of the Pontiac (Mich.) Medical Society and a charter member of the Oakland County Medical Society; formerly mayor of Pontiac; died at his home in that city, April 14, aged 59.

Lewis A. Perce, M.D. Eclectic Medical Institute, Cincinnati, 1882; local surgeon at Long Beach, Cal., for the Salt Lake Railroad; president of the National Eclectic Association in 1907, and professor of diagnosis in the California Eclectic Medical College; died at his home in Long Beach, April 8, aged 61.

John W. Lindsey, M.D. Medical College of Ohio, Cincinnati, 1891; of La Grange, Ohio; a member of the Ohio

State Medical Association; while crossing the tracks of the Big Four Railroad between Grafton and La Grange in his automobile, April 16, was struck by a train and instantly killed, aged 61.

Matilda L. Towsley, M.D. Woman's Medical College of Pennsylvania, Philadelphia, 1869; a member of the Michigan State Medical Society and a pioneer woman practitioner of Kalamazoo, Mich.; died at her home in Kalamazoo, April 20, after a long illness, the result of an accident several years ago, aged 84.

Eugene T. Oliphant, M.D. University of Pennsylvania, 1875; a retired practitioner of Bridgeport, N. J.; died in the Cooper Hospital, Camden, N. J., April 12, from cerebral hemorrhage, said to have been superinduced by a fractured leg sustained in a fall at his home in February, aged 66.

Luther Johnson (license, years of practice, Indiana, 1897), a member of the Indiana State Medical Association; a veteran of the Civil War and a practitioner of Bourbon, Ind., since 1866; secretary of the Board of Health of Bourbon; died at his home, April 17, from acute gastritis, aged 78.

John Forthune Eaves, M.D. University of Nashville, Tenn., 1887; acting assistant surgeon, U. S. P. H. S., at Frontera, Mexico; for several years a state quarantine officer of Texas, in charge of the Galveston Quarantine Station; died at his station in Frontera, Mexico, April 18, aged 49.

Lorenzo N. Phinney, M.D. Geneva (N. Y.) Medical College, 1866; a Fellow of the American Medical Association; assistant surgeon of the One Hundred and Ninety-Third New York Volunteer Infantry during the Civil War; died at his home in Wappingers Falls, N. Y., April 20, aged 74.

Charles L. Edwards, M.D. Missouri Medical College, St. Louis, 1886; a member of the Kentucky State Medical Association; practitioner and twice mayor of Sebring, Ky.; died suddenly from heart disease, April 12, while making a professional call about two miles from his home, aged 51.

Thurman Cecil Siffert, M.D. Cleveland College of Physicians and Surgeons, 1900; of Canton, Ohio; a member of the Ohio State Medical Association and president of the Canton Medical Society; died in Engleside Hospital, Canton, April 25, from acute yellow atrophy of the liver, aged 46.

Wilbur T. Cherry, M.D. Ohio Medical University, Columbus, 1898; a Fellow of the American Medical Association, and a prominent practitioner of McArthur, Ohio; died in the Grant Hospital, Columbus, April 12, two days after an operation for appendicitis, aged 45.

Charles Hamant Harwood, M.D. Harvard Medical School, 1892; for many years connected with the Boston Dispensary; who was actively interested in detective work and criminal investigation; died at his home in Boston, April 11, from pneumonia, aged 51.

Albert Griffin, M.D. University of Louisville, Ky., 1865; of Hawesville, Ky.; a member of the Kentucky State Medical Association and secretary of the Board of Health of Hancock County, Ky., in 1893; died at the home of his son in Lewisport, Ky., April 12, aged 75.

Carl Augustus Ludwig Schulin, M.D. University of Leipzig, Germany, 1873; for thirty years a practitioner of Montana, making a specialty of the eye and ear, and of late years a resident of Billings; died in St. Vincent's Hospital in that city, April 8, aged 64.

Homer V. Oldfield, M.D. Homeopathic Medical College of Missouri, St. Louis, 1880; a retired practitioner of Philadelphia; aged 65; was struck by a trolley car while crossing the street, April 15, sustaining injuries from which he died a short time later.

Preston Emmette James, M.D. Vanderbilt University, Nashville, Tenn., 1893; formerly a member of the Kentucky State Medical Association; was found dead in his home in Morgantown, Ky., April 10, from the effects of an overdose of chloroform, aged 46.

Walter Ure, M.D. College of Physicians and Surgeons, in the City of New York, 1866; assistant surgeon of volunteers during the Civil War and a practitioner of Northside, Pittsburgh, Pa., for more than forty years; died at his home, April 16, aged 82.

William C. Lenhart, M.D. Medical College of Ohio, Cincinnati, 1870; for more than sixty-five years a practitioner of medicine of Zanesville and Columbus, Ohio; died at the home of his daughter in Columbus, April 21, four days after a fall, aged 85.

Alonzo Potter Bowie, M.D. Philadelphia University of Medicine and Surgery, 1868; a well known homeopathic prac-

titioner of Uniontown, Pa.; died in the East End Homeopathic Hospital, Pittsburgh, April 15, from a nervous breakdown, aged 68.

Thomas Carlyle Doolin, M.D. Washington University, St. Louis, 1911; of Ash Grove, Mo.; while attempting to board a train in motion at Ash Grove, February 20, was thrown to the ground, dislocating his neck, and died instantly, aged 27.

Bertrand J. Andrews, M.D. University of Vermont, Burlington, 1885; a member of the Vermont State Medical Society and for twenty-five years superintendent of the Mary Fletcher Hospital, Burlington, Vt.; died at that institution, April 12, aged 64.

Robert J. Menzie, M.D. University of Buffalo, 1866; for many years a practitioner at Caledonia, N. Y.; and for fifteen years a member of the board of education; died at his home in Caledonia, April 20, from cerebral hemorrhage, aged 81.

John Andrew Randolph, M.D. Missouri Medical College, St. Louis, 1884; a Fellow of the American Medical Association and president of the Glenn County (Cal.) Medical Society; died at his home in Willows, Cal., April 10, aged 64.

George Ford, M.D. University of Toronto, 1905; for seven years a practitioner of Shakespeare, Ont., but for the last year a resident of Stratford, Ont.; died in the Stratford General Hospital, April 19, from gallstone disease, aged 37.

Alexander Hunter, M.D. University of Pennsylvania, Philadelphia, 1869; surgeon of the Sixteenth Kentucky Volunteer Infantry during the Civil War; died at his home in Washington, Ky., April 12, from pneumonia, aged 71.

Hiram H. Bardwell, M.D. Rush Medical College, 1869; for many years a practitioner of Flint, Mich.; was found dead at the home of his daughter in Chicago, April 24, from the effects of a gunshot wound of the heart, aged 75.

Robert Edward McCracken, M.D. College of Physicians and Surgeons, Chicago, 1904; a practitioner and druggist of Oakland, Cal.; died in a hospital in East Oakland, Cal., about April 13, after an operation for appendicitis.

Samuel Gilbert McDonald, M.D. College of Medicine and Surgery, Physio-Medical, Chicago, 1905; Chicago College of Medicine and Surgery, 1908; died at his home in Coffeyville, Kan., April 13, from pneumonia, aged 42.

David Blair McIntire, M.D. University of Pennsylvania, Philadelphia, 1905; a member of the Medical Society of the State of Pennsylvania and a practitioner of Pittsburgh; died at his home in that city, April 20, aged 34.

William W. Lloyd. Physio-Medical College of Indiana, Indianapolis, 1873; for more than sixty years a practitioner; died at the home of his daughter in Bellingham, Wash., February 21, from paralysis, aged 96.

Samuel Wilkins McClain, M.D. Jefferson Medical College, 1869; a veteran of the Civil War; said to have been the oldest practitioner of Loudonville, Ohio; died at his home in that city, about April 8, aged 74.

Ira Thomas Bronson, M.D. Dartmouth Medical School, Hanover, N. H., 1870; formerly president of the Pettis County (Mo.) Medical Society; died at his home in Sedalia, Mo., February 15, from uremia, aged 75.

Philo C. Hubbell, M.D. Eclectic Medical Institute, Cincinnati, 1871; for more than forty years a practitioner of Syracuse, N. Y.; died suddenly in that city, April 12, from cerebral hemorrhage, aged 72.

Samuel S. O. Warren (license, Wash. 1882), founder of Roy, Wash., and postmaster of that place for more than twenty-five years; a veteran of the Civil War; died at his home April 10, aged 75.

Robert Robinson, M.D. Long Island College Hospital, Brooklyn, 1866; for many years a practitioner of East Brady, Pa.; died at the home of his son in Medina, Ohio, April 4, from diabetes, aged 75.

Charles Willard Ray, M.D. Dartmouth Medical School, Hanover, N. H., 1882; a member of the Maine Medical Association; died at his home in Sangerville, Me., April 10, from pneumonia, aged 54.

William Lucius Hunter, M.D. University of Buffalo, 1890; formerly a clergyman of the African Methodist-Episcopal Church; died at his home in Brooklyn, April 22, from nephritis, aged 65.

Edwin T. M. Hurlbut, M.D. University of Buffalo, 1867; formerly a practitioner of Sebastopol, Cal.; a veteran of the

Civil War; died in the Soldiers' Home, Yountville, Cal., April 14, aged 86.

Simon W. Kiester, M.D. Jefferson Medical College, 1868; a veteran of the Civil War and for many years a practitioner of Pleasant Hill near Dayton, Ohio; died at his home, April 15, aged 72.

Georgia Estella Finley, M.D. Ohio Medical University, Columbus, 1898; for two years a member of the staff of the Cincinnati Sanitarium; died in that institution, April 10, aged 36.

Elijah Bennett Chapin, M.D. University of Michigan, Ann Arbor, 1863; Bellevue Hospital Medical College, 1875; of Jackson, Mich.; died in the Jackson City Hospital, April 8, aged 79.

Carl David Wells, M.D. Denver and Gross College of Medicine, Denver, Colo., 1910; died at the home of his mother in Billings, Mont., April 15, from tuberculosis, aged 28.

John Olmstead Niles, M.D. Albany (N. Y.) Medical College, 1850; acting assistant surgeon in the Army during the Civil War; died at his home in Brooklyn, April 18, aged 88.

William McWilliams (license, Westmoreland County, Pa., twenty years practice, 1869) died at the home of his daughter in Merwin, Pa., April 17, from senile debility, aged 93.

Robert Fraser (license, Mich., years of practice, 1900), of Battle Creek, Mich.; a practitioner for fifty years; died at the home of his niece in Battle Creek, aged 72.

William H. Carter, M.D. American Medical College, Eclectic, St. Louis, 1880; died suddenly at his home in Altoona, Iowa, April 9, from heart disease, aged 75.

John Smallwood Patterson, M.D. University of Colorado, Boulder, 1902; died in Boulder, April 17, from injuries received a week before, by a fall of rock, aged 35.

Charles Jacob Winzenreid, M.D. Rush Medical College, 1866; the oldest practitioner of Iowa County, Iowa; died at his home in Amana, Iowa, February 12, aged 82.

William Alexander Crowder, M.D. Leonard Medical College, Raleigh, N. C., 1904; a respected colored practitioner of Petersburg, Va.; died about April 14, aged 36.

Jefferson D. Wright, M.D. University of Maryland, Baltimore, 1882; a physician and druggist of Louisville, Ga.; died at his home in that place, April 14, aged 54.

Robert J. Swain, M.D. University of Louisville, 1880; a member of the State Medical Association of Texas; died at his home in Pittsburg, Tex., March 11.

Nathan O. Boals (license, Ark., 1903), a practitioner for nearly thirty years; died at his home in Clarendon, Ark., February 11, from nephritis, aged 62.

Theodore P. Lockwood, M.D. New Orleans School of Medicine, 1866; died at his home in Crystal Springs, Miss., April 13, from senile debility, aged 75.

William J. McDonald (license, Ark., 1903), for thirty-five years a practitioner of the Southwest; died at his home in Hot Springs, Ark.; recently, aged 63.

Wellington Saxby Miller, M.D. Atlanta (Ga.) Medical College, 1870; a Confederate veteran; died at his home in Greenville, N. C., April 19, aged 72.

James Coughlin O'Donnell, M.D. Harvard Medical School, 1899; died at his home in Northampton, March 30, from arthritis deformans, aged 44.

William Lynch Miller, M.D. St. Louis Medical College, 1870; a veteran of the Civil War; died at his home in Des Moines, Iowa, April 22, aged 69.

William Allen Jones, M.D. Eclectic Medical Institute, Cincinnati, 1880; of Plumerville, Ark.; died in Little Rock, Ark., April 18, aged 55.

John G. Lewis, M.D. Chicago Homeopathic Medical College, 1895; died at his home in Rushville, Ind., about April 17, from pneumonia.

James M. Candler, M.D. Philadelphia College of Medicine and Surgery, 1868; died at his home in Dillsboro, N. C., April 5, aged 68.

Seth Martin Benepe, M.D. Bellevue Hospital Medical College, 1866; died recently at his home in Holdenville, Okla.

William H. Olsten (license, Utah, 1894), a practitioner since 1869; died at his home in Manti, Utah, April 18, aged 66.

James T. Farley, M.D. McGill University, Montreal, 1877; died at his home in Remus, Mich., April 20, aged 59.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE OXYPATHOR FRAUD

Since the days of Perkin's Metallic Tractors, no medical fraud of the drugless type has enjoyed greater vogue or swindled more people than those devices we have facetiously referred to under the term "Gas-Pipe Therapy." There are many of the gas-pipe frauds¹ on the market. The original was the "Electropoise," devised by one Hercules Sanche, who later elaborated his device and sold it under the name "Oxydonor," having in the meantime persuaded a not-too-exacting patent office to grant him patent rights on the egregious humbug.

So profitable, apparently, did the sale of this piece of fakishness prove that many imitations appeared. First, the "Oxygenor"; then, the "Oxygenator," the latter having its name changed later to the "Oxypathor." The "Oxytonor" and the "Oxybon" were still later modifications of the same scheme. Of these the Oxypathor (Oxygenator) has been the most extensively and elaborately exploited, and the extent to which the public has been defrauded has brought forth protests from various sources. The device itself consists essentially of a piece of nickel-plated tubing filled with inert material, sealed and having attached to each end a flexible cord with a garter-like attachment at the free ends. One garter is to be attached to the wrist and the other to the ankle of the person using the Oxypathor (Oxygenator). The gas-pipe itself is put in a bowl of cold water. According to the claims of the exploiters, the patient to whom the Oxypathor (Oxygenator) is attached, is made to absorb large quantities of oxygen through the skin.

So absurdly fraudulent is the Oxypathor that the public in various parts of the world has been warned against it. The Australian government has debarred the thing from the Australian continent, while the committee appointed by the British Parliament to investigate medical frauds reported:

"Much fraud is also successfully practiced by the advertisement and sale of appliances, as alleged cures for many ailments . . . appliances alleged to supply oxygen (otherwise than by inspiration) such as the 'Oxydonor' and 'Oxygenator' are, of course, deliberate swindles, for the makers cannot be supposed to be as ignorant of chemistry and therapy as their victims."

Now comes word from Vermont that the United States government has successfully prosecuted E. L. Moses of Buffalo, N. Y., general manager of the Oxypathor concern. The trial, which was held in Rutland, Vermont, lasted over a week, and on Nov. 7, 1914, Moses was found guilty of using the mails to defraud and was sentenced to serve eighteen months in the Federal Penitentiary at Atlanta. He, of course, appealed but the Appellate Court affirmed the judgment of the lower court, and as a result, Moses is now serving sentence.

The scheme has been a profitable one. At the trial it was brought out that the Oxypathor costs \$1.23; it sold for \$35. Aside from the element of suggestion inseparable from the use of a mysterious, expensive-appearing and imposing-looking device, purchasers of the Oxypathor could have obtained just as valuable curative effects from an empty tomato tin with a string tied to it. As a therapeutic agent, the Oxypathor belongs in the same class as the left hind foot of a rabbit caught in a graveyard in the dark of the moon. Yet at the trial the exploiters of the Oxypathor were able to produce witnesses to testify to the curative value of their gas-pipe—and a few of the witnesses called themselves doctors! This exhibition of credulity—or, in the case of

1. These devices are described in detail in the pamphlet "Oxydonor and Similar Frauds," price 4 cents.

physicians, worse—is but another proof of the inherent worthlessness of testimonials. Imposing and convincing testimony would have been forthcoming long ago to prove the therapeutic efficiency of the rabbit's foot if some one had an exclusive proprietary interest in the sale of rabbit's feet. —(*With Modifications and Additions from The Journal A. M. A., Nov. 14, 1914.*)

Denied the Use of the Mails

After the criminal proceedings had been brought against Elvard L. Moses of Buffalo, N. Y., the Solicitor of the Post Office Department submitted a memorandum to the Postmaster-General giving the facts that had been collected regarding the methods of the Oxypathor concern and recommending the issuance of a fraud-order against it. This memorandum charged the Oxypathor Company and Alvin L. Higley, president; Elvard L. Moses, vice-president and general manager; Charles N. McMichael, treasurer; Charles W. Brooke, secretary and assistant general manager; Charles J. Armitage, business manager; Clarence E. Edson, sales promoter; E. H. Johnson, oxypathic specialist, and Joseph Salguando, Spanish expert, and also the Oxygenator Company and the Buffalo Oxypathor Company all of Buffalo, N. Y., together with the Central Ohio Oxypathor Company and W. H. Sandwick, its general manager at Columbus, Ohio, also, the Delaware Oxygenator Company with Booth and Broadway, its managers at Wilmington, Del., with conducting a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises.

The Postmaster-General issued the order and the United States mails were closed to this fraud. The memorandum of the solicitor contains so much of interest that we quote from it freely:

THE GOVERNMENT'S REPORT

"The Oxypathor Company was incorporated in New York state in 1906 under the name of the Oxygenator Company, the name being changed in July, 1911, to the present name of the Oxypathor Company. The headquarters of the company are in Buffalo, N. Y., where its general offices are located and from which place it distributes its devices to purchasers and to agents throughout the world. Elvard L. Moses, vice-president and general manager of the company, who is in active charge of its affairs, was convicted in the United States District Court at Rutland, Vt., on Nov. 6, 1914, of using the mails in the furtherance of a scheme to defraud in the conduct of this business, and was sentenced on Nov. 7, 1914, to eighteen months in the penitentiary at Atlanta, Ga., a stay of sentence and bail being refused. This case is now pending on appeal before the United States Circuit Court of Appeals for the Second Circuit, having been taken up on a writ of error. [As has been stated, Moses lost his appeal, the Appellate Court affirming the judgment of the lower court.—Ed.] The transcript of the record in the trial court was introduced in evidence at the hearing before this office by the respondents.

"The business of this company is the sale through the mails of a device known as an Oxypathor, which consists of a brass cylinder filled with a black powder. To each end of the cylinder is attached a copper wire at the termini of which are straps and 'treating plates' designed for the application of these wires to the human body. The cylinder containing the power is termed by the company the 'polarizer' and is to be immersed in cold water while the machine is in use.

"In its advertising matter, which is freely circulated through the mails, the company represents that the Oxypathor with attachments is a 'thermo-diamagnetic instrument,' which, when attached to the human body, alters its magnetic properties, greatens its affinity for oxygen, and thus increases the body's capacity to attract and absorb the oxygen of the air, and further that the use of the machine in accordance with the directions which accompany each instrument, will quiet the most agonizing pain in a marvelously short time, give profound restful slumber, stimulate and arouse the body and all its organs to renewed vigor, and cure practically every disease. The advertising matter in which these representations are made is prepared by the company at Buffalo and from that point is mailed either to agents or to prospective purchasers in all parts of the world. There are in evidence in this case some dozen

different pamphlets, all elaborately printed, which treat of the alleged power of the Oxypathor to cure disease.

"The instrument sells for \$35, additional charges being made for special treatment plates to be used in the treatment of certain diseases. From the year 1909 to the date of the criminal trial, the company has sold 45,451 appliances. . . ."

The solicitor's memorandum after quoting in detail some of the false and fraudulent claims made for the Oxypathor, continues:

"Both at the criminal trial and at the hearing before this office the government produced expert testimony which clearly showed that the claims of the company for this device were entirely without foundation in fact. Physicists, chemists and experts on radio-activity, all of whom appeared and testified in behalf of the government, agreed that the machine was absolutely inert and without power to influence any substance known to science, or to increase magnetism in any way."

Then followed a summary of the testimony given by chemists, physicists and physicians relative to the possibility of the Oxypathor possessing any chemical, physical or therapeutic properties. The consensus of these opinions was, in effect, to sustain the charge made at various times in THE JOURNAL that the Oxypathor possesses all the potentialities for curing disease that are inherent to an empty tomato tin with a string tied to it! Then the memorandum continues:

CONFIDENTIAL INSTRUCTIONS TO AGENTS

"Throughout the advertising matter the company represents that the oxypathor is especially efficacious in the treatment of chronic diseases and diseases of long standing. Touching the good faith of the company in making these representations to prospective purchasers, the following is quoted from the confidential instructions issued to selling agents by the company:

"Use judgment in taking cases. Take the cases already suggested—the ones in which you have an even show with the doctors. Sidestep the cases which have been drugged for years and years. You might just as well hitch the Oxypathor to a mummy—or to a stone hitching-post—or a telegraph pole—as to some of the cases which will come to you as a last resort. Be wise—and side-step these last-resort cases. They spell nothing but trouble—and failure—and knockers. Tell them politely but firmly that they have waited too long, and let it go at that. This need not dampen your enthusiasm. It should not. It is simply showing good judgment. It is fending off that which might destroy your enthusiasm. It is not that we fear hard cases. Nothing of the kind. They may be as hard as they wish—provided of recent origin. Until firmly established, better play the business 'safe.' It will pay you well to do so."

HOW TO CATCH THE GULLIBLE

Then follows a number of quotations from the same pamphlet of "confidential instructions" issued to the selling agents by the company. Here are some of them:

"Tell yourself repeatedly that the Oxypathor is all right. Repeat this until firmly convinced that it is all right. Thereafter you will be invincible. From that time—from the time you get faith—have confidence—you will win."

"This brings you face to face with the matter of prospects. How secure them? Listen—you will find prospects by keeping out where the money grows. Get that? You will find prospects by keeping out amongst the people."

"Furthermore, you should engage every possible acquaintance in conversation. Instead of merely nodding acquaintance, stop to talk. At first, let this talk drift as it will. Soon, though, direct it. Say, 'Feeling pretty good?'

"You will be surprised to see how many do not feel good—and they'll give you the whole story—if you will keep still. Then you can get in your licks. Tell them what you have to sell or lease—and tell them that you will call soon to show the Oxypathor—and demonstrate it. Say this in such a way as to prevent a 'turn down.' Say it in a positive tone of voice. You will find few have the nerve to deny you a hearing. The rest is easy.

"Should the person say that he is perfectly well, say, 'And how are the folks?'

"You will be astonished at the amount of illness this will uncover—of which you never dreamed. You must, though, remain quiet for some time after asking the question. Some persons have a habit of saying 'all right'—but who quickly revise their statements—if you remain quiet and say nothing."

"A VITAL TIP!"

"Above all—get some money in advance. Get a payment. Do this without fail. You must—to get the user's full co-operation. Unless the user must bear expense, he will have nothing at stake, and bitter experience teaches that nothing at stake means poor co-operation."

"The less theory you talk, the better. Use common words rather than technical words—and save yourself hours of weary talking. It is far better to say, 'Oxygen burns up the wastes and poisons in the blood, thus leaving it rich and pure, and you well,' than to undertake to describe these poisons, wastes and acids. The number of fool questions that you will find hurled your way if you undertake technical presentations will surprise—and disgust you. Sidestep as here suggested."

TESTIMONIALS FROM PHYSICIANS

Of course, the main reliance of the Oxypathor fakery was, as is the case in all medical frauds, testimonials. Not only did they present testimonials from laymen, but they were also able to employ certain physicians who gave so-called clinical reports regarding the alleged therapeutic value of this piece of gas-pipe. In the trial that was held at Rutland, Vt., the following physicians were reported by the Rutland newspapers at the time, to have taken the stand in defense of the Oxypathor:

Dr. Allen R. Taylor, Chattanooga, Tenn.: Taylor told of numerous "cures" worked by the Oxypathor under his instructions. It might be mentioned, incidentally, that Taylor is—or was—in the business of selling Oxypathors.

Dr. Louis Hazen, Burlington, Vt.: Hazen testified, according to the papers, that he had cured a man of alcoholic paralysis and a woman of "paralysis of the spine" with the Oxypathor.

Dr. Roy H. Cox, Chicago: Cox, according to the reports, at the request of a man interested in the Oxypathor, "treated" several patients with one of these fakes. A person with "poor blood and otherwise in a rundown condition" was treated by Dr. Cox with the Oxypathor and was "well in six weeks"; a case of "blood poisoning was cured in six days"; more marvelous still: "Acute appendicitis was cured in a few days while lumbago was relieved at once." Dr. Cox also had "an alcoholic paralytic" who was "ultimately cured" by the Oxypathor.

Dr. Wm. W. Cook, Chicago: Dr. Cook, according to the newspaper report "treated erysipelas, gall trouble, tonsilitis, pleurisy and lumbago" with the Oxypathor and "in every one of these cases the patient ultimately recovered." Dr. Cook was willing, it seems, to express the opinion that these benefits were directly due to the use of the Oxypathor! On cross-examination, Cook admitted that the patients who had thus been "cured" had also been given general hygienic, dietetic and other treatment at the same time that they were attached to the Oxypathor.

Dr. Joseph P. Ghio, St. Louis, Mo.: Ghio is credited with reporting a "wonderful case" of a cure of "asthma" by means of the Oxypathor. The patient had suffered "for over twenty-two years" and in spite of the best treatment among specialists in this country and abroad "she got no relief." An Oxypathor was attached and in fifteen minutes she was relieved! Dr. Ghio also cited a "case of paralysis following measles," which he cured with the Oxypathor. It developed, on further questioning, that Ghio was an agent for the Oxypathor.

To return to the memorandum to the Postmaster-General: One method by which the Oxypathor concern attempted to get testimonials was to have the agents urge certain of the victims who had purchased these devices to write the Postmaster-General protesting against the issuance of a fraud order. The Oxypathor Company went so far as to outline a letter that these persons might write. As the solicitor's memorandum states "testimonials obtained in this way have been demonstrated to be of little probative force." The solicitor also suggests that the number of people that wrote these letters constituted but a small percentage of those who had purchased the 45,000 Oxypathors which the company has sold since 1909. To quote further from the memorandum:

"Testimonials are notoriously of small evidentiary value in questions of this character. They are frequently obtained for instruments and alleged remedies of no value from persons suffering from chronic ailments who are prone to regard the least improvement in their condition as an indication of progress toward a cure. In many instances they were written by persons who imagined they were suffering from disease when in fact they were not, by persons whose recovery is due to nature, and by persons whose recovery is due to nature and

local or hygienic treatments prescribed in connection with the alleged curative agent. I am satisfied and find that all of the testimonials filed in this case fall within one or another of the above classes.

"As to the clinical reports submitted by the physicians employed by this company to test the Oxypathor, there is nothing to show that even in these cases the use of the instrument alone effected the cure.

"The respondents did not attempt to introduce any evidence whatsoever as to the method in which the machine worked or to explain the hitherto unknown force which would be necessary to cause the body to take up unusually large amounts of oxygen through the skin, and the record is entirely silent as to the means by which any of the alleged cures are supposed to have been effected. Briefly, the position of respondents was that all the representations as to how the machine was supposed to operate were immaterial, and that the sole question to be determined at the hearing was the existence or non-existence of any therapeutic value in the instrument itself, and respondents further claimed that the only method whereby it was possible to determine the therapeutic value of the instrument was by tests upon the human body in a diseased state. Necessarily, none of the tests made by the government were made upon the human body in such a state and respondents objected to the introduction of the government's evidence showing that the machine was inert and therefore incapable of affecting the body in any way.

"Attention is invited, in this connection to the fact that all of the company's advertising matter whereby persons are induced to buy this instrument is based on the representation that increased amounts of oxygen are furnished by it to the human body. This is a specific, concrete, material representation, and there is no doubt that purchasers were induced to part with their money on the strength of this representation.

"The respondents' contention that the therapeutic value of this device can be shown in no other way than by tests upon the human body is without merit when considered in connection with the fact that the substances of which the device is made up are well known, and that they have not been shown to possess, either alone or in combination with each other, any such power as is claimed for them. No attempt was made to controvert the government's evidence as to the materials of which these instruments are composed, and no effort made to show that these substances possessed any therapeutic value except by means of the testimonials and reports above referred to. . . ."

"In conclusion, it may be said that the defense in this case fails entirely to meet the government's charges, and is one that might be urged with equal force in defense of any fraudulent mail-order medical concern, and that in fact had this device possessed any of the power claimed for it, the respondents would not have been driven for their defense to solicited testimonials and reports and a legal technicality, but would have been able to produce some affirmative proof to meet the burden placed on them by the evidence of the government. When it is considered that the company sells this instrument for the treatment of practically every known disease, many of which if allowed to continue without immediate medical treatment may prove fatal to the patient, and that those who buy the device may be lulled into a sense of false security from all disease, necessarily resulting in many cases in a serious or even fatal outcome which might have been prevented had medical treatment been promptly resorted to, the vicious nature of this scheme becomes apparent.

"I find that this is a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises, and therefore recommend that a fraud order be issued against the concerns and parties named in the caption of this memorandum."

On March 10, 1915, a fraud order was issued against the Oxypathor Company, *et al* at Buffalo, N. Y., Columbus, Ohio, and Wilmington, Del. Later, evidence was presented by a postoffice inspector to the federal authorities to show that P. K. Reynolds, Columbus, Ohio, had been made general manager of the Central Oxypathor Company in the place of W. H. Sandwick. The inspector showed further that Reynolds was receiving mail pertaining to the sale of Oxypathors. The Solicitor of the Post Office Department, on receipt of this evidence, recommended that the fraud-order against the Central Ohio Oxypathor Company be extended to include P. K. Reynolds. In accordance with this recommendation, a supplemental fraud-order was issued against this individual on April 20, 1915.

Correspondence

Radiant Energy and Cataract

To the Editor:—In replying to my objections to his argument regarding the production of cataract (*THE JOURNAL*, April 10, 1915, p. 1264), Professor Burge apparently accepts my statement that senile cataract usually begins below, but attempts to use it in support of his view. At first glance the statement of Schanz, quoted by him in this connection as reflecting the present status of opinion, seems convincing. This view is, however, not accepted by such an able investigator as Hess. As a matter of fact, the truth of my statement that the iris completely protects the lower part of the lens from light should be obvious to any ophthalmologist. For to detect with the ophthalmoscope an incipient cataract at its usual starting point at the periphery below, it is necessary to dilate the pupil with a mydriatic.

Professor Burge refers to Cramer's suggestion that glass-blowers' cataract is due to concentration of chemical rays at the posterior pole of the lens, and says that if this explanation is correct my criticism is not applicable to his experiments. Cramer's explanation, however, is undoubtedly not correct. It is true that with a point source of light, a dilated pupil and steady fixation, ultraviolet rays would be somewhat concentrated at the posterior pole of the lens if able to reach there, but with a pupil of ordinary size or one contracted by strong light, and an extended light source, the greatest concentration would be in the pupillary area. More important still is the fact that the adult lens absorbs all waves less than about 0.380 micron in length, so that no waves known to be abiotic could possibly reach the posterior pole. The longest waves with which Burge was able to coagulate proteins were 0.302 micron in length. Louis Bell and I found that with extreme concentration and an exposure of one and one-half hours to light containing waves of 0.305 micron, the anterior lens capsule of the living rabbit showed the slightest possible trace of injury, but that with waves of 0.305 micron, no effect could be produced. We found also that light containing waves of 0.295 micron, which are transmitted by the cornea, produced changes in the anterior capsule in about three minutes, but that after prolonged exposure to these waves the lens substance itself was injured only to a microscopic depth (20 microns). It is therefore evident that if ultraviolet light produced cataract, the changes would necessarily begin at the anterior pole.

F. H. VERHOEFF, M.D., Boston.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

DEFINITION OF THE WORD "FEEBLEMINDEDNESS"

To the Editor:—What is the correct usage of the word "feeble-mindedness"?
M. T., New York.

ANSWER.—The word "feeble-mindedness" has always been freely used by writers on the subject of mental defect. It is only within comparatively recent years that any attempt has been made to give it a satisfactory definition. In 1904, the British Royal Commission for the Feeble-minded recommended that the term "feeble-minded" should include all mentally defective children who needed institutional care, in the three ascending grades of idiot, imbecile and feeble-minded proper. More recently the term "moron" has tended to replace the term "feeble-minded" in the more restricted sense. In 1906, the American Association for the Study of the Feeble-minded officially resolved that the term "feeble-minded" should be used generically to include all degrees of mental defect due to arrested or imperfect mental development, as a result of which the person so affected is incapable of competing on equal terms with his normal fellows or of managing himself or his affairs with ordinary prudence, and that the feeble-minded should be divided into three classes of (1) idiots, those so affected that the mental development

never exceeds that of a normal child of 2 years; (2) imbeciles, those whose development is higher than that of an idiot but whose intelligence does not exceed that of a normal child of 7 years, and (3) morons, those whose development is above that of an imbecile but does not exceed that of a normal child of about 12 years. Thus, the abstract term for mental defectiveness in general would be "feeble-mindedness," with "idiocy" and "imbecility" for the first two grades of feeble-mindedness and perhaps "morosis" for the third. The last term, however, though correctly formed (from the Greek *μώρωσις*) and found in the Standard Dictionary, has apparently not yet been adopted by writers on the subject.

DATE BOIL—NILE SORE

To the Editor:—The *National Geographic Magazine* for December has the following concerning the "Nile sore": "An uncanny pernicious pest called the 'date boil' scars the face of every human born in Bagdad. Its cause and cure is unknown."

Please inform me concerning this sore, as I find nothing specific about it in my limited library. R. P. Woods, M.D., Altheimer, Ark.

ANSWER.—Presumably the author of the article in the *National Geographic Magazine* includes under the term "date boil" the condition known as "bouton d'Alep" and "Delhi button." Other names for this infection are "endemic boil disease," "oriental sore," "Bagdad-Nile boil," "Delhi sore," "Biskra boil," "Sarten-Beula," "tropical ulcer," etc.

The Delhi boil is an infection caused by a protozoan parasite described by Wright, in 1903, as *Helcosoma tropicum*, by Marzinowski and Bogrow, in 1904, as *Ovoplasma orientale*, by Firth as *Leishmania furunculosa*, and referred to by more recent authors as *Leishmania tropica*. The parasite is very closely related to *Leishmania donovani*, which is found in cases of kala-azar.

It is exceedingly rare that active infections of Delhi boils are found in this country.

A case is described in *THE JOURNAL*, April 29, 1911, p. 1257.

REMOVAL OF INTESTINE

To the Editor:—What is the greatest number of feet of small intestine that has ever been successfully removed in man?
X. Y. Z.

ANSWER.—We are not able to refer specifically to the case in which the greatest length of intestine was removed. Experiments have shown that dogs may survive the removal of 75 per cent. of the total length of the small intestine; but such animals do not return to full health. As much as 50 per cent. may be removed with a gradual return to a condition of practically normal weight and metabolism when the animals are maintained on a favorable diet under good conditions. (See Resection of the Small Intestine, editorial, *THE JOURNAL*, Feb. 15, 1913, p. 523.) E. R. McGuire reported the successful removal of over 11 feet of small intestine (abstracted in *THE JOURNAL*, Jan. 25, 1913, p. 321).

EXCESSIVE FLOW OF SALIVA

To the Editor:—A boy, aged 2½ years, in every way normal and healthy, has excessive flow of saliva, which pours continually from the mouth during the day, keeping the clothing wet. Is there any treatment?
H. T. E.

ANSWER.—In such cases it is necessary to consider the process which causes the increased flow of saliva. This might be a local irritation, such as inflammation of the mouth, teething, etc., or some disturbance of the nerve supply, either central or peripheral. Among the causes of derangements of innervation may be mentioned poliomyelitis, facial paralysis, idiocy, etc. Inframaxillary neuralgia and hysteria are other conditions to be thought of. Many of these conditions are probably out of the range of possibility in the case mentioned. A careful examination for local irritation would seem to be especially called for.

IMMUNIZATION BY INUNCTION

To the Editor:—I note in Abstract 93, page 1038, *THE JOURNAL*, March 20, 1915, that tuberculin inunctions were used to produce immunity at Hela. Is this form of tuberculous vaccine on our market?
W. W. WILKINSON, M.D., Phoenix, Ariz.

ANSWER.—The remedy employed is Moro's tuberculin ointment, a 50 per cent. ointment of old tuberculin with lanolin as a base. It is supplied by a number of the firms manufacturing tuberculins, etc. See N. N. R., 1915, pp. 304-206.

Medical Education and State Boards of
Registration

COMING EXAMINATIONS

ARKANSAS: Regular, Little Rock, May 11-12. Sec., Dr. W. S. Stewart, Citizens Bank Bldg., Pine Bluff. Homeopathic: Little Rock, May 11. Sec., Dr. Scott C. Runnels, 900 Scott St., Little Rock. Eclectic: Little Rock, May 13. Sec., Dr. C. E. Laws, 712 Garrison Ave., Fort Smith.

DELAWARE: Dover and Wilmington, June 15-17. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

FLORIDA: Jacksonville, June 15-16. Sec., Dr. E. W. Warren, 102 Front St., Palatka.

GEORGIA: Atlanta and Augusta, June 2-4. Sec., Dr. C. T. Nolan, Marietta.

ILLINOIS: Chicago, May 13-15. Sec., Dr. C. St. Clair Drake, Springfield, Ill.

IOWA: Iowa City, June 10-12. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.

KANSAS: Kansas City, June 8-10. Sec., Dr. H. A. Dykes, Lebanon.

KENTUCKY: Louisville, June 8-10. Sec., Dr. A. T. McCormack, Bowling Green.

LOUISIANA: New Orleans, June 3-5. Sec., Dr. E. L. Leckert, 716 Machea Bldg., New Orleans.

MARYLAND: Homeopathic, Baltimore, June 15-16. Sec., Dr. O. N. Duvall, 1817 N. Fulton Ave., Baltimore.

MASSACHUSETTS: Boston, May 11-13. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

MICHIGAN: Detroit, May 27-29. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

MINNESOTA: Minneapolis, June 1-4. Sec., Dr. Thomas McDavitt, Lowry Bldg., St. Paul.

MISSISSIPPI: Jackson, June 15-16. Sec., Dr. E. H. Galloway, Jackson.

NEBRASKA: Lincoln, June 10-11. Sec., Dr. H. B. Cummins, Seward.

NEW YORK: Albany, Buffalo, New York and Syracuse, May 25-28. Mr. Harlan H. Horner, Chief, Examination Division, State Education Bldg., Albany.

NORTH CAROLINA: Greensboro, June 8. Sec., Dr. H. A. Royster, Raleigh.

OHIO: Columbus, June 8-11. Sec., Dr. George H. Matson, Columbus.

PENNSYLVANIA: Philadelphia and Pittsburgh, June 1-3. Sec., Dr. Nathan C. Schaeffer, Harrisburg.

SOUTH CAROLINA: Columbia, June 8. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

District of Columbia January Report

Dr. George C. Ober, secretary of the Board of Medical Supervisors of the District of Columbia, reports the oral and written examination held at Washington, Jan. 14-16, 1915. The total number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 6, of whom 3 passed and 3 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Georgetown University	(1914)	87.1
University of Michigan, Dept. of Med. and Surg.	(1910)	85.5
University of Virginia	(1908)	80.5
FAILED			
Howard University	(1914)	73
Maryland Medical College	(1912)	58.2
Meharry Medical College	(1912)	68.4

North Dakota January Report

Dr. G. M. Williamson, secretary of the North Dakota State Board of Medical Examiners, reports the oral, practical and written examination held at Grand Forks, Jan. 5-8, 1915. The total number of subjects examined in was 13; total number of questions asked, 110; percentage required to pass, 75. The total number of candidates examined was 5, of whom 3 passed and 2 failed. Six candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Rush Medical College	(1914)	77.4
Johns Hopkins University	(1913)	75
Marquette University	(1913)	79.8
FAILED			
Medical College of Indiana	(1902)	43
Milwaukee Medical College	(1912)	61
LICENSED THROUGH RECIPROCITY			
College		Year Grad.	Reciprocity with
Northwestern University	(1907)	Illinois
Rush Medical College	(1913)	Missouri
University of Minnesota	(1905)	Minnesota
University Medical College, Kansas City	(1908)	Kansas
Washington University	(1912)	Illinois

Book Notices

LA CURE DE SOLEIL. Par Dr. A. Rollier. Cloth. Price, 20 francs. Pp. 217, with 147 illustrations. Lausanne: Constant Tarin, 1914.

Heliotherapy as a systematic method of treatment has been practiced for little more than a decade. The first clinic intended for the sunlight treatment of surgical tuberculosis was opened at Leysin by Rollier in 1903. This method, combined with the climatic treatment by high altitude and cold air, has given remarkable results. Rollier has been followed by some other clinicians in Europe and to a lesser extent in the United States. The action of light is to be regarded as due to the effect of the heating rays, on the one hand; of the waves of shorter wave length, actinic rays, on the other. The effect of the latter rays is to increase the resistance. This is largely expressed by the formation of pigment; and light, as a remedy, acts in a manner similar to the cold in the fresh air treatment. The method is applied more particularly to surgical cases. It is in these especially that good results have been obtained. Rollier describes the treatment and the results in a profusely illustrated work of 217 pages, to which are added 105 full-page illustrations. The general action of the remedy and the arrangements for giving general sun-baths are described in the first six chapters, comprising about half the text. The rest of the book is devoted to the description of local diseases of the various joints, of the glands, and of the bones. A short chapter concerns pulmonary tuberculosis for which, however, the author makes very moderate claims. He warns that the treatment must be applied with considerable caution, being especially applicable to incipient cases. The treatment in the later stages is combined with various forms of work and of recreation. We see children studying their lessons or attending to their gardens or playing various games, practically nude, even in winter. While it may easily be urged that this method of treatment is carried to an extreme, there is no doubt that the sun-bath needs to be better known and understood. For this purpose, the work of Rollier may do good service, and it is to be hoped that it will stimulate the application of such methods in the United States.

THE PROPHYLAXIS OF MALARIA WITH SPECIAL REFERENCE TO THE MILITARY SERVICE. By Charles F. Craig, Captain, Medical Corps, U. S. Army. Paper. Pp. 115, with illustrations. War Department, Office of the Surgeon-General, Bulletin No. 6. Washington: Government Printing Office, 1914.

This thoroughly covers the different phases of prophylaxis as now understood. Of first importance in prophylaxis, the author says, is the diagnosis; and in order to be able to make the diagnosis, a knowledge of the morphology and life cycle and how to demonstrate the parasites, both in the blood of man and in the mosquito, are essential. A good description, with illustrations, of the different forms of the plasmodium is given, with the method of making and staining blood specimens. The malarial mosquito, its life history and habits, with points of differentiation from other mosquitoes, are described and illustrated, methods of collecting and dissecting mosquitoes detailed, and different measures of prophylaxis by destruction of the insects, by protection of man from the bites, by destruction of the plasmodia by quinin, etc. Practically all of this information applies to malaria prevention in civil life, and most of the measures are more easily carried out in civil life than in the military service. To those interested in the propaganda for the eradication of malaria in the malarious sections of the United States, this should prove an instructive pamphlet.

The New Gospel of Health and Efficiency.—Illness as well as injury occasions a large economic waste to the company as well as to the employees on account of lost time, idle machinery and ineffective work. It is to the direct interest of the company as well as the individual to bring about a reestablishment of health, and consequently of efficiency, by supplying the best conditions possible for recovery.—Survey.

Miscellany

Health in Panama in 1914

The health millennium has not yet arrived in the Panama Canal Zone, but has perhaps come as near that place as any other. The health department, following in the footsteps of its first great chief health officer, and not subject to the unintelligent action or lack of action of politicians, local and state, pseudo- and other statesmen and would-be statesmen and antis of all sorts, goes ahead and gets things done. If the accumulated experience of history and of the profession of medicine agree that some measure or method of hygiene or sanitation or disease prevention is good, it is at once embodied in a regulation and put into effect. The results soon begin to show in the monthly and annual reports of the department, and the following from the report of the Chief Health Officer, Lieut.-Col. Charles F. Mason, shows some of the things that happened in 1914:

"The health of employees has been better than in any previous year. The total admission rate to hospitals for 1914 was 244.49, compared with 351.10 for 1913, and for disease alone 182.57, as compared with 246.91 for 1913. The total death rate for 1914 was 7.04, as against 8.35 for 1913; and the death rate for disease, 4.40, as compared with 5.24 for 1913. The noneffective rate for 1914 was 12.22, compared with 15.97 for 1913. With regard to malaria, the death rate has been reduced more than 50 per cent. since 1913, and the admission rate to hospitals more than 15 per cent. There were only seven deaths from malaria. The noneffective rate, hospitals and quarters, computed for the last five months of 1914 was 1.51. The admission rate for typhoid fever, 0.52, was more than 22 per cent. less than for 1913, although the case mortality was higher, giving a death rate of 0.09, as against 0.07 for 1913. The admission rate for dysentery was 1.80, compared with 1.97 for 1913, but the death rate was slightly higher. The death rate from pneumonia has increased from 0.83 in 1913 to 0.95 in 1914; all the deaths but one were among black employees. The increase in the disease is probably due to unusual prevalence of measles and the overcrowded condition in which people live in Panama."

It should be explained that housebuilding in Panama has not kept pace with the growth of population, resulting in the overcrowding mentioned.

Here are two examples of the way in which the health authorities exercise their power:

"In the latter half of the year a periodic physical examination, including urine and feces, has been made of all food handlers in the kitchens, mess rooms and commissaries of the Panama Canal, with the result that one typhoid carrier and a number of cases of contagious diseases were detected and eliminated."

Wouldn't there be a good deal of comfort and satisfaction in the thought that all of our food handlers had been examined and the diseased ones "detected" and "eliminated" in the same way?

"During the year general vaccination was done in all the schools of the Canal Zone, as well as those of Panama and Colon; 117 children were vaccinated in the Canal Zone, 5,186

in Panama, and 1,097 in Colon. . . . In addition to the vaccinations in the schools, 33,204 other vaccinations were done."

Here is the year's record with reference to smallpox and two other deadly infections, equally well barred:

"One case of smallpox was removed from the Pacific Mail Steamship *Newport* on April 16 and recovered. With this exception, no cases of yellow fever, smallpox or plague originated on or were brought to the isthmus during the year."

The report brings out strikingly the difference between the effects produced by the health service in the Canal Zone and the regular variety of health service outside in the cities of the republic, handicapped by the usual conditions surrounding health department work.

Government Aid to Housing and Home Owning

Practically every European country has made provision for the assistance of home builders and for housing, either by direct loans, by loans to building or other associations, or by the government construction of houses and apartments, chiefly for the use of government employees. Bulletin 158



CHAMBERLAIN in *Harper's Weekly*.
(By permission)

of the Bureau of Labor on "Government Aid to Home Owning and Housing of Working People in Foreign Countries" sets forth the details of the plans in the various countries of Europe for the improvement of housing conditions. Most of these measures apply to housing in the cities, but the housing of agricultural laborers in villages in some instances has been provided for. Advantageous conditions as to credits and low rates of interest are the distinguishing features of all these regulations. In some, an insurance feature is provided whereby the borrower is insured for the amount of his loan so that it will be wiped out in case of death or taken care of in case of permanent injury or loss of earning power. The reports cover chiefly the economic aspects of housing, the regulations for building with regard to light and sanitation not being dealt with to such an extent that comment might be made. This compilation is valuable as setting forth the experience of other countries on the housing problem crystallized into legislation.

Medicolegal

Damages Recoverable for Aggravated Injury

(*Suelzer vs. Carpenter (Ind.)*, 107 N. E. R. 467)

The Supreme Court of Indiana affirms a judgment for \$10,000 damages in favor of the plaintiff for an oblique fracture of his right femur and other injuries sustained by him while in the defendant's employ. The court says that the defendant contended that he should not be held liable for all the damages that the plaintiff sustained, because, as claimed, his injuries were greatly aggravated because of unskilled treatment by his surgeon; that for such aggravation the defendant was not liable. The defendant was permitted to introduce evidence to show lack of surgical skill in treating the femur fracture. It appeared that the plaintiff's surgeon made an incision in the thigh and bound together with wire the broken ends of the bone to prevent slipping. Some of the defendant's witnesses—surgeons—testified that better results would have followed if finishing nails and screws had been used in fastening together the broken bones. There was no evidence whatever to show any negligence on the plaintiff's part in the employment of his surgeon, who was regularly licensed and a person of experience in his profession. At the defendant's request the jury were instructed that the plaintiff could not recover for aggravation of injuries caused by unskilful treatment of his surgeon. It is undoubtedly true that one suffering a bodily injury by reason of another's negligence must use ordinary diligence and care in securing surgical aid, and, failing in such duty, cannot recover for ailments or diseases caused by such neglect. But, where ordinary care has been exercised in selecting a surgeon, the latter's unskilful treatment causing aggravation of the injury will not alone preclude a recovery by the plaintiff from the wrong-doer of damages for the aggravated as well as the original injury. The defendant created the necessity for a surgeon's services, and the plaintiff, without negligence, obtained the necessary surgical attendance. The risks incident to such service were incurred because of the defendant's fault, and the aggravation of the original injury, if any, by unskilful surgery, must be held the proximate result of the defendant's negligence. Nothing in the evidence in relation to unskilful surgery warranted a diminution in the damages assessed.

Monomania, Insane Delusions and Testamentary Capacity

(*Dibble et al. vs. Currier (Ga.)*, 83 S. E. R. 949)

The Supreme Court of Georgia says that the medicolegal discussions of monomania, as distinguished from prejudice, animosity, ill will, bad judgment, drawing conclusions from insufficient premises or erroneous conclusions from facts—all of which may coexist with sanity—are often apt to confuse, rather than enlighten, the lay mind, and sometimes the professional mind. The Civil Code of Georgia recognizes such a thing as monomania as affecting testamentary capacity. But it means a mental disease; not merely the unreasonable conduct of a sane person. It is a species of insanity. Mania is a form of insanity accompanied by more or less excitement, which sometimes amounts to fury. The person so affected is subject to hallucinations and delusions, and is impressed with the reality of events which have never occurred and things which do not exist, and his actions are more or less in conformity with his belief in these particulars. This mania may extend to all objects; or it may be confined to one or a few objects, in which latter case it is called monomania. It is not every delusion which will deprive one of testamentary capacity. It must be an insane delusion. A definition of such a delusion which has been approved by this court is that it exists wherever a person conceives something extravagant to exist which has no existence whatever, and he is incapable of being permanently reasoned out of that conception. The subject matter of the insane delusion must have no foundation in fact, and must spring from a diseased condition of

mind. It does not mean merely a mistaken conclusion from a given state of facts, nor a mistaken belief of a sane mind as to the existence of facts. Probably all men believe some things on slight evidence or that which is insufficient to prove the facts with any degree of certainty. But a bad reasoner, even one wanting in ordinary discernment or discrimination, is not necessarily insane. All men make some mistakes, and some men make almost constant mistakes. But this alone does not constitute insanity. Who is devoid of some prejudice? Some men are full of prejudices, and are largely governed by their likes and dislikes, often with little or no proper basis. But if mistakes, prejudices, or dislikes, though unjust, would suffice to show insanity, how many men could make a will? Mere jealous suspicions, though groundless, are not enough.

Damages for Malpractice in Treatment of Fractured Limb

(*Cranford vs. O'Shea (Wash.)*, 145 Pac. R. 579)

The Supreme Court of Washington on the second appearance of this case before it affirms a judgment in favor of the plaintiff on condition that \$2,000 be remitted, so as to make the amount \$5,385, instead of \$7,385. The court says that the plaintiff was injured in a coasting accident. Both bones of one of her lower limbs were fractured just above the ankle. The fracture was denominated a compound comminuted one. There was also a simple fracture or a nearly square breaking of the femur a short distance above the knee joint. The defendant was at the time surgeon at the emergency hospital, gave the plaintiff first aid, and thereafter treated her for four or five weeks, when she was passed to the care of the county physician, who cared for her until a surgeon of her own choosing took charge of the case. The accident occurred on January 17. February 2 or 3 Roentgen-ray photographs were taken, after which the limb was set and put in a cast. The malpractice was alleged to lie in the fact that the defendant did not make timely discovery of the fracture of the femur, and did not, after discovery, render proper and skilled service. On the appeal it was urged that the trial court erred in allowing evidence to be received tending to show that the defendant was negligent in that he did not have Roentgen-ray pictures taken at the time or shortly after the case came under his notice; that the trial court did not properly instruct on this feature of the case, and erred in submitting the issues to the jury, in that it failed to state the defendant's contention that he knew of the fractured femur, but could not heal it, because of the synovitis of the knee joint and the condition of the lower fracture. As for the first contention, the supreme court thinks it would have been better if the trial court had sustained the defendant's objection and had given his requested instructions, but, as there was independent evidence of negligence, and the testimony would in all probability go only to the amount of damages, it has been decided to treat the act and refusal of the trial court as not sufficiently prejudicial to justify a third trial of the case. Were the damages awarded excessive? The supreme court thinks so, as before indicated. It is fundamental that a physician or surgeon who is called to treat an injured person cannot be held to answer for the suffering caused by the original injury, but only for the suffering caused by his own negligent acts. The theory is evident that the original injury, so far as the attending surgeon is concerned, is as if it were self-inflicted. All hurts requiring surgical care are presumptively painful and tormenting. It can be judicially noticed that a compound fracture of the lower limb and a fracture of the femur are painful hurts, and will occasion long suffering, although treated with the best of surgical skill. In the instant case the defendant was not responsible for the original injury, or the infection which prolonged the healing of the lower fracture indefinitely and which made a surgical operation on it necessary, or for the six to twelve weeks of confinement during which the bones might have knit under the most skilful treatment had there been no infection. The law demanded that the plaintiff bear her share of the misfortune which angry chance threw over the unlucky parties to this action.

Society Proceedings

AMERICAN MEDICAL ASSOCIATION, SAN FRANCISCO, JUNE 21-25.

American Academy of Medicine, San Francisco, June 25-28.
Am. Assn. Gen.-Urin. Surgs., White Sulphur Springs, W. Va., May 18-20.
American Association of Immunologists, Washington, May 10.
American Climatological and Clin. Association, San Francisco, June 18-19.
American Dermatological Association, New York, May 13-15.
American Gastro-Enterological Association, Baltimore, May 10-11.
Amer. Gynecological Society, White Sulphur Springs, W. Va., May 18-20.
American Laryngological Association, Niagara Falls, June 1-3.
American Medico-Psychological Assn., Fortress Monroe, Va., May 11-14.
American Neurological Association, New York City, May 6-8.
American Orthopedic Association, Detroit, May 6-8.
American Otological Society, Niagara Falls, June 3-4.
American Pediatric Society, Lakewood, N. J., May 25-27.
American Society of Tropical Medicine, San Francisco, June 14-16.
American Surgical Association, Rochester, Minn., June 9-11.
Arizona Medical Association, Prescott, June 17-18.
Association of American Physicians, Washington, May 11-12.
Conf. of State and Prov. Boards of North America, Washington, May 14.
Connecticut State Medical Society, Hartford, May 19-20.
Florida Medical Association, De Land, May 12-14.
Illinois State Medical Society, Springfield, May 19-20.
Iowa State Medical Society, Waterloo, May 12-14.
Maine Medical Association, Poland Springs, June 9-10.
Massachusetts Medical Society, Boston, June 8-9.
Mississippi State Med. Association, Hattiesburg, May 11.
Missouri State Medical Association, St. Joseph, May 10-12.
Nat'l Assn. for the Study and Prev. of Tuberculosis, Seattle, June 14-16.
Nat'l Assn. for the Study of Epilepsy, Old Point Comfort, Va., May 10.
Nebraska State Medical Association, Hastings, May 18-20.
Nevada State Medical Association, Reno, June 17-19.
New Hampshire Medical Society, Concord, May 19.
New Jersey Medical Society, Spring Lake, June 22-24.
North Carolina State Medical Society, Greensboro, June 16.
North Dakota State Medical Association, Bismarck, May 12-13.
Oklahoma State Medical Association, Bartlesville, May 11-13.
Rhode Island Medical Society, Providence, June 3.
South Dakota State Medical Association, Sioux Falls, May 18-20.
West Virginia State Medical Association, Huntington, May 12-14.

NEW YORK ACADEMY OF MEDICINE

Meeting held April 20, 1915

The President, DR. WALTER B. JAMES, in the Chair

This meeting was called for the purpose of urging that the Quarantine Station of the Port of New York, now in the hands of the New York state government, be transferred to the United States Public Health Service.

Introductory Remarks by the President

DR. WALTER B. JAMES: For more than a quarter of a century the New York Academy of Medicine has advocated the transfer of the Quarantine Station of the Port of New York to the federal government. The reasons for this step seem to us more than adequate and are given in the resolutions which the academy recently passed. They are as follows:

WHEREAS, Of all the ports of this country New York ranks first as a receiving station for foreign goods and immigration, as well as a distributing center for the entire country and,

WHEREAS, the federal government controls all the service incident to the administration of the port of New York with the single exception of the quarantine, which is logically a part of the immigration service; and

WHEREAS, the United States as a party to international quarantine agreements cannot guarantee their uniform observance unless all quarantine stations are under federal control; and

WHEREAS, All the ports of this country, with the exception of Baltimore and New York, for the reasons above cited, have already ceded their quarantine functions wholly or in part to the federal government, therefore be it

Resolved, That the economical and efficient administration of the quarantine service, and above all the safeguarding of the public health, demand the transfer of the Quarantine Station of the port of New York from the state to the national government; and be it further

Resolved, That the government of the state of New York be and hereby is respectfully and earnestly urged to take immediate steps to secure such transfer.

Last night a political club passed a resolution endorsing the position taken by the New York Academy of Medicine and recommending the quarantine transfer. Does this not suggest that the day is not far off when, in matters of

public health at any rate, political considerations will be subordinated to the immediate public good? There are two reasons for urging this change today. First, the fact that in our national Public Health Service we have what we know to be the most capable and effective piece of machinery in the world for defending the people from communicable disease conveyed from other nations, and second, because the melancholy state of affairs in Europe has for many months led physicians to believe that, with the advent of warm weather, and especially with the coming to our shores of European immigrants, the dangers of infectious disease will be greater than we have ever known.

The Present Health Conditions in Europe and Their Relation to This Country in the Coming Months

MR. HENRY JAMES, JR.: Under the conditions existing in Europe, where people are thrown out of their natural ways of life, epidemic disease very readily becomes possible. I have been recently where conditions are worse than elsewhere in Europe—in Serbia. The Serbians are a simple people with very few towns of any size, with little economic and social organization, living on farms and not equipped to meet disaster. There are few large buildings and few large hospitals, few places where refugees or homeless people can be housed. When the Austrian army entered the most populous portion of this country the result was confusion almost indescribable. The city of Nish, for instance, which ordinarily has a population of 25,000, now has from two to three times as many as normally. The result is that the people are living in stables, in stations, in restaurants or anywhere. The moment infection started it was bound to spread, and there are many people now suffering from typhus, typhoid, smallpox, scarlet fever, pneumonia and meningitis. The hospitals are utterly unable to care for them. Typhus is spread by vermin, and keeping patients clean is of the utmost importance; yet such is the destitution of the country that most of the men were lying in the clothes in which they had come from the trenches. Of 400 doctors working in the stricken district, 100 died during the month of February. The epidemic does not confine itself to the army, but is worst among the people who have been forced out of their homes. The death rate under these conditions is extremely high. If the Austrian army should invade Serbia tomorrow it could hardly escape contact with the infected houses and people, and would inevitably carry these infections back to their own country. The armies and people in the more northerly countries of Europe are still free from infectious diseases, but the unspeakable conditions are such that the approach of warm weather will threaten all of Western Europe and no one can say what dangers in the way of infectious disease will confront this country with the close of the war.

The Menace of Inadequate Quarantine and What an Efficient Quarantine Means to the Entire Country

DR. WILLIAM C. WOODWARD, Washington, D. C.: On April 27, 1857, there convened in the city of New York the Third Annual National Quarantine and Sanitary Convention, which put itself on record as being convinced that hope of bettering the evils of that time lay only in the enactment of uniform state quarantine laws, and the convention took action to bring about the enactment of such laws. War apparently put an end to the activities of this conference. Since that time, quarantine, which has been reduced to an efficient basis everywhere, has been made uniform with respect to practically all our maritime commonwealths new and old. There are four reasons why quarantine at the port of New York should be made a part of the national quarantine system. First, because of its relation to the foreign affairs of the United States; second, because of its relation to the domestic affairs of the United States; third, because of its relation to the domestic affairs of the state of New York, and fourth, because of the administrative affairs of the quarantine service itself. The admission and exclusion of citizens of foreign countries, whether they be immigrants or not, and of merchandise are governed by the general

principles of international law, by the terms of treaties and by federal statutes, and the interpretation of such law, treaties and statutes and their enforcement are essentially within the province of the federal government and not of the state. A state may exclude from its territorial jurisdiction any person or thing that would jeopardize the health and safety of its citizens, notwithstanding international law, treaty or statute; but just such efforts on the part of an individual state to substitute this judgment as to the proprieties of the situation for the judgment of other states and of the United States are the things that strain our harmonious relations with foreign nations and the harmonious relations between federal and state officers. It is incomprehensible that there should be for the entire country one law for the incoming immigrants, one law for customs and one law to insure the safety of navigation along our coasts, while for the exclusion of disease, which of all things is no respecter of state lines, there should be as many laws and as many establishments for their enforcement as there are commonwealths in our Union. The international relations of quarantine are clearly recognized by this state in the very administration of its quarantine service in that it relies for the efficiency of its service to a considerable extent on information concerning foreign ports obtained from the United States Public Health Service. This state has not undertaken to maintain its own foreign service for guidance in respect to these matters, realizing possibly that the cost of such a service would be prohibitive, and that legal obstacles would stand in the way.

From the standpoint of domestic affairs of the United States, quarantine at the port of New York should certainly be under federal service, since a large number of persons and a large quantity of goods passing through this port are destined to other commonwealths. These, if they wished, could establish their own inspection service against persons and things coming from abroad, even though their entry had been approved by the officers of the state of New York; but the cost of such inspection service and the interference that they would occasion to commerce were such as practically to prevent any state from doing so. These states relied on the efficiency of the service maintained by the state of New York, but they have no voice in or control of its operation. The persistence in maintaining its own quarantine station, merely for the protection of the state of New York, renders inexpedient in a practical way the establishment of a federal service to which the states in the interior are entitled. Were the question of a national quarantine service to come before a constitutional convention at the present time, there can be no doubt that the weight of influence of states in the interior would place the quarantine in the hands of the federal government.

So far as relates to the state of New York itself, there would seem to be no reason why it should assume the responsibility of safeguarding the health of the United States, and it would appear unfair to the state that it should have to make up deficiency in the cost of its quarantine service out of the general revenue of the state. From an administrative standpoint, the federal government is far better able to maintain at the port of New York an efficient quarantine service than is the state itself, and is therefore better able to protect not only the country at large, but also the state of New York. This is said without any reflection on the ability with which the affairs of the New York quarantine station have been conducted. An efficient quarantine service demands an organization sufficient to cope with emergencies. A sudden emergency may require that the capacity of the establishment at the port be increased 20, 50, possibly 100 per cent. within a few days or a few weeks, and the increase must be efficient immediately. The state can reasonably provide no such elasticity of service, but a federal service could readily adjust itself to such a situation by assembling trained officers, men and equipment from other parts of the country, leaving the ultimate increase in the force and equipment of the federal service to be met by new men and makeshift equipment at places where no

serious need existed. Moreover, the federal service would have a larger advantage over the state service in the provision that could be made in the federal service for appeals. That the ranking officer of the port should and would have ample authority is certain. The ablest officers may at times want advice with respect to the passing of a vessel and its passengers, cargo and crew in a doubtful case. The easy method in such a case is to hold them; but modern quarantine seeks to interfere as little as possible with the movements of persons and merchandise, and the efficient officer in a case of doubt would seek the advice of his superior officer. Interested masters and owners of vessels and cargoes should have some appeal from the decision of the quarantine officer, no matter how competent he is. In order to make such an appeal of value, it must be directed to some one as far as possible removed from the effect of local prejudice and excitement, whose position is not jeopardized by local politics and who has had the training and experience that fits him to act intelligently. Nowhere other than in the Public Health Service can such men be found. Distance from the federal government need be no objection, for if California, Oregon and Washington can be administered effectively in respect to quarantine, certainly New York need fear nothing on the score of distance from the seat of federal government. The fact that so many of the states have discontinued their maritime quarantine stations and rely on the United States government for protection may not be in itself an argument that New York state should do likewise, but there is nothing in the relation of the state of New York to maritime quarantine which differentiates it in principle from the rest of our states. The bigness of the traffic passing the state quarantine at the port of New York is certainly no reason for refusing to transfer the administration of that quarantine to the federal government. It would appear, though I have not examined the records, that of the traffic passing the port of New York the larger percentage is destined to go beyond the limits of the city and state of New York than is the rule with respect to the analogous ultimate disposition of traffic entering at other ports. If this presumption is correct, then the country at large has a greater proportionate substantial interest in the maintenance of quarantine at the port of New York than it has at other ports.

Finally, the fact must not be lost sight of that even should the state of New York transfer its quarantine station at the port of New York to the Public Health Service, the sanitary officers of the state have such relation to the administrative affairs of the Public Health Service, through the annual conference which the Surgeon-General of the Public Health Service is required to call, and the special conferences which sanitary officers of the states can require him to convene at times when the annual conference is not in session, as to enable the state officers to bring pressure on the Public Health Service to administer quarantine at the port of New York in a manner acceptable to the sanitary officers of the states. The international relations of the quarantine station of the port of New York, the relations of that station to the domestic affairs within the United States, the domestic relation of that station to affairs within the state of New York, and economy and efficiency in the administration under all conditions of the affairs of that station, all call for its transfer to the federal government. If there is anything which renders such transfer inexpedient, I have been unable to discover it.

Relation of the National Government to Quarantine and Other Public Health Agencies

HON. WILLIAM HOWARD TAFT: My service in the Philippines brought me into intimate contact with the problems of preventive medicine and enabled me to become intimately acquainted with the work of the Public Health Service. The evils of war are great, but it seems that we must recognize the good that is done. The Spanish-American War was productive of great good in that it brought the American medical profession into active touch with tropical diseases through the Army and Navy Medical Corps. From the time

that we occupied Cuba, American medicine made more progress in discovering the causes and the treatment of tropical diseases than in 100 years before. Because of its insanitary condition and its part in the spread of yellow fever, Cuba had become an international nuisance. To Walter Reed, Jesse Lazear and William C. Gorgas, surgeons of the United States Army, is due the credit of having stamped out yellow fever and malaria in Cuba and Panama; to Victor G. Heiser and Richard Strong for having controlled smallpox, beriberi, cholera, amebic dysentery and leprosy in the Philippines. If the United States has a body of men in the Army, Navy and Public Health Service equal to these tasks, it is also equal to the task of running the quarantine station at the port of New York. The United States government has a body of men in the Public Health Service equal to any corps in the world. The Public Health officers did ten million vaccinations in the Philippines, when the antivaccinationists came along and said, "There, that shows what liars they are, for there are only eight million in the population." They failed to take into account the fact that some of the people were vaccinated more than once. There were at one time 6,000 cases of smallpox in each of half a dozen provinces; since vaccination became compulsory there are none. It is incredible in the face of facts like these that any one can doubt the efficacy of vaccination, yet antivaccinationists remain unconvinced. The late Professor Loundsberry of Yale once said to me that the most astounding thing he knew was the capacity of the undergraduate mind to resist the acquisition of knowledge, and to those dealing with the problems of public health the capacity of the popular mind to resist the effect of the indubitable proof of facts must seem equally amazing. Beriberi had one time presented a problem in the Philippines, but since the cause of this affection has been found to be the eating of polished rice, there has been no difficulty in dealing with the disease. At one time there was an epidemic of cholera in Manila, and it became necessary to use armed force to keep the natives from using the river water; the efficiency of the enforced quarantine regulations and a serum that seemed to be very effective enabled the Public Health Service to control this epidemic. Manila now has a new water supply and new sewerage and is a healthy place. Again, the bubonic plague was brought to the Philippines from Japan, and a crusade was instituted against the rats and fleas; this soon stamped out the plague. At one time it was said that there were forty or fifty thousand lepers in the islands, but investigation showed that the number was greatly exaggerated. Through the efforts of the Public Health Service this class of unfortunates, who had hitherto been treated with atrocious cruelty and inhumanity, were placed on farms and made comparatively happy and contented. The Public Health Service has also dealt effectively with amebic dysentery in this locality.

Coming to Panama, it is interesting to observe that it was estimated that 70 per cent. of the natives were infected with malaria, so that the chances were 7 to 10 that if a mosquito bit a native it would become a carrier of malaria. Under these conditions the eradication of malaria from Panama seemed impossible, yet Dr. Gorgas has accomplished it. The control of hookworm in Porto Rico is another instance of the effective work of the Public Health Service. It may also be recalled that the services of this body were called for to clean up the Port of Guayaquil a few years ago when that city was threatened with an epidemic of yellow fever. During the Spanish War there were 120,000 men in the army, and 20,000 cases of typhoid fever occurred with a mortality of 7 per cent. In 1912-1913, an army of 18,000 men was sent to the Mexican frontier. These men had been vaccinated against typhoid fever; only one case of that disease occurred among them and that man had not been vaccinated against typhoid. All these facts make it evident that the federal government has a corps of medical men in the Army, Navy and Public Health Service equal in point of ability to investigate disease, in point of numbers and in point of experience in preventing disease to any corps in the world.

The federal government has every facility for dealing with disease; it has its agents in every dangerous port in the world to make reports on health conditions. The federal government now conducts fifty quarantine stations in this country, practically all excepting the one in New York. The New York Health Department and law are good, the best in the United States, and I have no idea of criticizing the conduct of the quarantine station. I take the opportunity to say here that I hope the bills threatening the effectiveness of the Public Health Laws in this state will be defeated. But quarantine is a national question, since it has an intimate relation to foreign and interstate commerce. It naturally comes within the sphere of the federal government, but is one field in which the state may act until Congress speaks. The contention that quarantine is a state matter and that constitutionally the federal government cannot interfere is about as absurd as the claims of the antivaccination cranks. Under the present law, even if the state authority wishes to continue to conduct quarantine, the federal government can step in at any time; it has the power to purchase the station. Such a transfer, say at \$2,000,000, would help the treasury of the state of New York, though I am unable to say whether the national treasury is in a position to pay.

The objection is raised to the federal control of quarantine that the service is not adequate to deal with so large a port as that of New York. The Public Health Service is now conducting the quarantine in other large cities. Others deprecate the rigid uniformity in federal regulations. There need be no fear on this score, as variation is made in the regulations to meet local conditions as they arise. Some have asserted that the federal regulations do not include beriberi, but it will be found that the federal regulations can be extended so as to include this disease as well as others. Again, it is argued that the federal government could not interfere in coastwise trade; but here again federal legislation can be extended to coastwise trade just as to interstate commerce. Others, again, have held that there would be a lack of personal responsibility on the part of federal officers for a particular locality. This is a fallacy. There is, in fact, a greater responsibility on the part of the federal service because politics are wholly eliminated; the places of men in the Public Health Service are not subject to change in administration. The federal officers have no local interests at stake, are not influenced by local opinion, and have no object to attain by concealment of actual conditions. In this connection, the history of the outbreak of plague in California a few years ago is interesting. Here the policy of concealment, the steps that led to the interference of the federal government, and the chase of the ground squirrel which has continued ever since, is very instructive. There is no question that quarantine could be conducted far more effectively and economically under the same head and government with the customs and the immigration bureaus.

Again, this is not a matter in which New York alone is concerned; the whole country is interested. It is true that New York is the largest port in the United States, and that most of the immigrants arrive here; but they do not stay here. The entire nation is directly concerned. With the state administration of quarantine there is a division of authority that is not desirable. I am a strong states rights man in the sense that I believe in local self government as essential to the welfare of the Union; but quarantine under present conditions is a national and not a local affair. The federal government has made treaties with foreign countries involving questions of quarantine, and should logically be in possession of the instruments by which these treaties are enforced. When we face the world to meet conditions such as threaten us at the close of the war, it should be with a national and not a state system of quarantine. The transfer of the New York quarantine station to the federal government may not be so easy a procedure as we suppose, and hence there is all the more reason for agitation at the present time.

THE AMERICAN ASSOCIATION FOR CANCER RESEARCH

Eighth Annual Meeting, held in St. Louis, April 1, 1915

(Concluded from page 1525)

Incidence and Inheritability of Spontaneous Cancers in Mice; Inheritability of Tumors of Specific Organs

DR. MAUDE SLYE, Chicago: The present study is based on stock which has now yielded over 10,000 necropsies, and has produced 722 cases of unquestioned tumor, many of these cases showing multiple primary tumors of different organs, so that the total number of cancers is considerably over 1,000. Yet of this number there were only three tumors of the spleen, nine of the kidney, one to seven each of the stomach, rectum, face and jaw, adrenal, mesentery, chest wall, etc. The conclusion seems warranted that the provocation of the origin of cancer is of the type that stimulates rather than of the type that destroys. Tumors of the ovary occur in unmated females about as frequently as in the mated. Is it not possible that the overproduction of unused egg cells may as readily be a stimulating cause for cancer in mice of high cancer ancestry as a specific lesion due to the production of young or to any other cause? Ninety per cent. of the testicle tumors in this stock have occurred in males long unmated or never mated until after the appearance of the tumor. It seems likely that the overproduction of unused spermatozoa may as readily be the provocation of tumor in mice of high cancer ancestry as a specific lesion in this organ due to bacteria, wounds or other causes. Mammary gland tumors are about as common in unmated females as in the mated, and in this series they occur at a rather earlier age. It seems probable that the nonuse of an organ ready for normal function may as certainly prove the irritating provocation of cancer as forced breeding and suckling in mated females of high cancer ancestry.

Whatever the nature of cancer may ultimately prove to be, this fact is certain: It follows the laws of heredity not only in the transmission of cancer in general, but also in the transmission of cancers of specific organs with an inevitableness which makes it a character that can be manipulated. Cancer is transmitted as a tendency to occur from a given provocation probably in the form of overirritation, chronic or acute, and, according to these observations, is quite as likely to be of the constructive as of the destructive kind. The elimination as far as possible of all forms of overirritation to the tissues of an individual of high cancer ancestry should go far to remove the provocation of cancer; and the eugenic control of matings, so that cancer shall at least not be present or potential in both sides of the hybrid cross, ought to eventuate in a considerable decrease in the frequency of human cancer.

Studies on a Cell (Zehbe's) Found in Cases of Human Carcinoma and Mixed Tumor

DR. GEORGINE LUDEN, Rochester, Minn.: During the routine examination of parathyroids, attention was attracted by a peculiar pathologic cell, found repeatedly in cases of carcinoma which had come to necropsy. This cell belongs to the group known among pathologists as endothelioid; epithelioid or plasma cells. Zehbe has described it very minutely though his description contains three errors: the extremely small nucleus to which he refers is the nucleolus, his foamy protoplasm is the nucleus itself, and his numerous mitoses are particles of nucleolar chromatin. In three cases of carcinoma this cell served as "indicator," revealing carcinoma in organs in which it was not suspected; and in a case of hemachromatosis, supposed to be of tuberculous origin, it led to the discovery of generalized malignancy. In each of these cases the pathologic findings were not of a metastatic nature, but showed malignant degeneration in histologically different tissue. Downey has pronounced the cell a pathologic variety of fibroblast. In every instance its presence is accompanied by three prominent changes: increase of connective tissue, malignant proliferation of very diverse types of cells, and a chemical affinity for

hematoxylin and other basic dyes in the parenchyma in the immediate vicinity of these cells and, in more advanced stages of malignancy, in the cells themselves. In consideration of these facts and the chemical reactions which this seems to imply, the assumption does not seem to be unwarranted that three factors are needed for the effective progress of malignancy: (1) a disturbed internal chemistry; (2) an outside irritant, and (3) a local chemical defenselessness of the tissue which is first to succumb.

The following conclusions were drawn: In the organs of patients dead of carcinoma there may be found a peculiar cell (probably a pathologic type of fibroblast) which occurs in the presence of foci or metastases. The association of this pathologic type of fibroblast with malignant changes is so constant that its presence serves as an indicator of the presence of malignant changes. The cell may be known by its oval nucleus 5 by 10 microns in diameter, sometimes in a faint zone of cytoplasm. The development of this pathologic connective tissue in association with carcinoma suggests the presence of a widely distributed chemical factor fundamental in the production of cancer.

Comparison of the Immunizing Effects of the Subcutaneous and the Intraperitoneal Administrations of Tumor Cells Against the Growth of Carcinoma in Mice

DR. MAJOR G. SEELIG and DR. MOYER S. FLEISHER, St. Louis: Both intraperitoneal and subcutaneous tumors have a mutual inhibiting action on each other, provided they are virulent or moderately virulent. An intraperitoneal tumor, however, has relatively a very much stronger inhibiting power than has a subcutaneous tumor. The number of takes after intraperitoneal inoculation is smaller than after subcutaneous inoculation, and the rate of growth is also less rapid. The intraperitoneal inoculation of unheated, as well as of heated tumors, yields a number of takes approximately 40 per cent. less than does the subcutaneous inoculation. Notwithstanding the lower percentage of takes, the immunizing effect of intraperitoneal tumors is markedly greater than that of subcutaneous tumors. A subcutaneous tumor with markedly diminished virulence may exert a favorable influence on a second subcutaneous tumor of diminished virulence. In the same way, a subcutaneous and intraperitoneal tumor may, under certain conditions, mutually exert a favorable influence on each other.

The Rôle of Inflammation in the Immunity of Mice to Implanted Tumors

DR. E. E. TYZZER, Boston: The common mouse is found to be invariably refractory to the growth of implants of carcinoma derived from the Japanese waltzing mouse. Such implants, however, grow for a period of at least six days, during which they do not excite any marked inflammatory reaction. Following this period there is an inflammatory reaction, which is accompanied by the degeneration of the tumor tissue and its eventual disappearance. A comparative study was made of the tissue reaction around implants of this tumor into naturally immune common mice and into common mice which had previously been inoculated with the tumor. It was found that the inflammatory reaction was initiated at least three days earlier in the latter group, and that the destruction of the tumor graft also occurred much more rapidly. A study of the reaction of mice to a tumor of their own race in normal as compared with immunized individuals showed similar differences, although less pronounced. The mechanism of resistance and immunity to tumor implantation were discussed. The data acquired in the present study are interpretable on the theory of sensitization, that is, the production of material in the immunized animal which, in combination with the products of the living tumor cells, produces local injury which is most marked in the tissues surrounding the implant. The destruction of the tumor cells is secondary to this inflammatory reaction.

Transplantation of Tumors into Foreign Species

MR. CASIMIR FUNK, New York: Experiments were performed with the view of testing the validity of Ehrlich's

athreptic theory, which explains the failure of tumors to grow in foreign species by the fact that they lack their specific food supply. To test this hypothesis, two batches of rats were inoculated with a mouse chondroma, one batch being fed on this tumor for some time previous to the inoculation. In the control rats the mouse tumor failed to grow, but in those fed on tumor tissue, several tumors identical to the tumor which was inoculated were obtained. One of these tumors was transplanted back into mice and also into prepared rats. The mouse tumor was kept going in rats for three generations and for more than seven weeks.

Treatment of Parotid Tumors by Radium

DR. RICHARD WEIL, New York: A case of parotid tumor was treated successfully with radium in the memorial Hospital of New York. A number of favorable results have been reported in parotid tumors, through the application of radium. In no instance, however, has the microscopic character of the tumor been described. In the present instance, a small piece removed for examination was diagnosed by Dr. Ewing as adenoid cystic epithelioma. The appearance corresponds to that frequently described as cylindroma. The sections show epitheliallike cells arranged in cords which have extensively infiltrated and destroyed the muscle bundles. No tissues characteristic of the "mixed tumors" were discoverable. The patient was a woman aged 38. The tumor, which had been slowly growing for seven years, was seated in the parotid region and involved the entire lower half of the ear and the upper part of the neck behind the ear. It was firmly adherent to the deeper structures and in part to the skin. There was complete facial paralysis on the right side. The radium was inserted into the tumor through an incision, eighteen such applications being made. At the end or six weeks the tumor had practically disappeared. Up to the present time after an interval of more than one year there has been no evidence of a recurrence. The facial paralysis has not been removed.

Distribution of Radium A B C Injected into the Blood of the Rabbit

DR. WILLIAM DUANE, Boston: The injection of radioactive substances produces marked changes in the blood, a fact which has been therapeutically applied, as in leukemia. The experiments here reported aimed at a determination of the distribution in the body of radium A B C after injection. Radium emanation is allowed to deposit radium A B C on common salt, which is then dissolved in distilled water. The radium in the tissues was measured by an apparatus similar to that used in Paris to measure the international standards of radium. The radium solution was injected into the ear vein of rabbits, and the estimations made one hour later. The kidneys and the urine contain per weight much more radium A B C than does the blood, indicating rapid excretion. The liver and spleen contained several times as much radium as the blood, showing a tendency to deposit in these organs.

Chemotherapeutic Experiments on Tumors

DR. RICHARD WEIL, New York: Dyes of the benzidin group are not taken up by the living tumor cells of animals, either mice or rats. The necrotic portions of these tumors, however, take up the dyes of this group with considerable avidity. After intravenous injection, the necrotic parts of the tumor appear to be stained more intensely than any other tissue except perhaps the liver. The process of staining is not one of simple diffusion, inasmuch as these dyes are colloidal. It is possible that the relatively intense staining of these areas is simply due to a defective vascular supply which results in the less perfect removal of the dye. Many of the dyes undergo a change in color in the necrotic areas which is similar to the metachromasia seen in staining amyloid. Similar color changes could be produced in the test tube by adding solutions of certain amino-acids to the dyes. Compounds of certain dyes, notably Congo red, with copper, selenium, mercury and liquor formaldehydi, were injected intravenously into rats carrying tumors, but no therapeutic effects were observed.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Albany (N. Y.) Medical Annals

April, XXXVI, No. 4, pp. 151-200

- 1 True and False Economy in Care of Insane. T. W. Salmon, New York.
- 2 Scope of School Medical Inspection with Special Reference to New York State Under Mandatory Law. C. P. McCord, New York.

American Journal of Orthopedic Surgery, Philadelphia

April, XII, No. 4, pp. 555-833

- 3 *Osteochondritis of Upper End of Femur (Perthes' Disease). F. Delitala, Bologna, Italy.
- 4 *Tuberculosis of Knee-Joint in Adults; Prognosis and Treatment. M. H. Rogers, Boston.
- 5 Tuberculosis of Knee-Joint in Childhood. J. W. Sever and E. W. Fiske, Boston.
- 6 Tuberculosis of Hip. Analysis of Twenty-Five Cases. N. Allison, St. Louis.
- 7 Management of Convalescent Stage of Hip Disease. G. B. Packard, Denver.
- 8 Case of Pott's Paraplegia with Complete Paralysis Lasting for Five Years, with Recovery after Treatment. J. E. Goldthwait, Boston.
- 9 *Spontaneous Dislocation of Hip. J. Ridlon, Chicago.
- 10 Joint Syphilis in Children. J. A. O'Reilly, St. Louis.
- 11 Hitherto Undescribed Dystrophy, Probably of Luetic Origin, Affecting Particularly Joints of Lower Extremities. C. F. Eikenbary, Spokane, Wash.
- 12 *Treatment of Rheumatoid Arthritis of Hypertrophic Type. J. L. Porter, Chicago.
- 13 Simple Method for Forcible Traction on Each Leg While Applying Plaster Casts. P. Le Breton, Buffalo.
- 14 Importance of Vascular Conditions in Orthopedic Cases. H. W. Marshall, Boston.

3. **Osteochondritis of Upper End of Femur (Perthes' Disease).**—Perthes' disease is rare. In over 1,500 cases of hip affection, of orthopedic nature, it was found by Delitala in six cases only, which represents an average of 4 per thousand. It is not seen in infants. It occurs from 3 to 10 years of age. It is characterized clinically by atrophy of the joint, imitation of abduction, raising of the greater trochanter, shortening hardly noticeable, Trendelenburg sign, claudication; roentgenographically by a deficient and irregular development of the cephalic neck and by minimum alterations of the acetabulum. Differential diagnosis requires a complete exclusion of congenital dislocation of the hip, coxa vara, tubercular coxitis, and infantile deforming arthritis. Tuberculosis, the infectious disease in general and trauma, cannot be taken into consideration as pathologic causes. The origin of the disease must be looked for in a congenital alteration, either of the epiphyseal cartilage of the upper end of the femur or of the epiphyseal nucleus, which gives way to processes of ossification which are insufficient and irregular. From this point of view Perthes' disease is similar to congenital coxa vara.

4. **Tuberculosis of Knee-Joint in Adults.**—Rogers has never observed any bone lesion or focus within the first year of the onset of the symptoms, except in one case. This case showed early in the disease a focus in the head of the tibia, before there was a clinical evidence of capsular or joint involvement, which was exposed extra-articularly, supposedly as an osteomyelitic process. Within a year the process extended into the joint and involved the cartilaginous surfaces of the tibia and femur, when an excision was done. The microscopic examination showed tuberculosis. This the only case out of twenty that started, as far as clinical evidence goes, with a bone focus. Rogers is convinced that conservative treatment in adults is not productive of good results. Inasmuch as an exact diagnosis is often impossible within the first year of the disease without an exploratory arthrotomy, therefore, unless some other method of arresting the disease is found, excision is justifiable as early as the diagnosis can be made.

9. **Spontaneous Dislocation of Hip.**—The object of Ridlon's paper is to advocate the use of the term spontaneous dislocation, for that of congenital dislocation which has been in general use up to this time.

12. **Treatment of Rheumatoid Arthritis.**—Porter's routine method of treatment in these cases has been: 1. Hypodermic of $\frac{1}{4}$ grain morphin with atropin five minutes before the injection. 2. Local anesthesia over and into the diseased joint by novocain infiltration. 3. Injection of 2 per cent. of olive-oil-formaldehyd solution until the patient begins to feel the joint becoming distended. 4. Immediate immobilization in plaster cast. The acute pain which follows the injection usually subsides in fifteen to thirty minutes and is very rarely bad. The cast is removed in two to four weeks, depending on the sensitiveness of the joint at the time of the operation. In very painful cases Porter leaves it on longer. If pain and tenderness have entirely subsided, he does not make another injection. If not, a second one is given. In most cases only one is necessary, in some cases two are required and in a very few cases more than two. In cases in which there is more than a trace of indican in the urine, or any history of chronic flatulence, Porter excludes all animal proteins absolutely except buttermilk. In nearly all cases he has treated in the past two years he has also given a tablet of desiccated thymus gland four times daily.

American Journal of Roentgenology, Detroit

January, II, No. 3, pp. 581-632

- 15 *Roentgen Diagnosis of Lesions of Vermiform Appendix. H. M. Imboden, New York.
- 16 *Observations from Study of Thousand Gastro-Intestinal Cases. A. W. George and I. Gerber, Boston.
- 17 Losses in Transmission as Source of Error in Roentgen Ray Dosage. J. G. Van Zwaluwenburg, Ann Arbor.
- 18 Case of Fracture Confined to Petrous Portion of Temporal Bone. E. B. Gleason and G. E. Pfahler, Philadelphia.
- 19 Calcareous Cyst of Kidney. J. T. Case, Battle Creek.
15. Abstracted in THE JOURNAL, Oct. 3, 1914, p. 1228.
16. Abstracted in THE JOURNAL, Oct. 17, 1914, p. 1419.

Archives of Internal Medicine, Chicago

April, XV, No. 4, pp. 501-644

- 20 *Dead Space in Moderate and Large Respiratory Ventilation. C. F. Hoover and J. E. Gammon, Cleveland.
- 21 *Occurrence of Nuclear Particles in Erythrocytes Following Splenectomy. R. S. Morris, Clifton Springs, N. Y.
- 22 *Age Incidence in Sarcoma. C. V. Weller, Ann Arbor, Mich.
- 23 Study XXIII. Relation Between Amylase Retention and Excretion and Non-Protein Nitrogen Retention in Experimental Uranium Nephritis. R. Fitz, Boston.
- 24 *Studies of Renal Function in Renal, Cardiorenal and Cardiac Diseases. L. G. Rowntree, E. K. Marshall, Jr., and W. A. Baetjer, Baltimore.
- 25 *Effect of Sodium Salicylate on Various Types of Experimental Arthritis. D. J. Davis, Chicago.
- 26 Roentgenographic Study of Thorax, Thoracic Wall and Thoracic Viscera. L. B. Bibb and C. E. Gilliland, Austin, Tex.
- 27 *Metastatic Calcification. H. G. Wells, Chicago.
- 28 *Studies in Pancreatic Disease. B. B. Crohn, New York.
- 29 *Differential Study of Coccidioidal Granuloma and Blastomycosis. P. K. Brown and W. T. Cummins, San Francisco.
- 30 *Specific Gravity of Human Body. C. D. Spivak, Denver.

20. **Dead Space in Respiratory Ventilation.**—The optimum of respiratory volume is about 1,200 c.c. When the respiratory volume is increased beyond this amount Hoover and Gammon claim that the effectiveness of lung ventilation does not increase proportionately with the increased ventilation. It is the want of diffusion of carbon dioxide in large respiratory excursions which has given rise to the error of supposing the dead space to be increased in exercise. The authors show that on the basis of measured ventilation and the results in diluting the residual air, forced breathing is not effectual in ventilating the lungs in proportion to the increasing amounts of ventilating air. And conversely, when the amount of residual air is estimated on the basis of ventilatory results, the amount of residual air can be estimated with some accuracy when moderate amounts of air are inhaled, but with forced breathing, the residual air cannot be estimated from the measured results of ventilation.

When the dead space is artificially increased, the results of ventilation are not at all consistent with the ventilatory results which are ascribed by other investigators to an increase in the dead space in large respiratory excursions. The inefficiency of large respiratory excursions contributes more to the limitations of endurance in exercise than do

limitations in the circulatory system. The authors claim also that their results prove the manner in which operative interference contributes to the relief of emphysema. Relief is not procured by diminishing the amount of residual air, whose carbon dioxide is diluted by respiration. Improvement is procured from the operation by restoring the ventilatory effectiveness of moderate respiratory volumes, the improvement from Freund's operation is due to diminution of the size of the lobules of the lung and not to changes in rigidity of the chest wall.

21. **Occurrence of Nuclear Particles in Erythrocytes.**—The relationship between the occurrence of nuclear particles in the erythrocytes and complete (or partial) loss of splenic function, if such there be, remains to be demonstrated. The results in Morris' three cases and in Roth's are suggestive. Morris suggests that it may be found that this is a characteristic blood change following removal of the spleen: for, unless one's attention were directed to them, it would be difficult to detect scattered nuclear particles in the course of the usual examination. It is not suggested that the finding of nuclear particles in the erythrocytes means absence of splenic function, for nuclear particles are not uncommon in various diseases of the blood.

22. **Age Incidence in Sarcoma.**—An analysis of 265 cases of sarcoma was made by Weller. The incidence was greatest at the age period 48 to 52. After this period the sarcoma incidence gradually decreases. There was no marked difference in the age distribution of sarcoma in males (129) and in females (136). Although in youth sarcoma incidence is somewhat higher than carcinoma incidence, there is throughout life a marked parallelism between the age incidence curves for the two types of malignancy, and for more than twenty years there is a practical coincidence, strongly suggesting that the causal or predisposing agencies in the two cases must either be identical or have much in common.

24. **Renal Function in Renal, Cardiorenal and Cardiac Diseases.**—The authors summarize their paper as follows:

The quantitative estimation of the diastatic activity of the urine as it is employed at present shows low values in the majority of cases of mild and severe nephritis, while in cardiac and cardiorenal cases the diastase findings are bizarre. Owing to the frequent occurrence of normal diastatic values in cases in which considerable or grave renal functional involvement is unquestionably present, and of low diastatic values which are not in accord with the clinical course of the case or with findings of other functional tests, no diagnostic or prognostic significance attaches to this test, other than that which is corroborative in character. As a single test it is unreliable. Further data as to the influence of albumin on the "d" value are desirable. The phthalein test is the one of choice and unquestionably the most valuable single test in this group of cases. The total nonprotein N and urea content of the blood are of about equal value in severe cases, while the freezing point of the serum is probably of somewhat less value since depression in the freezing point is lacking in several instances in which one or both of the other tests indicate that retention is present. Both tests of excretion and of retention are valuable. In all cases a phthalein test is advisable. *Wherever the phthalein output is decreased even but slightly the total non-protein nitrogen or the blood urea or both should be determined.*

25. **Effect of Sodium Salicylate on Various Types of Experimental Arthritis.**—It is clear from the several series of experiments reported by Davis that sodium salicylate does not exert a favorable effect on infections in rabbits caused by various types of streptococci under the conditions detailed. It does not prevent localization of the organism in joints, nor does it prevent the appearance of endocarditis. It would seem to have, therefore, no prophylactic value, nor does it alter the course of the infection after it has once become established.

27. **Metastatic Calcification.**—Wells reports a typical case of metastatic calcification, resulting from bone destruction in myelogenous leukemia, making the thirty-second case of

metastatic calcification found recorded. Of particular prominence and significance in this case are the heavy calcium deposits in the endocardium of the left side of the heart, the intima of the pulmonary veins and of the cardiac arteries, which illustrates as by a natural experiment the importance of the carbon dioxide of the blood in the transportation of calcium. When bone tissue is being rapidly absorbed, the venous blood becomes loaded with a greater amount of calcium (probably in the form of tribasic calcium carbon-phosphate) than arterial blood can hold in solution. Hence in this case of metastatic calcification no calcium is found in the right side of the heart or in the pulmonary arteries, but when the blood has passed through the lungs and lost a large part of its carbon dioxide, the calcium salts are precipitated in the pulmonary veins, the left heart and the arteries and taken up by the adjacent tissues.

28. Pancreatic Disease.—The quantitative examination of duodenal ferments according to Crohn is the most rational and accurate method of studying the external secretion of the pancreas. Diminution of such enzyme activity of the pancreas is a reliable sign of organic disease of the gland. Occasionally, though rarely, a diminution of ferments occurs as a symptom of advanced organic disease elsewhere in the body. Roughly, the diminution of ferments is directly proportional to the extent of organic destruction which has taken place. The absorption of fat and nitrogen from the intestine, Crohn says, is independent of the condition of the external secretion, or even of its presence. Absorption may be poor with an intact gland, or good with a gland of which only a fragment survives the disease. The functional activity of the gland, not its organic condition, determines the degree of absorption; this is probably controlled by an internal secretion or hormone. Duodenal ferment tests give the index of the organic condition of the gland. Absorption tests give the index of the functional activity of the pancreas.

29. Study of Coccidioidal Granuloma and Blastomycosis.—Brown and Cummins pointed out that there are well-defined differences in the pathogenicity of the two diseases, coccidioidal granuloma being always fatal, and often rapidly fatal in man, while blastomycosis is commonly not so, except for the systemic cases, in which the organisms were found associated with bacteria of known and unknown pathogenicity (Zinsser, Hektoen, Gilchrist and Stokes). The clinical and pathologic aspects of coccidioidal disease are those more closely resembling tuberculosis, as there is a greater predilection for the lymphatic system than there is in blastomycosis and cutaneous lesions are likely to be more ulcerative. There appears but one reported case of coccidioidal disease in the female sex, whereas there have been many of blastomycosis. Iodids have temporarily benefited many, and apparently cured a few, blastomycosis patients, whereas they have had no effect on the rapidly progressive lesions and toxemia of coccidioidal granuloma.

In the reported cases of coccidioidal granuloma and blastomycosis confusion is common as to clinical, pathologic and bacteriologic characteristics. The two organisms appear closely related, having much in common, but with such differences as to justify the conclusion that they are distinct entities. Morphologically, in pus and solid tissues they are differentiable by the endosporulation in the one and budding in the other. Cultural differences are not so pronounced, although the authors have found that growth is initially more rapid with coccidioides. Blastomycetes appear to grow best at room temperature (20 C.); coccidioides at 37 C. The table of dyes shows some differences in inhibition of growth. Rabbits and guinea-pigs are more resistant to blastomycetic than to coccidioidal infection. The authors are of the opinion that these appear to be sufficient reasons to justify the consideration of coccidioidal disease and blastomycosis as two different diseases. A second paper dealing with the diseases from serologic, vaccine and chemotherapeutic points of view is promised.

30. Specific Gravity of Human Body.—Volumetric measurements were taken by Spivak of fourteen individuals, four

adults (three males and one female) and ten boys, ranging in ages between 53 and 8 years; in weight from 79 kg. to 26 kg., and in height from 1.71 meters to 1.35 meters. All the measurements were taken at 7 p. m. before the evening meal. The specific gravity of the entire body ranged between 0.976 and 1.049. The average specific gravity of the adults was 1.003, and of the boys, 1.006. The average specific gravity of all individuals examined was 1.005. One of the subjects was placed on a certain diet and his displacement measured every other day, when he weighed 175, 174 and 173 pounds, respectively. The individual enters the bath and is first immersed to the navel line only, next to the nipple line, then to the prominence of the thyroid cartilage. He gradually accustoms himself to his new surroundings—to the tank and the water. Hearing each time the reading of the amount of water which each section of the body displaces, by the time the last dip is made, the immersion of the head, all fear and trepidation vanishes. Spivak claims that in order to reduce the errors to a minimum, the tank must be made of the smallest possible diameter compatible with carrying out the experiment. The smaller the tank the smaller the error.

Archives of Pediatrics, New York

March, XXXII, No. 3, pp. 161-240

- 31 *Some Sources of Error in Diagnosis and Treatment of Lobar Pneumonia in Childhood. E. C. Fleischner, San Francisco.
- 32 Dietetics of Eczema. G. D. Lyman, San Francisco.
- 33 Morbidity and Mortality of Associated Charities Feeding Clinic—San Francisco. F. M. Holsclaw and A. E. Rude, San Francisco.
- 34 *Benzol Treatment in Case of Lymphatic Leukemia, with Autopsy. A. E. Meyers, San Francisco.
- 35 Acute Pyelitis. Cause of Obscure Fever in Infancy. E. J. Wood, Wilmington, N. C.
- 36 Two Cases of Parapneumonic Empyema in Children. L. W. Sauer, Chicago.
- 37 Case of Bell's Palsy. M. J. Synnott, Montclair, N. J.

31. Error in Diagnosis of Lobar Pneumonia.—Fleischner says that if one agrees that ice is of use in treating pneumonia in adults there is no question that it has value in treating pneumonia in older children. The prejudice against ice in pneumonia is far from justified. It is used commonly by medical men in treating meningitis, endocarditis, appendicitis and peritonitis. Why then should it not be used in pneumonitis? If ice is not useful in the external treatment of pneumonia, what is? Essentially nothing. With the exception of the occasional application of light mustard pastes as an aid to the failing heart, all poultices are of paramount danger. Kaolin pastes used in this disease are not only without therapeutic value, but they are a source of harm and damage.

The frequent employment of so-called expectorant cough mixtures is more than deplorable in the early stages of pneumonia. There is nothing for the patient to expectorate and the noxious substances, such as ipecac and chlorid of ammonia, put into the stomach only serve to disturb the gastro-intestinal tract and take away what may be left of the already markedly diminished appetite. Steam is sometimes used to lessen the irritating cough, but unless there is considerable inflammation of the larynx its value is very questionable. It has the decided disadvantage of necessitating the closing of windows during its use and for a considerable period after its use. In no acute disease does the question of heart stimulants assume the importance that it does in pneumonic infections, and in no disease likewise is overstimulation so frequently employed.

An old, wornout horse is never whipped, nor is it advisable to whip or overwork a wornout heart. In the treatment of heart complications opium occupies a position that is secondary to no other form of medication. Oxygen, especially in cases in which the cyanosis is profound, is of unquestionable value and must be used constantly. Camphor in the form of the sterilized oil seems at times to produce results, and ammonia given as the aromatic spirits also occasionally seems beneficial. If the blood pressure were materially lowered in pneumonia epinephrin should be of value, but it is rarely lowered. Caffein defeats its own purpose, because it overstimulates the nervous symptoms

so that the little value that the heart receives is more than counterbalanced by the irritation of the cerebrum that follows its use. Strychnin has been proved absolutely valueless. Atropin should be administered to those cases in which there is a tendency to pulmonary edema.

34. Benzol Treatment in Case of Lymphatic Leukemia.—In the case cited by Meyers there was a gradual reduction of the white blood cells with comparatively small doses of benzol, with a complete reversal of the picture of the white blood cells as it appears in cases of leukemia not treated with benzol. With the exception of the blood picture there were no other signs of benzol poisoning. Apparently good results were obtained while the patient was receiving benzol, 3 minims, four times daily.

Boston Medical and Surgical Journal

April 22, CLXXII, No. 16, pp. 575-612

- 38 *Leprosy, with Especial Reference to Pulse and Temperature. (To be continued.) J. A. Honeij, Boston.
- 39 *Skeletal Cancer or Bone Metastases. E. H. Risley, Boston.
- 40 Corsets, Ptosis and Sacro-Iliac Strain. R. M. Green, Boston.
- 41 Case of Osteomyelitis with Necrosis of Entire Femur and Spontaneous Fracture Treated by High Amputation, Leaving Boneless Yet Practical Stump for Attachment and Working of an Artificial Limb. A. H. Tuttle, Boston.

38. Leprosy, with Reference to Pulse and Temperature.—Seventeen patients have been under Honeij's observation for various periods during two years, and fourteen patients have been under constant observation for eighteen months. The study of the temperature and pulse has given definite results and the following points are presented: 1. There occurs a definite clinical temperature and pulse curve diagnostic and prognostic of leprosy. 2. There is a frequent and persistent occurrence of a high morning pulse rate—"morning pulse" in all cases. 3. A constant high pulse rate is most marked in progressive and advanced cases. 4. A persistent high pulse rate without a corresponding elevation of temperature of prolonged duration is found after "toxic-febrile" attacks. 5. There is a correlation of temperature and pulse in early cases, in contrast to a gradual increase of pulse rate without similar temperature reactions in progressive and advanced cases. 6. Not uncommonly a low evening temperature is present. 7. A marked irregularity in temperature and pulse exists during complications not associated with leprosy. 8. There are typical "toxic-febrile" temperature and pulse curve reactions. 9. Marked temperature and pulse reactions occur from otherwise insignificant causes, both physical and mental.

39. Skeletal Cancer or Bone Metastases.—This subject has been reviewed by Risley and he gives the following facts of importance in regard to metastatic bone cancer: 1. Metastasis takes place probably by centrifugal spread along the lymphatic plexus of the deep fascia in most cases. 2. Bone metastases occur almost entirely in the areas of the body subject also to skin nodule metastases, namely, everywhere proximal to the elbow and knee joints. Bones distal to these joints are rarely involved. 3. Metastases are more common after cancer of the breast than any other organ. The prostate and thyroid being the next most common. (Hypernephroma of the kidney is not considered in this series). 4. The liability of a bone to cancerous invasion increases with its proximity to the site of the primary focus. Thus the sternum and ribs are affected about equally and more frequently than any other bones. The spine, femur, humerus, pelvic and cranial bones come next. 5. The character of the secondary lesion always corresponds to that of the primary growth. 6. The frequency after cancer of the prostate may be as high as 25 per cent. 7. The vertebrae are the favorite seats of attack in scirrhus of the breast. 8. The percentage of vertebral metastases is nearly 25 per cent. 9. Spontaneous fracture is present in about 24 per cent. 10. Pain is the only characteristic symptom. 11. Visible or palpable tumor is rare, while spontaneous fracture is quite common.

Risley says that the following points may be set down as diagnostic aids: Any fracture of a long bone occurring as a result of trivial injury should immediately suggest the

possibility of bone metastases and lead to careful search for the primary new growth. In all cases of painful paraplegia a neoplasm should be suspected. A diagnosis of primary bone tumors should never be made without careful examination of the abdomen, mammary glands, prostate and thyroid for malignancy. It is rare that careful search will fail to reveal the primary focus.

California State Journal of Medicine, San Francisco

April, XIII, No. 4, pp. 129-168

- 42 Reduction of Diphtheria Morbidity. W. A. Sawyer, San Francisco.
- 43 *Hematogenous Kidney Infections. G. MacGowan, Los Angeles.
- 44 Suprapubic Prostatectomy and Some of Its Results. M. Molony, San Francisco.
- 45 Carrier Problem in Diphtheria. W. H. Kellogg, San Francisco.
- 46 Retrodisplacement of Pregnant Uterus. L. I. Breitstein, San Francisco.
- 47 Case of Pellagra. W. W. Kerr, San Francisco.

43. Hematogenous Kidney Infections.—To prevent disappointment, MacGowan says, it is best to look on tuberculin as of assistance in the treatment of tuberculosis of the kidney and not as a specific remedy therefor. In forming an opinion of its value use as a base the reports of those who have had the patience to use it, over long periods of time, on numerous cases that have answered to the requirements of a perfect diagnosis: the direct demonstration of tubercle bacilli in an acid purulent urine received in a sterile container from a sterile ureteral catheter introduced into the pelvis of the kidney of a person afflicted with polyuria, dysuria, or both, or the development in a guinea-pig inoculated with the sediment of this urine, of tuberculosis at the point of inoculation.

The evidence of experienced operating surgeons who have frequently nephrectomized such patients with a low mortality both immediate and remote, yet who have had the courage thoroughly to test out the merits of tuberculin, is the best evidence of all, for they know and appreciate better than others the unreliable history of the disease and its unaccountable vagaries—how the individual develops a marked resistance to reinfection both from within and without, accounting for the slow progress of renal tuberculosis, its remissions of disturbing symptoms, and sometimes of apparent cure for months and for years, by the encapsulation and sealing up of the abscess cavity, thus introducing an element of doubt always into the origin of any favorable results following the use of tuberculin in these cases. It is not a matter of much importance what particular preparation of tuberculin is used. The dose, however, is not a matter of indifference. It should be small, always very small, at first. One that will equal 1/1,000,000 to 1/100,000 mg. of old tuberculin is always sufficient to start with and it should be raised very gradually, avoiding the occasioning of a local or general reaction. The intervals of its administration should be four or five days. Used in this way it helps many and injures none.

Canadian Medical Association Journal, Toronto

April, V, No. 4, pp. 277-372

- 48 Artificial Pneumothorax in Treatment of Tuberculosis. (To be continued.) C. D. Parfitt and D. W. Crombie, Gavenhurst.
- 49 *Vaccine Treatment of Bacterial Diseases of Lungs Complicating Pulmonary Tuberculosis. F. W. Wittich, Kamloops, B. C., Canada.
- 50 *Blood Transfusion in Infants and Young Children. L. B. Robertson and A. Brown, Toronto.
- 51 Dislocation. G. P. Girdwood, Montreal.
- 52 *Curative Value of Tetanus Antitoxin. Report of Case. J. G. Fitzgerald, G. W. Ross and E. Z. Stirrett, Toronto.

49. Vaccine Treatment of Bacterial Diseases of Lungs Complicating Pulmonary Tuberculosis.—Vaccine therapy of these secondary infections is said by Wittich to be only an adjunct in the treatment of pulmonary tuberculosis. The primary treatment in all these cases is rest, fresh air and diet, with tuberculin in suitable cases. Certain cases will improve much faster under this treatment, and it has been the turning point of the disease in some. In an examination of the sputum of 196 patients, the pyogenic organisms predominated and their frequency was noted. The hemolytic

streptococcal group usually manifested the severest clinical symptoms, and asthma was frequently present. This group responded particularly well to vaccine. In a certain number of cases of pulmonary tuberculosis, the secondary organisms play an important rôle. They may be the primary infection predisposing to tuberculosis, or their presence may accelerate the growth of tubercle bacilli to such an extent that a better term for these cases would be "mixed infections." Wittich states that the discouraging results of vaccine therapy in the hands of many are due to faulty technic in their preparation and administration. As the preparation of homologous vaccine from the sputum of tuberculous cases is attended with difficulty, a practical and efficient method for obtaining the same is described.

50. Blood Transfusion in Infants and Children.—Properly safeguarded, transfusion, according to Robertson and Brown, is not a dangerous operation. The withdrawal of too much blood from the donor and the dilatation of the recipient's heart are usually avoidable mishaps. The introduction of air bubbles both large and small, contrary to the general opinion, have caused absolutely no harm. Experimentally this observation has been confirmed by one of the authors when almost a syringeful (10 c.c.) of air was introduced into a dog's femoral vein, producing only a momentary cyanosis and then complete recovery, with apparently no bad after-effects.

The amount transfused may be controlled to a certain extent by the estimation of the hemoglobin, but it must be borne in mind that the introduction of whole blood acts as a stimulus to the hematopoietic organs, with a result that from twelve to fourteen hours following the cessation of transfusion the hemoglobin may read from ten to thirty points higher. The average duration of the flow of blood in the cannula method is from three to six minutes, while with the syringe method the quantity can be accurately estimated. In a newborn infant from 90 to 120 c.c. is sufficient to stop the bleeding and restore almost half the total quantity of blood. In an infant 3 months of age, naturally depending on the degree of exsanguination, a larger amount is required.

52. Value of Tetanus Antitoxin.—This communication deals with the value of tetanus antitoxin as a means of treatment in well developed cases of tetanus, when properly administered; and when given in sufficiently large doses. The authors report two cases in which exceedingly satisfactory results have been obtained. One patient was given 24,000 units of antitoxin intravenously and 3,000 intraspinally; the other received 52,500 units intravenously.

Journal of Parasitology, Urbana, Ill.

March, I, No. 3, pp. 107-158

- 53 Spider Poison. V. L. Kellogg, Stanford University, Cal.
- 54 Sarcosporidia Encountered in Panama. S. T. Darling, Ancon, C. Z.
- 55 Otacariasis in Bighorn. H. B. Ward, Urbana.
- 56 Tociotrema Lingua (Creplin). E. Linton, Washington, Pa.
- 57 Habits, Life History and Structure of Blood-Sucking Muscid Larva (Protocalliphora Azurea). A. F. Coutant.
- 58 Experiments on Cysticerci of Tenia Pisiformis Bloch and of Tenia Serialis Gervais. J. E. Ackert, Topeka, Kan.

Lancet-Clinic, Cincinnati

April 10, CXIII, No. 15, pp. 397-424

- 59 Modern Electrocardiography. J. E. Benjamin, Cincinnati.
- 60 Inlay Bone Graft in Treatment of Fractures, Joint Tuberculosis and Certain Deformities. F. H. Albee, New York.
- 61 Climate of Reno, Nevada, Compared with Other Resorts. J. R. Williams, Reno, Nev.
- 62 Experiences in Anoci-Association. C. G. Crisler, Cincinnati.
- 63 Pulmonary Tuberculosis Treated by Artificial Pneumothorax. A. G. Shortle, Albuquerque, N. M.

April 17, No. 16, pp. 425-452

- 64 External Bone Plating. H. R. Allen, Indianapolis.
- 65 Case of Poliomyelitis of Meningitic Type. C. W. Hitchcock, Detroit.
- 66 Treatment of Compound Fractures. F. W. McGuire, Buffalo.
- 67 Old Dislocation of Head of Radius, with Fracture of Ulna—Corrected by Lane Bone Plate. F. Fee, Cincinnati.
- 68 Nervous Diseases Among Jews. W. Ravine, Cincinnati.
- 69 Surgical Principles in Care and Feeding of Infants. A. I. Carson, Cincinnati.
- 70 Heart in Life Insurance. J. S. Lankford, San Antonio, Tex.

Medical Record, New York

April 24, LXXXVII, No. 17, pp. 673-714

- 71 Astasia-Abasia. J. Collins, New York.
- 72 Psychic Therapy, Clinical Psychology, and Layman Invasion. J. V. Haberman, New York.
- 73 Indications for Treatment of Heart Diseases. R. Abrahams, New York.
- 74 Suggestions in Handling Cases of Diabetes Mellitus. H. Blum, New York.
- 75 Latest Investigations Regarding Syphilis and Salvarsan. S. Steiner, New York.
- 76 Belgian Red Cross Hospitals of Dr. Depage. C. L. Gibson, New York.

New York Medical Journal

April 24, CI, No. 17, pp. 817-868

- 77 Contrast Between Surgery of Civil War and That of Present War. W. W. Keen, Philadelphia.
- 78 Circumscribed Serous Meningitis. T. A. Williams, Washington, D. C.
- 79 Types of Malignant Endocarditis. J. M. Patton, Chicago.
- 80 Apparatus for Ambulatory Treatment of Fracture of Tibia. C. Savini, New York.
- 81 *Tobacco Heart. H. Brooks, New York.
- 82 Psychopathology of Neurosis. B. Sidis, Portsmouth, N. H.
- 83 Treatment of Acute Surgical Infections. E. R. Secord, Brantford, Ont.
- 84 Superdiagnosis. A. G. Huegli, Detroit.
- 85 Complement Fixation for Syphilis with Cholesterol Antigens. L. H. Cornwall, New York.
- 86 Syphilitic Aortitis. J. Epstein, New York.

81. Tobacco Heart.—If experimentation, pharmacology and clinical observation have taught one single fact about the action of tobacco, Brooks states, it is that its effects, while occasionally very dangerous, are evanescent. He advises against the use of tobacco in cases of angina pectoris, for the reason that the action of the drug adds to the existence of diseased coronary arteries, its pharmacologic effect, claudication. Clinical experience bears out this restriction. Furthermore, Brooks is inclined to the opinion that as a result of this claudication, progression of a localized arteriosclerosis may be favored.

In any instance in which the effects of tobacco on the pneumogastric produce symptoms of cardiac embarrassment, entirely irrespective of the heart lesion, whether it be pericardial, myocardial, or endocardial, the drug should be given up, or used only in such doses that no indications of disturbance occur. Each case should be considered a problem by itself. In cases in which a patient desires to use tobacco moderately, one is not justified in denying him a very real and definite pleasure and consolation until it has been tried out on him. If disagreeable or bad symptoms are produced it is a very simple matter to cut out tobacco. If, on the other hand, no symptoms are produced, since we have the prepondering weight of evidence on the side that tobacco does not produce anatomic changes in the tissues, Brooks does not believe that we are justified in denying the patient what we cannot intelligently explain. The advice is that, except in angina pectoris, whether tobacco may or may not be used depends on the effects which its use, not abuse, produces on the individual.

There is no clinical or experimental evidence that disease of the heart muscle is caused by tobacco, save for possible changes in the papillary muscles, probably explainable on a mechanical basis. The fact that all symptoms disappear when tobacco is discontinued, seems to confirm this statement. There is neither clinical nor anatomic evidence sufficient to indicate that true coronary sclerosis may be caused by tobacco, though it is highly probable that when this condition exists, the symptoms are accentuated by it. Tobacco angina is promptly relieved by discontinuation of tobacco; no such result can be obtained in true angina pectoris. It is probably unwise to permit the use of tobacco in circulatory diseases when symptoms of cardiac embarrassment occur.

New York State Journal of Medicine

April, XV, No. 4, pp. 129-166

- 87 Some Acute Surgical Diseases of Abdomen in Children. L. M. Kahn, New York.
- 88 Relation of Ophthalmology to General Practice. E. W. Jones, Watertown.

- 89 Some Observations, Therapeutic and Otherwise, From General Practitioner. M. J. Wilson, Warsaw.
- 90 Surgical Service at Buffalo General Hospital. F. J. Parmenter and B. F. Schreiner, Buffalo.
- 91 Twilight Sleep; Report of Two Hundred Cases. S. J. Druskin and N. Ratnoff, New York.
- 92 Clinical Relations of Ductless Glands. S. W. Little, Rochester.
- 93 Problem of Surgical Clinic as it Relates to Clinic Worker. A. J. Brown, New York.
- 94 Half Century of Medicine and Surgery. G. E. Blackham, Dunkirk.

Ohio State Medical Journal, Columbus*April, XI, No. 4, pp. 211-292*

- 95 Exophthalmic Goiter: Symptoms and Diagnosis. W. H. Lewis, Newark.
- 96 Chronic Pyelitis; Its Cause, Clinical Course and Treatment. F. C. Herrick, Cleveland.
- 97 Twilight Sleep, Series of Twenty Private Cases. J. Gardiner, Toledo.
- 98 Pyloric Stenosis in Infancy. A. Crotti, Columbus.
- 99 Obstructions at Outlet of Urinary Bladder. E. O. Smith, Cincinnati.
- 100 Cooperation of Physicians and Dentists in Conservation of Health. J. H. J. Upham, Columbus.

Southern Medical Journal, Mobile*Omitted from March, VIII, No. 3, pp. 173-252*

- 101 Differentiation of Diseases Associated with Splenomegaly. W. H. Deaderick, Hot Springs, Ark.
- 102 Report of Experimental Work in Prevention and Treatment of Rabies by Drugs. F. A. Coward, Columbia, S. C.
- 103 Operative Correction of Harelip and Cleft Palate. W. A. Bryan, Nashville, Tenn.
- 104 Relation Between Surgical Infections of Gastro-Intestinal Tract and Asthma. J. S. Ullman, Natchez, Miss.
- 105 Amputation of Leg. D. Eve, Nashville, Tenn.
- 106 Treatment of Compound Fractures of Leg. T. H. Hancock, Atlanta, Ga.
- 107 Sarcoma of Nasopharynx. R. C. Dorr, Batesville, Ark.
- 108 Abscess of Frontal Lobe Secondary to Purulent Frontal Sinusitis; Report of Case with Recovery. F. P. Calhoun, Atlanta, Ga.

Southwest Journal of Medicine and Surgery, El Reno, Okla.*April, XXIII, No. 4, pp. 89-133*

- 109 Appendicitis in Children. M. B. Clopton, St. Louis.
- 110 Roentgen Ray Diagnosis of Diseases of Thorax. B. T. Van Zant, Houston, Tex.
- 111 Need for Greater Care in Surgical Diagnosis. A. E. Sweatland, Nacogdoches, Tex.
- 112 Prophylaxis of Joint Conditions in Childhood. C. B. Francisco, Kansas City, Mo.
- 113 Killian's Suspension Laryngoscope and Its Application in Diagnosis and Surgery of Larynx. S. Israel, Houston, Tex.

Tennessee State Medical Association Journal, Nashville*April, VII, No. 12, pp. 479-524*

- 114 Anoci-Association in Theory and Practice. A. B. Cooke, Los Angeles.
- 115 Pyorrhea Alveolaris and Other Oral Sepsis and Relation of Physician and Dentist to Them. C. A. Sevier, Jackson.
- 116 Goiter. C. N. Cowden, Nashville.

Texas State Journal of Medicine, Fort Worth*April, X, No. 12, pp. 491-536*

- 117 Surgical Treatment of Trachoma. W. R. Thompson, Fort Worth.
- 118 Management of Intestinal Obstruction in which Treatment Has Been Delayed. H. R. Dudgeon, Waco.
- 119 Left Iliac Celostomy as Operation of Expediency in Cases of Inoperable Rectovaginal Fistula Associated with Stricture of Rectum. F. L. Barnes, Trinity.
- 120 Causes and Treatment of Subinvolution in Puerperal Uterus. E. S. Gordon, Dallas.
- 121 Practical Method of Repair of Female Perineum. J. M. Inge, Denton.
- 122 More Common Affections of Urinary Organs Associated with Diseases of Female Pelvis. M. Duggan, San Antonio.
- 123 Modern Views of Etiology and Pathology of Rheumatism. J. S. Davis, Dallas.
- 124 Review of Pathology and Bacteriology Hodgkin's Disease. W. H. Moursund, Dallas.

West Virginia Medical Journal, Wheeling*April, IX, No. 10, pp. 327-362*

- 125 Rights and Duties of Physician in Court. H. C. Hervey, Wheeling.
- 126 Conservation of Vision. B. F. Matheny, Clarksburg.
- 127 Laboratory Work and General Practitioner. S. L. Cherry, Clarksburg.
- 128 Etiology, Pathology and Treatment of Valvular Heart Lesions. D. T. Williams, Martinsburg.
- 129 Surgical Treatment of Disturbed Menstruation. J. A. Guthrie, Huntington.
- 130 Enormous Doses of Antitoxin in Infant. C. A. Fleger, Seth.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Roentgen Ray, London*April, XIX, No. 11, pp. 375-410*

- 1 Roentgenoscopy of Colon. J. T. Case.
- 2 Women's Imperial Service League Hospital. F. A. Stoney.
- 3 System of Topography for Use in Roentgenography of Head. R. Knox and R. W. A. Salmond.

British Medical Journal, London*April 10, I, No. 2832, pp. 625-664*

- 4 Wound Infections; New Methods in Treatment. (To be continued.) A. E. Wright.
- 5 *Cerebrospinal Meningitis. A. Lundie, D. J. Thomas and S. Fleming.
- 6 *Prophylactic Inoculation Against Tuberculosis. W. M. Crofton.
- 7 Method for Localization of Bullets. W. S. Lindsay.
- 8 *Treatment of Bites by Venomous Snakes. J. C. Fox.

5. **Cerebrospinal Meningitis.**—The authors conclude that lumbar puncture in competent hands is always justifiable, and it gives the only criterion by which to diagnose the third stage of the disease.

6. **Prophylactic Inoculation Against Tuberculosis.**—It has been Crofton's practice for the last eight years to urge the members of families whose parents were tuberculous, or in which cases of tuberculosis had occurred, to undergo a short course of tuberculin. The tuberculin he has used until lately is Koch's new tuberculin and the doses for adults have been, as a rule, 0.001 c.mm., 0.005 c.mm., and 0.01 c.mm. For infants 3 months old 0.0001 c.mm., 0.0005 c.mm., 0.001 c.mm. Sometimes further doses are given. There is sometimes a slight rise of temperature in the evening if the injection has been given in the morning, but otherwise no serious disability. The usual interval is seven days. The improvement in health in many of the members of tuberculous families thus treated has been most satisfactory, and so far no case has occurred among those who have been inoculated.

Some years ago Crofton discovered that tubercle bacilli would dissolve in benzoyl chlorid, and that this solution produced very marked focal and general reactions in tuberculous patients. When using it for therapeutic purposes, the initial dose had to be small—0.0000001 mg. in lung cases, 0.000001 mg. in extra-pulmonary cases. The highest dose that had to be attained was 0.01 mg. The clinical results have been so satisfactory that he now uses no other for therapeutic purposes. The doses are increased as follows: 0.0000002, 0.0000004, 0.0000006, 0.0000008, 0.000001, and so on. The dilutions are made in liquid paraffin, containing 2 per cent. benzoyl chlorid, and he generally adds 0.032 gm. iodoform dissolved in ether, so as to combine immuno- and chemotherapy. For prophylactic purposes the initial doses may be larger and the rises more rapid. At present Crofton uses the following series: 0.000001, 0.00001, 0.0001, 0.001 for infants; 0.00001, 0.0001, 0.001, 0.01, for older children, for adults an additional dose 0.1 may be used. The usual interval is a week. If after the initial dose there is a marked reaction, focal or general, then the immunization must be more carefully carried out, using the increments of dosage prescribed for treatment.

The benzoyl chlorid solution is made as follows: Ten milligrams living tubercle bacilli from the heaped-up growth in Dorset egg medium are weighed on an accurate chemical balance. The weighing is done on the under surface of the glass stopper of the bottle containing the 10 c.c. of benzoyl chlorid they are to be dissolved in. The masses of bacilli are broken up and mixed with a little of the benzoyl chlorid on the stopper. The stopper is then inserted into the bottle and shaken down into the fluid, which turns milky. The bottle is put in the incubator for twelve hours, and is shaken occasionally. The fluid gradually clears. The stock solution appears to keep a long time.

8. **Treatment of Bites by Venomous Snakes.**—Fox treats these cases by the injection of a full dose of cocain hydrochlorid into the punctures and immediate and continuous dosing with a solution of gelatin, 1 ounce to the pint. His results have been very good.

Glasgow Medical Journal*April, LXXXIII, No. 4, pp. 241-319*

- 9 *Lacerations of Maternal Tissues During Labor. J. N. Stark.
- 10 Chorea. (To be continued.) I. MacKenzie.
- 11 Agglutinating Power of Serum of Person Inoculated Against Enteric Fever. A. Patrick.
- 12 Case of Carcinoma of Stomach with Secondary Carcinoma of Bone Marrow. J. C. Middleton.

9. **Lacerations of Maternal Tissues During Labor.**—The following points are emphasized by Stark. 1. The pregnant woman deserves much more care and attention than she usually gets. 2. The primagravida ought to be examined two months before full time is expected, in order that the accoucheur may gain some knowledge of the size and form of her pelvis. 3. If the pelvis is found to be abnormally small or contracted, measures ought to be adopted so as to obviate the use of forceps above the brim. 4. When there has been exceptional trouble at the first confinement due to a small pelvis, unusually large child, or other like cause, then induction of premature labor in a future pregnancy is worth consideration, as an operation well adapted for performance by the general practitioner. 5. Forceps ought not to be applied above the brim of the pelvis. If the pelvis is contracted and the head cannot engage, cesarean section or craniotomy should be performed at an early, not a late stage of the labor. 6. In moderate degrees of contracted pelvis spontaneous delivery is safest for both mother and child. 7. In uterine inertia, pituitary extract is of value in the second stage. 8. Too early recourse to the use of forceps is to be discouraged. It should be a fixed and unalterable rule not to operate through an undilated cervix. 9. Lacerations of the perineum and vagina ought to be attended to in every case, and as soon as possible.

Journal of Tropical Medicine and Hygiene, London*April 1, XVIII, No. 7, pp. 73-84*

- 13 Pyosis Corletti in British Soldiers. A. J. Chalmers and A. P. O'Connor.

Lancet, London*April 10, I, No. 4780, pp. 737-786*

- 14 Wound Infections; New Methods in Treatment. (To be continued.) A. E. Wright.
- 15 War and Cholera. W. J. R. Simpson.
- 16 *Some Cases of Blood Infection by Anaerobic Organism Secondary to Wounds. A. Stokes.
- 17 Case Showing Frequent Occurrence of Auriculoventricular Rhythm Associated with Long A-C Interval. A. W. Falconer.
- 18 Case of Acholuric Jaundice. W. Harmens.
- 19 Cerebrospinal Meningitis; Meningococci Found in Peripheral Blood Films. A. C. Coles.
- 20 *Injection of Oxygen as Treatment for Tetanus. H. O. Howitt and D. H. Jones.

16. **Cases of Blood Infection by Anaerobic Organism Secondary to Wounds.**—The organism found by Stokes was a gram-positive bacillus, most of the bacilli taking the gram-stain well, a few individuals losing the stain, and a few showing a beaded appearance. The bacilli varied a good deal in length, forms longer than anthrax being common and forms as short as *B. coli* were found; it did not form spores in glucose-agar and died out in one week in that medium. In one culture capsules were stained; in the others they were apparently present, but it was not possible to stain the actual capsule. The colonies were dense and opaque, and on McLeod's plates made with blood glucose-agar they showed a distinct hemolytic power. The organism is non-motile. It was possible by making use of the hemolysis to isolate the same microbe from two quite harmless wounds, one in the leg, the second in the thigh. One culture killed a guinea-pig in fifteen hours; another culture made a pig very ill, but it did not die; these were the only cultures injected into animals. There were a large number of cases presenting the same clinical picture in which it was not possible to make blood cultures to verify the diagnosis.

From the rapid onset of the symptoms Stokes suggests that the infection of the blood stream is either at the time of injury or very soon after it. The clinical picture was characterized by four separate features: (1) The color of the patient, which was a dirty yellow, something like the color of a dirty deal table; (2) the soft, running pulse, which was always rapid, often uncountable, and in the later stages irreg-

ular; (3) uncontrollable vomiting, and (4) the rapid onset of the condition after the injury. The presence of obvious gangrene at the site of the wound was inconstant; in three of the six cases reported it was present, in the remaining three it was absent. Death occurred in every case with great rapidity, forty-eight hours being the average time; one case survived eighty hours. The patient was always conscious to the end and in a state of "euphoria."

20. **Injection of Oxygen as Treatment for Tetanus.**—The only treatment used by the authors in experimental cases was the direct deep injection of oxygen into the wounds. In cases in which half a drop of culture was used for inoculation, tetanus developed and terminated fatally in the case of the control, but had not developed eighteen days later in cases in which oxygen was injected. In cases in which the amount of inoculum was double that used, tetanus developed with fatal termination in both cases, but the appearance of tetanic symptoms and subsequent death were considerably deferred by the one injection of oxygen.

Archives de Médecine des Enfants, Paris*March, XVIII, No. 3, pp. 125-180*

- 21 *Malignant Syndrome in Infectious Diseases. V. Hutinel. Commenced in No. 2.
- 22 The Blue Spot in Brazilian Children. (La tache bleue mongolique à São Paulo.) C. Ferreira.
October, XVII, No. 10, pp. 721-800
- 23 *Congenital Tuberculosis. M. Péhu and J. Chalié.
- 24 Asystole from Acute Dilatation of the Heart in a Child. (Asystolie à répétition consécutive à la dilatation aigue primitive du cœur chez l'enfant.) H. Méry, H. Salin and A. Wilborts.
- 25 Salt Fever and Sugar Fever in Infants Result of Contamination of the Water. (La fièvre de sel et la fièvre de sucre en pédiatrie.) F. Figueira.
- 26 Acute Appendicitic Abscess in Thirteen-Months' Babe. Phelip.

21. **Malignant Syndrome in Infectious Diseases.**—The first installment of Hutinel's article was reviewed in these columns April 17, p. 1364. He here compares the malignant type of measles, diphtheria, erysipelas, scarlet fever and others, pointing out that the malignant syndrome in each is practically identical, although prostration, disturbances in the circulation, pain in the epigastrium or repeated vomiting may in turn dominate the clinical picture. The malignant syndrome may prove speedily fatal or the child may recover. Sometimes the syndrome may be masked by other symptoms of other origin and significance. Nothing is found at necropsy that explains the peculiarly malignant course except changes in the suprarenals, and these seem to be constant. He gives illustrations of a number of the typical findings in the suprarenals in these malignant cases, and emphasizes that the asthenia, the hypotension, abdominal pain and the favorable action of epinephrin all point to the suprarenals as being responsible for the malignant syndrome with acute infectious diseases. Sometimes the pancreas is affected also, and the liver or other organs may be more or less pathologic, but the disturbance in the suprarenals is the main element in the malignant syndrome. Hutinel has noticed that it was most common in fat or obese children.

In treatment he had never obtained much benefit from local treatment of the throat and serotherapy until he used epinephrin in combination. Then all the local measures gave good results. He gives the epinephrin in daily doses of from 12 to 20 drops or more, according to the age of the child, and the effect is remarkable, he says, even in the gravest cases. The blood pressure rises, the child feels stronger and notices what is going on around him. The pulse grows stronger and slower, the heart action more like normal and the urine increases in amount. The throat clears up and the disease loses its menacing character. All the usual measures are applied in addition to the epinephrin. He warns that the latter is not the sole and the specific treatment for the malignant syndrome in the course of infectious diseases, but when the epinephrin is of good quality and well managed it produces remarkable effects. The child may die, notwithstanding, from some ordinary complication of the disease, pneumonia, meningitis, or pericarditis, but these complications have the least direct connection with the pyrexia.

23. **Congenital Tuberculosis.**—Péhu states that there are only fifty-one authentic cases of congenital tuberculosis on record, and that the conditions in these were all the same, namely, that tubercle bacilli were swarming in the mother's blood. This bacillemia was generally terminal. Such cases cannot be regarded as congenital tuberculosis, but rather of contagion through the placenta. His extensive study of the literature and clinical experience thus reaffirms anew that practically no one is born tuberculous.

Bulletin de l'Académie de Médecine, Paris

March 23, LXXIII, No. 12, pp. 353-383

- 27 *Experimental Research on Vaccination against Typhoid. F. Widal.
- 28 Intravenous Serum plus Chioral Treatment of Tetanus; Six Cases. H. Barnsby and R. Mercier.
- 29 Prophylaxis of Trench Foot. Orticoni.
- 30 Apparatus for Immobilization and Adjustable Extension. (Appareil d'immobilisation avec extension continue par traction permanente et réglable pour fractures compliquées du fémur.) Manson.
- 31 Early Treatment of Tetanus. Bacri.

27. **Vaccination Against Typhoid.**—Widal has been repeating his experiments of 1888 with vaccines consisting of cultures killed by high temperatures, and the results all confirm his previous announcements with regard to their vaccinating power in adequate dosage. The serum of the rabbits acquired an agglutinating power up to 1 to 5,000 in a few days after from two to four injections of cultures heated to 100 or 120 C. Deviation of complement and bactericidal properties were also acquired.

Presse Médicale, Paris

March 25, XXIII, No. 12, pp. 89-96

- 32 Simplified Technic for Cultivating Typhoid Bacilli from the Blood, Bile and Stools. (Notes pratiques sur la recherche du bacille typhique dans l'organisme.) P. Carnot and B. Weill-Halle.
- 33 *Wounds of the Nerves in War. A. Mouchet.
- 34 *Unusual Complications of Mumps. (Quelques complications peu connues des oreillons.) F. Ramond and G. Goubert.

March 27, No. 13, pp. 97-104

- 35 *Surgical Massage. (Le massage chirurgical: Méthode d'enseignement rapide à l'usage des infirmiers militaires.) Pariset.
- 36 Sterilization of Dressings. H. Godlewski.
- 37 Arthrotomy for Wounded Suppurating Joints. Chaput.
- 38 Pulverized Wood Charcoal in Prophylaxis and Treatment of Diarrhea in the Field. P. Ravaut.
- 39 Diagnosis of Paratyphoid Fever. L. Lagane.

April 1, No. 14, pp. 105-112

- 40 *Psychoneuroses among the Troops. Grasset.
- 41 Gasoline Followed by Iodin Sterilizes Wounds. (Moyen pratique pour éviter, dans la mesure du possible l'infection des plaies.) Eynard.

33. **Wounds of the Nerves.**—Mouchet says that he has operated in 100 cases of bullet or shell wounds of nerves in the limbs. The injury was almost invariably found more serious than had been anticipated. Cicatricial retraction and fibrous growth explain the progressive character of the paralysis and other disturbances, as he shows by a dozen illustrations. In some cases the radial nerve was nipped between the stumps of the fractured humerus. The response to electric tests is often misleading, but it is extremely instructive in eliminating false paralysis of psychic origin. Hysterical phenomena may be superposed on true paralysis. In any event, the patient has nothing to lose and may gain much from an operation on the wounded nerve. The great drawback is that war wounds do not heal as promptly as we are accustomed to under other conditions. For months after the acute inflammation has subsided there may be encysted foci, which warn of the necessity for caution. He always makes the incision to one side of the nerve when possible. The operation, he adds, is only the beginning of treatment; electrotherapy and mechanotherapy, with the collaboration of the patient, complete the cure.

34. **Complications of Epidemic Parotitis.**—Ramond found epididymitis in 20 of 115 cases of mumps in soldiers, associated with orchitis in 2 of them. It came on about the sixth and lasted to the fifteenth or twentieth day. The spermatic cord showed signs of inflammation in 40 cases; this funiculitis sometimes preceded the parotitis and seldom developed later than the second or third day. In 23 cases there were signs of inflammation of the prostate or seminal vesicles. The glands in the triangle of Scarpa were inflamed

in 10 cases; in 6 the inguinal glands and in 3 several glands in the neck showed signs of inflammation. The tonsils were enlarged in 40 cases; one patient was unable to swallow for three days; otitis media developed in one case, resulting in deafness. In 60 cases severe diarrhea came on with the mumps, but it lasted only two or three days. Acute appendicitis developed in two cases, but subsided under medical measures in two weeks.

35. **Surgical Massage.**—Nine large illustrations are given to explain the directions for proper massage of the different groups of muscles. We should always bear in mind the functioning of the muscle involved and apply massage according to the direction of the fibers, as a rule.

40. **Psychoneuroses in War.**—Grasset prefers this term to the more current "hystero-traumatism," as he regards the emotional and mental factors as predominantly responsible for the condition. It soon subsides spontaneously in some and in others under appropriate treatment, but there is a third class who will probably recover, though not for a long time. They require special and prolonged treatment, reeducation of groups of muscles, tonics and psychotherapy. The well-to-do can be sent home on leave for two or three months after the family physician has been warned of the prognosis and of the necessity for guarding against suicide—Grasset knows of two recent suicides under these conditions. The poor, he continues, should be given during the war the same special care that, in time of peace, rich civilians get after a nervous breakdown. The soldiers whose nervous system has thus been crippled should be looked after as well as those crippled from loss of limbs.

Revue Médicale de la Suisse Romande, Geneva

March, XXXV, No. 3, pp. 117-184

- 42 *Purulent Pleurisy as Complication of Artificial Pneumothorax; Twenty-five Cases. M. Jacot. To be continued.
- 43 *Treatment of Goiter by Continuous Disinfection of the Intestines; Nine Cases. F. Messerli.
- 44 Complete Oculomotor Paralysis from Helminths; Two Cases. (Paralysie des muscles des yeux par trichocéphales et par oxyures.) A. Dufour.

42. **Pleurisy Complicating Artificial Pneumothorax.**—Jacot has been studying at Leysin the clinical forms of this affection, its pathogenesis and diagnosis as well as the influence of treatment. The details of 25 cases are tabulated, and he offers an explanation for Kienböck's phenomenon, that is, when the diaphragm on the diseased side falls with expiration, instead of rising, and rises during inspiration. Purulent pleurisy developed in 7 per cent. of the total cases of pneumothorax at Leysin, 1908-1913. Of the 25 cases, 36 per cent. were mild; 16 per cent. became grave secondarily, and 28 per cent. were grave from the first. In 20 per cent. the lesion was "open." In 9 cases the empyema developed very slowly, the general health was not impaired and, after the first sudden onset of the pleurisy, with dyspnea, pain and fever, temperature subsided to normal in from one to four months and thereafter there was no further fever, not even after puncturing. The empyema remained benign throughout. Possibly the pleura is thickened to such an extent that no absorption of toxins occurs. The lung had been completely compressed by the pneumothorax before the pleurisy developed, and these patients are all still in good clinical health. In 5 other cases the empyema perforated into the lung, but with a kind of valve action which closed the perforation during expiration. As it opened during inspiration, a little air got in each time and the pressure in the empyema thus increased regularly. All in this group succumbed to the empyema in from eight to twelve months.

43. **Systematic Use of Laxatives in Treatment of Endemic Goiter.**—Messerli gives an illustrated description of eleven cases of goiter in young men entering the military service in Switzerland. The father of one and the mother of two others had a goiter, and some of the sisters and one of the brothers had a goiter; only three of the young men had no family history of goiter. Messerli ordered laxatives for all. Small doses were given to maintain a continuous mild purgative action to keep the bacterial flora down as much as possible. The results confirm those published by MacCar-

risin in 1913 and later, and by Gaylord and Plehn, all apparently suggesting that the drinking water had some connection with goiter, and that by mechanically sweeping out the parasites in the drinking water we can reduce the tendency to goiter. The benzonaphthol, thymol, salol, aloes, jalap or rhubarb used may also have a destructive action on the parasites, or, by keeping the ordinary flora down, the already diseased thyroid is spared injury from their toxic products. In one case the neck measured 40 cm. before treatment and only 37.5 cm. after thirty-eight days of the laxatives. The difference in the size of the neck was 2 cm. in the others, except in one in which it was only 1 cm. and in another in which it was 4 cm. In two cases the improvement was obtained with a simple laxative without disinfecting properties, merely aloes, rhubarb and jalap.

Archiv für klinische Chirurgie, Berlin

CVI, No. 3, pp. 435-658. Last indexed March 13, p. 946

45 *Experimental Research on the Collateral Arterial Circulation of the Kidneys. E. Liek.

46 Tumors Originating in Sweat Glands. (Schweissdrüsenadenome.) G. Frattin.

47 *Resection of the Stomach. (Meine Erfahrungen mit 183 Magenresektionen.) H. v. Haberer.

45. **Collateral Arterial Circulation in the Kidneys.**—Liek reports experiments on twenty-seven dogs, two cats and four rabbits, and compares the results with similar work by others in this line. They confirm that the renal artery in dogs anastomoses with others, but Liek warns against applying to man the findings in animals. On the contrary, he affirms, we have to date no justification for treating chronic nephritis in man by Katzenstein's method of iodine treatment and suturing the kidney to the lumbar musculature, or for Isobe's method of nephrotomy and omentum grafting. This negative conclusion is the main outcome of Liek's research, he remarks.

47. **Resection of the Stomach.**—Haberer reviews his experiences with resection of the stomach in 183 cases since 1905. Only 60 were cancer cases; 11 of these patients did not survive the operation, but in 4 of these the fatality might have been avoided, as the suture failed to hold. One of the others had diabetes; another might have survived if the operation had been delayed for a few days to allow the heart and general health to be toned up a little. In the seventh case the malignant disease had already involved the pancreas and duodenum and the woman succumbed to the progressive cachexia. Another woman of 73 survived the operation and the wound healed, but the cachexia progressed, and this was also responsible for the death of the others, except one case of fatal pneumonia. The fatalities in nearly all the cancer cases thus show that the malignant disease was too far advanced for any chance of success when the operation was undertaken. The outcome in three cases is not known, but over 9 per cent. of the cancer patients are in good health to date, that is, 11 per cent. of those who survived the operation. Recurrence or metastasis after an interval of three or four years carried off the others.

These results encourage resection of the stomach in apparently the most desperate cases; survival for two or three years was the rule even in the far advanced cases in which otherwise the patients would have speedily succumbed. Survival for over two years was the rule in 25 per cent. of the 20 who died of recurrence later, and compares wonderfully with the survival for only four months, which is the average after a palliative gastro-enterostomy. He operated almost exclusively by the Billroth II method. He has been able to trace the history to date of 66 among the 123 ulcer cases; 77 per cent. are entirely cured and 12 per cent. essentially improved. In not less than 54 of his 123 cases the ulcer had already perforated into an adjoining organ.

The details of each case of resection are given separately, and the general conclusion is emphasized that resection of the stomach accomplishes far more than a gastro-enterostomy and with very little more danger. Last year he did resection in 56 cases and gastro-enterostomy in only 11, but the total experience on which the article is based includes 159 gastro-enterostomies, 6 partial resections, 37 cases of

unilateral exclusion of the pylorus—a total of 385 operations. The size, adhesions, local metastasis and involvement of lymph-glands, even in the pancreas, so long as they can be removed, are not contraindications to resection of the cancerous stomach, and a permanent cure may be realized in apparently absolutely hopeless cases. Whatever the anatomic form of the ulcer, resection is far superior in its effects to gastro-enterostomy. The latter does not influence ulcers remote from the pylorus to any extent, and resection is the only means of getting rid of cancers masquerading as simple ulcers. He has never encountered a peptic duodenal ulcer after resection, while he has had six cases of it after gastro-enterostomy. In particular he emphasizes the necessity for seeking for multiple ulcers, systematically palpating the entire stomach and studying the behavior of the glands along both the greater and lesser curvature. Overlooked multiple ulcers he is certain are responsible for many instances of supposed recurrence.

Beiträge zur klinischen Chirurgie, Tübingen

XCV, No. 2, pp. 205-402. Last indexed April 17, p. 1364

48 *Benign Multiple Tumors of the Scalp. (Das Hidradenoma cylindromatosum der Kopfschwarte.) H. Coenen.

49 Blunders in Diagnosing Cancer of the Penis; Six in Sixty-Nine Cases. M. Baruch.

50 Injuries at Winter Sports. Staehelin.

51 Operative Treatment of Inflammatory Processes in Ovaries and Tubes and Their Relation to Peritonitis. (Entzündliche Adnexe-erkrankungen.) Amberger.

52 *Operative Treatment of Duodenal Ulcer. Wendt.

53 Operative Mobilization of Joints, and the Outcome. (Zur Frage der Dauerresultate nach operativer Gelenkmobilisation.) Hänck.

54 *Value and Dangers of Pyelography. L. Simon.

55 Growth of Thiersch Flaps into the Depths. (Ueber Tiefenwachstum des Epithels nach Thiersch verpflanzter Epidermisläppchen.) G. Schoene.

56 Experiences with Extract of Blood Platelets. (Erfahrungen mit Coagulen—Kocher-Fonio.) J. Halpern.

57 Perinephritic Abscess. G. Doberauer.

58 *The Physiologic Importance of the Carotid Gland. Betke.

59 The Thymus and Spleen in Rats. (Experimentelle Thymusstudien. I.) M. Flesch.

48. **Benign Tumors of the Scalp.**—Coenen's patients in the three cases illustrated were women between 40 and 70. There were three or four mushroom-like tumors on the scalp, which had been years in developing. They finally required excision either on account of ulceration or the annoyance. The multiple occurrence, the slow growth and the heredity distinguish these tumors. They are perhaps best described as cylindromatous hidradenomas of the scalp.

52. **Duodenal Ulcer.**—The case reported had several unusual features, among them the fact that a hard ulcer developed in the stomach at the gastro-enterostomy opening. The patient was a man of 32, a great cigaret smoker and extremely nervous. The duodenal ulcer was found at necropsy completely healed, as also the gastric ulcer.

54. **Pyelography.**—Simon extols the great value of pyelography for differential diagnosis, emphasizing that it is free from danger when cautiously done under the proper indications. It should not be applied when the kidney pelvis is of normal size, or when there is a suspicion of a lesion in it or in the ureter from the ureter catheter. Another important precaution is to gage the capacity of the kidney pelvis beforehand, so that there need be no danger of overdistending it.

58. **The Carotid Gland.**—Removal of this gland in cats has apparently demonstrated that it has some share in the regulation of the blood pressure and in the growth of bones. The bones in the cats showed changes analogous to those of human rachitis. This is the more striking, Betke remarks, as cats never seem to develop rachitis spontaneously.

Correspondenz-Blatt für Schweizer Aerzte, Basel

March 20, XLV, No. 12, pp. 353-384

60 *Prophylaxis and Treatment of Venereal Disease in the Army. J. Jadassohn.

61 Influenza in a Battalion. W. Hoffmann.

March 27, No. 13, pp. 385-416

62 *Protection against Injury of the Hearing. (Akustisches Trauma und persönlicher Schutz gegen professionelle Schwerhörigkeit.) Siebenmann.

63 Experiences with Roentgen Work. (Bisherige Erfahrungen und Resultate aus Röntgeninstitut der Universitätsfrauenklinik Bern.) M. Steiger. Commenced in No. 10.

60. **Venereal Disease in the Army.**—In this address, read before the medical society of the canton of Bern, Jadassohn emphasizes the necessity for detecting venereal disease in its incipency among the men. He pleads for systematic physical examination of the men at certain intervals. In order to take away the stigma of examining for venereal disease alone, he would have the men strip for a complete examination. The mouth should be examined for secondary syphilitic manifestations, the urine for gonorrhea. This examination should be imperative before a soldier is allowed to return home, to prevent his carrying unsuspected venereal disease home with him. It has been noticed, he adds, that active military service seems to afford a predisposition to tabes. Our recently acquired knowledge as to the early participation of the central nervous system in syphilis readily explains how the emotional and physical stress of a campaign is liable to affect the nervous system in a way to favor tabes and general paralysis later. In enlightening the soldiers as to the dangers of venereal diseases, a warning against fake remedies and fake doctors should always be included, and against liquor. He adds that as physicians we have the right to assert that injurious influences from abstention have not been demonstrated medically. In regard to personal prophylaxis, he remarks that chemical and mechanical protecting measures are already current knowledge in wide circles among the public, and that it is better for the layman to learn from his physician which are the best prophylactics, with the additional information that they all, without exception, offer merely a relative and none an absolute protection. By appealing to the man's consideration for his mates, to save them from danger, it is generally possible to trace a venereal infection to its source.

62. **Protection Against Injury of the Hearing.**—The results of the research here described were to have been presented at the international congress for occupational affections, which was blocked by the war. Siebenmann's pupils have demonstrated that it is possible to induce in animals the same pathologic anatomic changes in the internal ear which are the consequence of long exposure to loud noises, as in boiler making, etc. The lower part of Corti's organ seems to suffer first and most, but the nerve in time undergoes ascending degeneration over a certain stretch. The location of the lesions apparently varies to some extent with the pitch of the sound, as Siebenmann describes in detail from his experiments on guinea-pigs. The most serious destruction followed a single blank cartridge shot close to the ear; Corti's organ and the peripheral half of the connected first neuron of the auditory nerve were thus severely injured at one stroke. Conditions resembling those in boiler making were realized by automatic hammering on the outside of a big iron tube with the guinea-pig inside.

His experiments demonstrated further that the internal ear suffers only when the middle ear is sound and thus able to transmit impulses. Whenever the middle ear was functionally deficient from an inflammatory process or removal of one of the ossicles, the labyrinth showed no appreciable injury from the loud sound experiments. This was particularly instructive when transmission by the middle ear was blocked in this way on one side; the labyrinth was not damaged, while on the other, the normal side, the acoustic trauma had caused pronounced degeneration of the epithelium of the cochlea. These facts confirm the assumption that sound waves do no damage unless they enter through the oval foramen. Hence the practical conclusion that in order to ward off harm from long-continued loud noises, all that is necessary is to keep the air waves out of the entrance to the ear. The animals whose ears were plugged with oil-soaked cotton or other air-free mass, did not suffer injury of the internal ear from long-continued exposure to recurring loud noises. On the other hand, no preventive or attenuating influence was apparent from the use of thick felt, etc., under foot to deaden the sound. The transmission of sound by other routes than the middle-ear ossicles has slight if any injurious action on the organ of hearing, and all harm can be averted by thoroughly protecting the middle ear

against sound waves, by an air-free, tight fitting, isolating plug in the ear passage.

Deutsche medizinische Wochenschrift, Berlin

March 25, XLI, No. 13, pp. 361-392

- 64 *Vaccine Therapy of Typhoid. (Spezifische Behandlung des Typhus abdominalis mit abgetöteten Kulturen von Typhusbazillen.) A. Goldscheider and Aust.
- 65 Changes in the Heart under the Stress of the Campaign. (Herz-befunde bei Kriegsteilnehmern.) C. Maase and H. Zondek.
- 66 The Explosive Action of Bullets. (Zur Explosivwirkung des Mantelgeschosses.) A. Fischer.
- 67 Deserted Brewery Utilized for Bath and Sterilization Purposes. (Bekämpfung der Kleiderläuse.) E. E. M. Hönck.
- 68 *Favorable Influence of Lumbar Puncture in Delirium Tremens. Ueber die Zerebrospinalflüssigkeit und über die Wirkung der Lumbalpunktion beim Delirium potatorum.) R. Steinebach.
- 69 *Serotherapy in Scarlet Fever. (Gibt es eine erfolgreiche Scharlachbehandlung?) R. Koch.
- 70 *Successful Removal of Gastric Cancer in Boy of 9. F. Karl.
- 71 *Traumatic Arthritis with Ankylosis. K. Hirsch. Commenced in No. 12.
- 72 Toilet of the Anus in Treatment of Hemorrhoids and Eczema of the Anus. F. Hammer.
- 73 *Pulverized Straw as Food and Forage. (Strohpulver als Nahrungsmittel und Futterstoff?) H. Boruttau.
- 74 The Hospital Train. Hackländer.

64. **Vaccine Treatment of Typhoid.**—Goldscheider and Aust treated fifty-seven typhoid patients with killed cultures of typhoid bacilli and were convinced of benefit from it. The vaccine sometimes causes an exacerbation of the fever which may keep up for several days, but is usually briefly transient. It is enough, however, to warn of the necessity for caution when the temperature is already quite high or there is complicating pneumonia, weak heart action or a tendency to intestinal hemorrhage.

68. **Lumbar Puncture in Delirium Tremens.**—Steinebach noticed that the pupils did not react to light in a case of delirium tremens, and he drew some cerebrospinal fluid to relieve the assumed pressure on the brain. The fluid was found under considerable pressure and the delirium subsided at once after the lumbar puncture. The man dropped to sleep without drugs and the delirium did not return. The fluid was apparently normal. This was in 1912. Then came Schottmüller's statement that in acute alcohol intoxication he had found alcohol in the cerebrospinal fluid and the fluid always under high pressure.

Steinebach has applied lumbar puncture in eighteen of fifty-two cases of delirium tremens since then, and the results have confirmed the assumption that the abnormally high pressure is responsible for a large share of the symptoms in delirium tremens. The alcohol does not seem to be directly responsible for the high pressure. It is more probable that the chronic alcohol poisoning generates some "between toxin," and that this secondary poison, acting on the meninges damaged by the alcohol, irritates them, and the cerebrospinal fluid is secreted more profusely or its absorption is interfered with or both may occur. This "between toxin" is probably nothing specific; normal meninges do not feel its effect. The lumbar puncture, by releasing some of the cerebrospinal fluid, not only regulates the pressure but gets rid thus of the amount of the "between toxin" that has found its way into the cerebrospinal fluid.

69. **Treatment of Scarlet Fever.**—Koch compares with Barasch's mortality of 15 per cent. in 1,438 cases of scarlet fever at Berlin his own mortality of 1.1 per cent. in 263 cases at Frankfurt. Koch ascribes the difference to his systematic application of serotherapy, which Barasch tried a little and discarded, but in which Koch has great confidence. Among 280 patients with extremely severe scarlet fever, treated by intravenous injection of 100 c.c. of serum taken from convalescents, that is, at about the third week of the disease, only one patient died. This was a child who was practically moribund when admitted, and died an hour later, before the serotherapy had had time to display its effect. In twelve milder cases normal serum was used and none died. The course of scarlet fever during the year in question was not milder than usual, rather the reverse; a larger proportion than common were of the severer type.

In Barasch's statistics, which embrace a ten-year period, it is remarkable how large a proportion of the fatalities occurred during the early stages of the disease. It is during the early stages in particular that serotherapy displays the greatest efficiency; Koch regards it as an almost absolutely certain weapon during this phase. It can be relied on more implicitly than, he says, than any other nonsurgical measure at our disposal, more even than antitoxin in diphtheria. Convalescent and normal serum act alike, but the former is more powerful. The subcutaneous route and inadequate dosage have brought serotherapy into discredit. It requires 50 c.c. for quite young children and 100 c.c. for older ones, and it is probably better to mix the serums of several convalescents. He tests the serum to be sure that it is sterile, then adds 0.5 per cent. of a 4 per cent. solution of phenol, distributes in ampules, which are then fused and inactivated by laying aside for several days. The infusion is made into a vein, passing the fluid through a paper filter in the funnel to ensure that no clots get into the vein. The effect is specific only during the first two or three days of a severely toxic scarlet fever free from complications.

70. Gastric Cancer in Boy of 9.—The child had never been strong and during the last three or four months had vomited often until he was too weak to stand. A knobby cancer, as large as a child's fist, was found at the pylorus and the region resected. The stump of the stomach was implanted in the jejunum. He bore the operation well and in three months was plump and ruddy, having more than doubled his weight, from 28 to 59 pounds, by March, 1915. The ultimate outcome of course is dubious, as cancer in the young is exceptionally malignant.

71. Traumatic Ankylosing Arthritis.—Hirsch points out the difference between the traumatic form, which is distinguished by hypertrophy of the bones forming the joint, and true deforming arthritis from chronic infectious processes, gout and senile changes, in which atrophy of bone is the special characteristic. The traumatic type differs further in that the arthritis is inclined to be stationary and does not display the progressive character of true deforming arthritis. The traumatic type affects but one joint, as a rule, and this is generally a large joint, and there are no trophic changes, no signs of atrophy in the roentgenogram, and usually no ankylosis. Differing from both of these types in several respects is a case he describes, in which soon after an accident to the fingers a process developed in the wrist leading speedily to bony ankylosis (mentioned in these columns May 1, p. 1535). In a second case acute reflex atrophy of the bones in the joint developed after a slight contusion of the third metacarpal bone of the middle finger. By the sixth week the joint of this finger had grown up completely and the atrophy of the bones of the finger and wrist has continued to progress. It now presents a typical example of Sudeck's atrophy. Reflex bony ankylosis is probably more common than hitherto supposed. It may develop with or without atrophy of the bones.

73. Pulverized Straw as Forage.—Boruttau remarks that Friedenthal's method of pulverizing vegetables has rendered it possible to utilize them more completely, as in this dust-fine powder the digestive juices can act on them better. In straw put through a similar process, the cells are broken up and whatever nutriment there is in the straw thus becomes available for fodder. Experiments with it for this purpose are now under way. Whether they prove successful or not, he adds, they will add an interesting chapter to this subject of the mechanical unlocking of the foodstuffs Nature gives us.

Medizinische Klinik, Berlin

March 28, XI, No. 13, pp. 351-380

75 *Typhus. (Ueber Fleckfieber.) E. Gotschlich and F. Neufeld.

76 *Changes in the Heart from Stress of War. (Kriegsärztliche Herzfragen.) G. Treupel.

77 *Means to Estimate Effect of Suturing a Nerve. (Methode, den Erfolg einer Nerven-naht zu beurteilen.) P. Hoffmann.

78 *Sympathetic Ophthalmia from Wounds in War. (Umfrage über die sympathische Ophthalmie im Zusammenhange mit den Kriegsverletzungen des Auges.) Birch-Hirschfeld and Others.

79 Typhoid with Hemorrhagic Diathesis. K. Walko.

75. Typhus.—Gotschlich relates that during his eighteen years of service as chief of the municipal board of health, at Alexandria in Egypt, there were numerous epidemics of typhus, nearly all restricted to the prison. It was always milder in the natives; four of his medical aids contracted it and the two Europeans died. The incubation period ranged from ten to twenty days, and typhus often occurred in conjunction with relapsing fever, or one followed the other. He also witnessed numerous cases in adults in which the course throughout was so mild that it was mistaken for influenza; these mild cases are particularly dangerous on account of spreading the disease. Children usually have the disease so lightly that none are ever sent to the hospital for it. A febrile disease ran through an orphan asylum at one time, but it was so mild that it was impossible to be certain whether the suspicion of typhus was correct or not. The necropsy findings are not characteristic; at most, the spleen and respiratory organs are suggestive. He sometimes found the spleen very large and soft, almost a paste. The severer cases may suggest pneumonic plague; in fact, bacteriologic examination of the sputum is often the only means by which they can be differentiated, especially as a typhus parotitis may simulate a plague bubo.

His experience confirms further that the disease is not transmitted without vermin. No case developed from the four physicians in his service nor from any other case in a vermin-free environment. One of the epidemics at Alexandria developed in a colony of open tents, showing that ample ventilation does not ward off contagion. He found a distinct deviation of complement in typhus serum, but not until after defervescence or complete return to normal of the temperature, and only for a few weeks. Every one who has been exposed should have the temperature taken every day for two or three weeks, and the slightest rise should be regarded as suspicious. During the epidemic last spring, each typhus patient was sent to the hospital and a disinfecting squad with a portable bath tub and supply of garments was sent to the residence. All the inmates were undressed, washed and rubbed with soap and given clean garments to wear while their own clothing and the bedding, etc., was being disinfected at a central station. The disinfection of the house was accomplished by spraying a 5 per cent. aqueous solution of phenol into all crevices. These measures proved effectual even under the most primitive conditions. The Clayton apparatus rendered good service also.

Neufeld states that mercuric chlorid and formaldehyd fumes in the usual concentrations do not destroy lice. In personal prophylaxis he warns that lice move about more in dim light, so that it is well to take along an acetylene lamp when entering a dark or dimly lighted vermin-infested room. Lice getting on the clothing crawl very rapidly to some point where they can get inside, and single bites are not felt like the bites of other vermin. The lice do not seem able to crawl up on an overgarment with a smooth slippery surface, nor to cling to it. It is impossible to close any overgarment of ordinary goods at the wrist and ankle close enough to keep lice from working their way in.

76. The Heart Under the Stress of the Campaign.—Treupel comments on the remarkable way in which many persons with old, well-compensated valvular defects are bearing the strain of active military service without harm. They are men who before the war were accustomed to more or less physical exercise and who are eager to be in the fray; the *In-den-Kampf-ziehen-Wollen* is an important factor in maintaining the proper balance. If a man with a valvular defect is sent to the front against his will, or with only passive consent, the valvular defect is liable to be heard from soon. Changes at the mouth of the aorta and coronaries, evidently the result of various infectious diseases, were found in ninety-two per cent. of the soldier cadavers examined by Mönckeburg; all were men between 20 and 43, from the most diverse occupations. His report suggests that preceding infectious diseases are of great import in the development of atherosclerosis. The practical conclusion is that if, with the valvular defect, there is also a history of tuberculosis, syphilis

or any septic infection, the heart will not be able to stand the strain of a campaign. With a disproportionally small heart, or the untrained heart of the nonathletic young, there is liable to be a brief systolic murmur with the first sound. It should not be mistaken for a valvular defect; it is merely a relative or functional disturbance in the growing heart. Treupel found this brief systolic murmur in 76 per cent. of a hundred persons with otherwise normal heart; it is thrown off or outgrown sooner or later. Heart neuroses were common early in the war, with bradycardia, tachycardia or arrhythmia, often accompanied by signs of neuroses of the gastrointestinal tract. As the war progressed the neuroses were thrown off and the heart has borne the stress of the campaign surprisingly well as a rule. The attention being diverted from the subjective sensations, the men acquire a previously unknown confidence in their physical fitness.

77. Suturing of Nerves.—Hoffmann says that the ultimate outcome of a suturing operation on a nerve can be foreseen in many cases by applying irritation to the nerve below the suture in such a way that some sensation is felt in the paralyzed region if the conductivity in the nerve has been restored even in the slightest measure. It is thus possible to determine the outcome weeks before actual restitution occurs. He gives an illustrated description of two typical cases. In both the irritation was applied with the fingers pressing moderately on the forearm below the elbow. A spot was thus found, pressure on which caused a tingling in the hand at the base of the thumb and forefinger—showing some conduction in the sutured nerve—several weeks before it was plainly apparent otherwise.

78. Sympathetic Ophthalmia.—The replies are here given from four leading ophthalmologists to a question-blank sent out by our exchange enquiring as to the wounds of the eyes most liable to induce sympathetic ophthalmia, the indications for enucleation, the nature of the process, and treatment. Most agree that sympathetic ophthalmia usually gives no warning until it is well established, but one says that slight—often transient—signs of irritation and reduction of the play of accommodation warn of the impending sympathetic affection. The eye may tire readily, as discovered by enquiry, and there may be transient injection of the ciliary body. Those who discuss the nature of the process regard it as of infectious origin.

Mitteilungen a. d. Grenzgeb. der Med. und Chir., Jena

XXVIII, No. 3, pp. 415-618. Last indexed Jan. 16, p. 282

- 80 *Abdominal Disease and Eye Symptoms. (Vegetatives Nervensystem und abdominale Erkrankungen.) A. Thies.
- 81 *The Residual Nitrogen in the Blood as an Index of Kidney Functioning. (Die Bestimmung des Reststickstoffes im Blut als Methode zur Prüfung der Nierenfunktion.) H. Hohlweg.
- 82 Lymphocytosis in the Blood as a sign of Constitutional Disturbance in Chronic Gastro-Intestinal Disease. J. Kaufmann (New York).
- 83 *The Pathologic Anatomy of Exophthalmic Goiter. (Pathologisch-anatomische Untersuchungen über die Basedowsche Krankheit.) H. Rautmann.

80. Vegetative Nervous System and Abdominal Disease.—Thies published in the last volume of the *Mitteilungen* a number of phenomena in the vegetative nervous system associated with various affections of the abdominal organs, the biliary passages in particular. He has continued his research in this line and here reports on a much larger material. Some of the phenomena are very distinct, others vague, but they all are useful for the differential diagnosis. They are particularly striking in the eye. Any increase in the tonus of the autonomous fibers of the oculomotor or sympathetic nerve is liable to cause the pupil or lids on that side to behave differently from those in the other eye. He summarizes the details separately in 147 cases, with twenty-nine illustrations of a number of striking cases. He explains the phenomena as the indirect result of mechanical irritation of nerve fibers of the vegetative nervous system, the effect of which is felt at a distance.

He does not think the internal secretions are involved, as the disturbances occur irrespective of these, while they all have in common a location liable to entail mechanical injury of some part of the vegetative nervous system. The

farther away from the mouth, the greater the percentage of positive findings. They are most frequent with disease of organs near the sacral autonomous nerves, that is, the large intestine, genitals and bladder. There may be a tendency for one eyeball to protrude, but the most frequent finding is that the lids do not cover the eyeball symmetrically; it is exposed more in one eye than the other, and the pupil is wider. With disease of the esophagus one eyeball was never exposed more than the other, but in 60 per cent. of the cases the pupils showed a difference. Asymmetry in the pupils was the more frequent phenomenon, but both were rare with disease of the kidneys and biliary apparatus. They both disappeared as a rule after the cure of the abdominal affection responsible for them. With affections of the large intestine there was a difference in the pupils in 76.9 per cent. and in the exposure of the eyeball in 15.3 per cent. With disease of the rectum and sigmoid the figures were 63.1 and 57.8 per cent., and, with disease of the genital organs or bladder, 85 or 60 per cent. Every case in this last group had one or the other of the eye phenomena.

81. The Residual Nitrogen in the Blood as a Sign of Kidney Functioning.—Hohlweg's assertions with regard to the importance of the residual nitrogen in the blood serum as a test of the functional capacity of the kidneys were summarized in these columns (May 1, abstract 66, p. 1536) from his previous communication on the subject. He gives further details and tabulations here of the findings at the time and months later.

83. Pathologic Anatomy of Exophthalmic Goiter.—Rautmann devotes 130 pages to the pathologic anatomy of Basedow's disease, which, he affirms, is by no means restricted to the thyroid alone. The pathologists have too long contented themselves with the thyroid, when they should have extended their research to all the glands with an internal secretion. He reviews the literature on the necropsy findings in various organs in exophthalmic goiter, and then describes his own findings in three typical cases in which all the glands with an internal secretion were examined with minute care. In his own cases, and in all the descriptions he has found, the thyroid seemed to have reverted to an infantile type, the histologic findings resembling those of a child's thyroid. The same applies also to the thymus, and the severity of the Basedow syndrome seemed to be proportional to the earlier infantile character of the histologic findings in the organs with an internal secretion. No pathologic anatomic findings were encountered in any other organs in the uncomplicated cases of exophthalmic goiter, but the pathologic findings in the glands with an internal secretion varied widely in intensity. The thyroid was always, and the thymus usually, involved, but only occasionally the parathyroids and the hypophysis. The suprarenals and also the ovaries were frequently found abnormal and, in some cases, possibly also the islands of Langerhans.

Throughout an infantile type of structure is noticeable as the anatomic basis of Basedow's disease. The changes in the thyroid, thymus, parathyroids and hypophysis are predominantly of a hypertrophic hyperplastic nature, while in the suprarenals, ovaries and islands of Langerhans atrophic hypoplastic processes predominate. The result is excessive functioning in the first group and deficient functioning in the others. There are no signs of inflammation in the organs, while many signs point to toxic action, and to the system of glands with an internal secretion as the source of the toxin. Rautmann takes up each of these glands in turn, showing which are responsible for the various symptoms observed. Treatment based on the above should aim to reduce the size of the thyroid and thymus and supply the deficient ovarian secretion. In conclusion he suggests that in Addison's disease the suprarenals may play the leading part, like the thyroid in exophthalmic goiter, and the thymus in the thymicolymphatic status. He also comments on the close connection between severe exophthalmic goiter and certain forms of mental disease, to which Sattler has called attention. This suggests that the internal secretions may play a part in the development of certain psychoses.

Münchener medizinische Wochenschrift, Munich*March 23, LXII, No. 12, pp. 393-424*

- 84 Improved Technic for Serodiagnosis of Syphilis. (Die gleichzeitige Verwendung des Hämolysins und Hämagglutinins als Indikatoren bei der Komplementreaktion zur Feststellung der Syphilis.) W. Pfeiler and G. Scheyer.
- 85 *Distribution of Diphtheria Bacilli in the Body. W. Plange, H. Schmitz and Rall.
- 86 *Diphtheria Bacilli Carriers. V. Engelmann.
- 87 Circumscribed Ossifying Myositis. G. B. Gruber.
- 88 How the Traumatic Neurosis is Generated by the Physician's Examination. L. W. Weber.
- 89 Bacteriology in Typhoid. (Typhus im Kriege.) H. A. Gins and E. Seligmann.
- 90 *Fracture of the Femur in the Field. (Oberschenkelbrüche.) O. Jüngling, A. Angerer, W. Danielsen, M. Kahleyss and Lenz.
- 91 *Treatment of Frozen Fingers and Toes. (Zur Behandlung der Erfrierungen.) A. Wittek and E. Bundschuh.
- 92 Efficacy of Hexamethylenamin in Typhus. B. Cogliervina.
- 93 Methyl Violet in Local Treatment of Wounds. (Pyoktanin in der Kriegschirurgie.) P. Schrupf and W. F. v. Oettingen.

85. **Diphtheria Bacilli in the Body.**—Plange examined the organs of twenty diphtheria cadavers for the bacilli and found them only in comparatively few cases in which tracheotomy had not been done. This operation evidently aids in spreading the bacilli so that they were found in the suprarenals in 100 per cent. of all the tracheotomy cases, but only in 14.3 per cent. of the others. In the other organs the discrepancy was not quite so great; in the lungs, for instance, the figures were 60 and 37.5 per cent.

86. **Diphtheria Bacilli Carriers.**—Engelmann relates experiences which show that the nose may harbor bacilli long after they have disappeared from all other accessible points.

90. **Fracture of the Femur.**—This group of articles tell of the best way of treating and immobilizing a broken thigh in the field, in the base hospital and at home.

91. **Treatment of Frozen Fingers and Toes.**—Wittek and Bundschuh write from widely separate hospitals each to extol the advantages of Noesske's incision down to the bone at the tip of a finger or toe threatened with gangrene. This starts the capillary circulation anew, especially when supplemented by a suction bell. Many badly frozen fingers and toes were saved from amputation by this means.

Wiener klinische Wochenschrift, Vienna*March 25, XXVIII, No. 12, pp. 313-336*

- 94 *Extermination of Body Lice with Methylphenylether. (Neues, sehr wirksames Mittel gegen die Kleiderlaus.) S. Fränkel.
- 95 Personal Prophylaxis against Typhus. R. Kraus.
- 96 *Epidemiology, Clinic and History of Typhus. (Flecktyphus.) E. Lindner and I. Fischer.
- 97 Muscular Rheumatism among the Troops. (Die rheumatischen Erkrankungen im Kriege.) E. Freund.
- 98 The First Artificial Limbs. (Uebergangsprothesen.) G. Engelmann.

94. **Extermination of Lice.**—Fränkel has been systematically studying various drugs seeking for one that destroys vermin without discomfort or danger to the bearer. He is director of the chemical laboratory of the Austrian cancer research society, and here announces that in methylphenylether the aim has been attained. This kills lice within ten minutes, even without direct contact, while it does not irritate the skin. The chemical name for it is methylphenylether, and it is easily made by methylating phenol. The only drug of which he knows that has an analogous action is dimethylresorcin, one drop of which will kill five frogs under a bell in less than five minutes. The methylphenylether used to be called anisol, as it was first made from anisic acid, a product of the oxidation of anethol.

96. **Typhus.**—Lindner comments on the mildness of typhus among the Russian captives at Linz, while it is extremely severe in the Austrian physicians and attendants. In 54 cases in this latter group the mortality has been 24 per cent.; 33 per cent. among the 12 physicians, while none of the 300 Russian typhus patients have died. Fürth reported from Tsingtau not long ago that of the Europeans contracting typhus there 33 per cent. died, but only 11 per cent. of the native Chinese. Lindner cites a number of data which indicate the possibility that the infecting virus in typhus is thrown off in a certain form, which is not infectious for

man until it has been activated by a sojourn in the body of a louse. This would explain the transmission of the disease by fomites. The louse activating the virus may not have been in contact with the typhus patient, but have acquired the virus from bed or body linen, or in dust. To protect yourself against vermin in the presence of the typhus patient is not enough; lice acquired elsewhere may activate the virus you have carried off in an otherwise harmless form.

Zentralblatt für Chirurgie, Leipzig*March 27, XLII, No. 13, pp. 201-216*

- 99 Inadvisability of Wrapping a Nerve in a Fascia Flap. (Verhalten der auf operierte schussverletzte Nerven überpflanzten Fascienlappen.) L. Kredel.
- 100 Adjustable Apparatus for Mobilizing Stiff Joints. (Gelenkmobilisationsschienen nach Dr. Schede.) Neumcister.

Zentralblatt für Gynäkologie, Leipzig*March 27, XXXIX, No. 13, pp. 201-216*

- 101 Retrodisplacement of Uterus with Simultaneous Tubal and Normal Pregnancy and Myomas in Uterus. (Isochronisch heterotope Eiimplantation bei Myoma uteri.) J. Lange.

Policlinico, Rome*March 28, XXII, No. 13, pp. 417-448*

- 102 *Glycosuria in Various Pathologic Conditions. (Sul reperto del sintoma "glicosuria" in certe condizioni morbose.) A. Pozzo.
- 103 *Immunity of Young Infants to Measles. (Immunità dei piccoli lattanti verso il morbillo.) M. Andreotti.

102. **Transient Glycosuria in Surgical Affections, Etc.**—Pozzo refers in particular to the transient glycosuria liable to accompany infectious processes. Becker found it present in 2 or 3 per cent. of several thousand cases of phlegmons, erysipelas, etc., and others have noted it in various acute infectious diseases as well as with surgical affections and under the influence of certain poisons, etc. Vassale noted glycosuria in cats after removal of the carotid gland, and Pozzo has been repeating his experiments in this line. He found that sugar appeared regularly in the urine, up to 83 per thousand, after one or both carotid bodies had been cauterized or otherwise maltreated or displaced, and operations were performed elsewhere in the body. Under other conditions these same operations induced no glycosuria or merely traces. In two cases he found that the high percentage of sugar in the urine dropped to zero after the operation on a surgical process in neck or knee. The temperature had been normal throughout in both cases. In several other surgical cases there was pronounced glycosuria, but there was also a high fever. The urine of patients after major operations frequently showed more or less sugar for a day or so.

103. **Immunity of Young Infants to Measles.**—Andreotti says that in a recent epidemic of 150 cases of measles, 14 were in infants, but none in babes under 5 months old. In several families all the children had measles except the youngest baby, although the children all slept and played together. In two families the children and the mothers had measles, but the nursing of 2 months escaped. Andreotti assured the mothers that they could keep the baby with them and continue to nurse it, and this confidence in the natural immunity of infants under 6 months old was sustained by the course of events.

Riforma Medica, Naples*March 27, XXX, No. 13, pp. 337-364*

- 104 *General Anesthesia from Intramuscular Injection of Ether. B. Formiggini. Commenced in No. 11.

104. **Intramuscular Injections of Ether.**—Formiggini's research on rabbits given intramuscular injections of ether gave disappointing results. The anesthesia induced was not complete nor reliable, while the by-efforts and mishaps were numerous.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam*April 3, I, No. 14, pp. 1077-1164*

- 105 *Factors in the Complement-Deviation Test. (Een nieuwe verklaring van Neisser en Wechsberg's verschijnsel met behulp van het onbekende verschijnsel der specifieke broosheid.) B. P. Sormani.

- 106 Experimental Research with Veratrin on Frogs. (De oorsprong van de veratriekromme.) H. T. Deelman.
- 107 *Production of Bile-Pigment in the Spleen. (Studien over anhepatische galkleurstofvorming. III.) A. A. H. van den Bergh and I. Snapper.

105. **The Specific Limit of Resistance of Red Blood Corpuscles as a Factor in the Deviation of Complement.**—Sormani is privat-docent of serology at the University of Amsterdam, and his studies have demonstrated, he says, that none of the explanations for the complement-deviation reaction that have been advanced to date are tenable. He shows the fallacies in turn of the explanations offered by Gruber, Metchnikoff, Levaditi, Gay, Buxton and Müller, as well as those of Neisser and Wechsberg, to whom, he adds, we owe the diagnostic method. In exchange he presents evidence to prove that the deviation of complement is a phenomenon that results from the precipitating action of the immune serum on the surface of the antigen. This precipitating action reduces the solubility of the antigen. It also is responsible for a specific limit to the resistance of the red blood corpuscles, or specific fragility, as he calls it. His experience indicates that the complement reaction should be tested with a powerfully hemolytic serum which, at the same time, has but a weak precipitating action. The immobilization of motile bacteria by an immune serum is readily explained by the precipitating action of the serum, which renders a little stiffer the surface of the flagella.

107. **Production of Bile-Pigment Outside of the Liver.**—This third installment of the report of research on this subject is devoted to the production of bile-pigment in the spleen in cases of pernicious anemia, Banti's disease, hemolytic icterus and other affections accompanied by excessive hemolysis. The blood from the splenic vein was compared with blood taken from a peripheral vein immediately after death or at operations permitting this. It was found constantly in four operative cases and in two cases that terminated fatally that the blood serum from the splenic vein contained much more bilirubin than the peripheral blood; in some cases there was a threefold difference. The spleen serum was much darker colored. Everything indicated that the bilirubin in question had been formed in the spleen. (See also abstract 107, p. 1538.)

Hospitalstidende, Copenhagen

March 31, LVIII, No. 13, pp. 305-328

- 108 *Ovarian Pregnancy. (Graviditas ovarica.) I. Collin. Commenced in No. 12.

108. **Ovarian Pregnancy.**—Collin's patient was a young woman who had had an abortion at seven months and a year later presented symptoms suggesting a ruptured tubal pregnancy six weeks after menstruation. The operation revealed that the trouble was a ruptured ovarian pregnancy. Collin gives an illustration of the specimen and compares with it the similar cases on record, of which he has found 50. More than 50 per cent. had not reached the end of the second month and the operation forestalled rupture in a third of these. Only 6 or 7 cases are known in which the pregnancy had progressed beyond the third month up to the eighth, and 3 in this group died after the rupture. In 12 cases the pregnancy had progressed to term, and in 4 of these both mother and child were saved, and in 3 both succumbed; in 4 the child was dead, but the mother survived, and in one the child survived, while the mother died. In 10 cases the fetus had become a lithopedion and in 3 other cases the presence of the pregnancy in the ovary was a necropsy surprise. Statistics are given as to the comparative frequency of this form of extra-uterine pregnancy, and a bibliography is appended.

Norsk Magazin for Lægevidenskaben, Christiania

April, LXXVI, No. 4, pp. 417-536

- 109 *Case of Osteomalacia with Tumor in Parathyroid Gland. P. Bull and F. Harbitz.
- 110 Results of Fifteen Years of Sanatorium Work. (Kurresultaternes varighet ved Reknes sanatorium i tidsrummet 1898-1912.) E. Kaurin and N. Lunde.

- 111 *Operative Treatment of Detachment of the Retina. (Sclerectomia prae-aequatorialis ved nethindeavløsning.) I. Schiøtz.
- 112 *Juvenile Deforming Osteochondritis. (Malum deformans coxae infantile: Calvé-Perthes' sygdom.) Sinding-Larsen.

109. **Osteomalacia with Parathyroid Tumor.**—The patient was a woman of 26. After the birth of her fourth child, chronic nephritis developed; six months later, typical osteomalacia, and finally a cheesy tuberculous pneumonia, from which the woman died about a year and a half after the first symptoms of osteomalacia. Ovariectomy during the last stages gave no relief. A colored plate shows the typical findings in the long bones. A tumor was found also in the left lower parathyroid gland. There seems to be some connection between the parathyroid glands and calcium metabolism, as several reports have been published of a tumor in one parathyroid gland as an accompaniment of osteomalacia. But that this is not inevitable is shown by Harbitz' case, in which there was a tumor in all four parathyroids in a man of 75 with shaking palsy, but there was nothing to suggest osteomalacia.

111. **Operative Treatment of Detachment of the Retina.**—Schiøtz gives the details of twenty-one cases in which what he calls pre-equatorial sclerectomy was done for detachment of the retina. The results were not very encouraging, and in the few cases in which benefit was derived it must be ascribed in part to the patients' long stay in bed.

112. **Deforming Juvenile Osteochondritis.**—Sinding-Larsen has encountered nine cases of the typical hip affection described by Calvé and Perthes—a nontuberculous affection in children midway between deforming arthritis and coxa vara. Three of the nine typical cases gave a positive response to tuberculin so that tuberculosis cannot be positively excluded in these and also in three others in which the test was not applied. But there are three other cases in which the negative reaction certainly excludes tuberculosis. The affection seems to develop in a previously healthy joint; there were no signs of rachitis in any of his cases. Clinically, it is impossible to distinguish between incipient tuberculous hip-joint disease and incipient Calvé-Perthes. The prognosis of the latter is good. Some of his patients have been under observation up to eleven years. Immobilization is not needed, but merely rest and, possibly, massage of the abductors. Negative skin or subcutaneous tuberculin reactions exclude tuberculosis, but it is better to avoid a general and focal reaction unless absolutely necessary. In the course of systematic tuberculin testing of all the children sent to the sanatorium in his charge with a diagnosis of tuberculosis, a number failed to give a positive response and yet the Roentgen findings in the hip were not all of the pronounced Calvé-Perthes type. It is safer to treat for a tuberculous lesion once too often than once too few times. If it is merely the Calvé affection, the Roentgen control will soon establish this, and the immobilization will have done no harm. The Roentgen findings at the time and after several years are shown for the various cases.

Correction.—Title No. 53, in the Foreign Current Literature Department, April 17, p. 1365, was incorrectly translated. It should read:

53 Localization of Tactile Impressions. (Zur Lokalisation des Tastsinns.) F. Boenheim.

In the case described in the article to which the title belongs a bullet had grazed the left parietal bone and gouged off a small splinter at a point which Krönlein's method showed to be over the central fissure. The nervous system seemed to be intact except that the right arm was extremely weak and the faculty of recognizing the nature of objects by handling them was lost, as also the sensation from simple contact. No discrimination was made between sharp and dull contacts, and the impression was long retarded. Deep needle pricks caused but slight pain. The shock from the bullet had probably induced some hemorrhage in or close to the central fissure, but it was not enough to induce any motor symptoms, and clinical recovery was soon complete.

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GASTRIC AND DUODENAL ULCER

MEDICAL CURE BY AN EFFICIENT REMOVAL OF
GASTRIC JUICE CORROSION

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Favored by unusual clinical facilities, I have gradually evolved and established in practice a method of treating gastric and duodenal ulcers. The method is based on well-recognized principles underlying the healing of ulcer. Old and established facts of physiology are largely utilized. The results of treatment are far beyond early expectations.

The treatment consists essentially in accurately protecting the ulcer from gastric juice corrosion until healing of the ulcer takes place.

After an experience of twelve years in applying the principle involved in the treatment, I am convinced that the vast majority of cases of gastric, and more particularly duodenal, ulcer now treated surgically, and with indications commonly accepted as justifiable, can be readily and more quickly cured by the management advocated.

As I understand the ulcer problem, the principles involved in treatment are centered about these important and fundamental questions:

1. What are the causes of peptic ulcer?
2. What retards or prevents the healing of peptic ulcer?
3. What can we as physicians and surgeons do to promote the development of granulation tissue essential to the healing and final cicatrization of peptic ulcer?

For half a century it has been recognized that a peptic ulcer develops in approximately the following manner: A circumscribed area of the mucous membrane or wall of the stomach or adjacent duodenum, through malnutrition or necrosis, loses its normal resistance to the peptic action of the gastric juice and becomes digested. The resulting defect is an ulcer.

The recent work of Dr. E. C. Rosenow renders it probable that hematogenous bacterial (streptococcus) invasion is the most common factor in the production of the local malnutrition and necrosis. Undoubtedly, local defects of malnutrition and necrosis from whatever cause would practically always undergo rapid repair, without serious clinical symptoms, in the absence of gastric juice corrosion.

All present knowledge tends to substantiate the belief that has existed for many years, namely, that an ulcer of the stomach or duodenum would heal approximately as rapidly as an ulcer located elsewhere

in the body, if its granulating surfaces were not subjected to the digestive action of the gastric juice.

The digestive action of the gastric juice is due to the solvent action of pepsin on albuminous substances that have been properly permeated by hydrochloric acid. Pepsin is practically inert in alkaline and neutral mediums. It acts slightly in the presence of a combined acid medium, but combined acids are incapable of preparing albumins properly for the action of pepsin. A free acid, such as hydrochloric acid, is required to permeate the albumin and prepare it for the full action of the peptic ferment. Pepsin exerts no appreciable solvent or digestive action on the raw and exposed surfaces of a gastric or duodenal ulcer in the absence of free hydrochloric acid.

The principle involved in the treatment advocated consists essentially in efficiently shielding the ulcer from the corrosive effect of the gastric juice. This is accomplished by maintaining an accurate neutralization of all free hydrochloric acid, thus rendering the digestive action of the gastric juice inert from 7 a. m. until about 10:30 p. m., or during the entire time that food and the accompanying secretion are present in the stomach. In addition, it is accurately determined whether an excessive night secretion is present. If so, this is removed each night until the irritability of the gastric glands has subsided. This applies almost entirely to cases of duodenal and pyloric ulcer that have been associated with stagnation of food and secretion for one or two months, and longer. Such cases almost invariably are attended by a more or less copious continued secretion during the night, which should be removed by aspiration two or three times each night, if necessary. Usually after three or four days of accurate control of free acidity the excessive night secretion disappears. Subsequently the normal quantity (about 10 c.c.) of gastric juice present in the stomach during the night is left undisturbed.

The neutralization of hydrochloric acid is accomplished by frequent feedings and the use of alkalies in carefully regulated but adequate quantities. Experience in applying the method to all types of individuals under widely varying conditions has abundantly demonstrated that the corrosive or digestive action of the gastric juice can be thus practically annulled until healing of the ulcer is accomplished. The conditions for the healing of peptic ulcer thus obtained are rendered as ideal as they can be made to be in the light of our present knowledge and understanding.

It will be impossible to give the details of the management in this paper. Briefly stated, the patient remains in bed for from three to four weeks. Unless some serious complication is present, some or all of

his regular work may be done at the end of four or five weeks. A wide variety of soft and palatable foods may be given. The following plan of diet has been found most adaptable: Three ounces of a mixture of equal parts milk and cream are given every hour from 7 a. m. until 7 p. m. After two or three days soft eggs and well-cooked cereals are gradually added, until at the end of about ten days the patient is receiving approximately the following nourishment: 3 ounces of the milk and cream mixture every hour from 7 a. m. until 7 p. m. In addition, three soft eggs, one at a time, and 9 ounces of a cereal, 3 ounces at one feeding, may be given each day. The cereal is measured after it is prepared.

Cream soups of various kinds, vegetable purées and other soft foods, may be substituted now and then, as desired. The total bulk at any one feeding while food is taken every hour should not exceed 6 ounces. Many of the feedings will not equal that quantity. The patient should be weighed. If desired, a sufficient quantity of food may be given to cause a gain of 2 or 3 pounds each week.

A large variety of soft and palatable foods may be used, such as jellies, marmalades, custards, creams, etc. The basis of the diet, however, should be milk, cream, eggs, cereals and vegetable purées. Lean meat is not given during the period of accurate observation, since it interferes with the tests for occult blood in the stool and aspirated stomach contents.

The acidity is more easily controlled by feeding every hour and giving the alkalies midway between feedings. The acidity may, however, be controlled by feeding every two, three and four hours. I have maintained complete control of the free hydrochloric acidity in several cases by feeding three times daily. In most cases, however, the plan of feeding every hour is best.¹

It is only fair to state that the views expressed and the methods described¹ in 1911 were as radical as I then dared publish in a handbook for the use of practitioners. Since that time numerous slight modifications of procedure, some of which were then on trial and others of later development, have become thoroughly established in my practice.

The uncomfortable preliminary starvation period serves no purpose when the acidity is controlled and has, therefore, been entirely abandoned. Slightly larger doses of alkalies than were then advised were then being regularly employed. The practice of maintaining an absolutely accurate control of the free hydrochloric acidity during the entire time that food and the accompanying secretion are present in the stomach has become thoroughly established. This requires the administration of varying quantities of alkalies, corresponding to individual cases. Also, in addition to giving an alkaline powder midway between feedings, the powders are continued every half hour after the last feeding, until 10 p. m. In all cases of pyloric obstruction from duodenal and pyloric ulcer it has been found advisable to empty the stomach of all remaining food and secretion at about 10:30 p. m., thus removing the stimulus to an excessive night secretion. In most cases a short time after treatment is begun the stomach will be found empty at that

time. The management of excessive night secretion has already been described.

Cases of stomach ulcer unassociated with stagnation of food and secretion are usually controlled by feeding every hour and giving a powder containing 10 grains each of heavy calcined magnesia and sodium bicarbonate, alternating with a powder containing 10 grains of bismuth subcarbonate and 20 or 30 grains of sodium bicarbonate, midway between feedings. Cases of pyloric and duodenal ulcer that have been associated with stagnation of food and secretion longer than two months almost invariably require larger quantities of alkalies.

Heavy calcined magnesia has approximately four times the neutralizing power of sodium bicarbonate. Since its neutralizing effect is prolonged compared with that of sodium bicarbonate, and for other reasons, calcined magnesia should be used between as many feedings as possible. An uncomfortable diarrhea usually prevents its exclusive use as a neutralizer. Other stable alkalies similar in action to calcined magnesia are being carefully tested.

In a few cases of duodenal ulcer with high grade obstruction it has required the equivalent of 100 grains of sodium bicarbonate every hour, midway between feedings, and three doses with intervals of one-half hour after the last feeding, at 7 or 8 p. m., to neutralize all the free hydrochloric acidity.

The average length of time that a patient with peptic ulcer should be under the accurate control and observation of the physician is about four weeks. During this period, if observations have been carefully and intelligently conducted, the finer points essential to a complete diagnosis of peptic ulcer, including such conditions and complications that may attend the ulcer, will have been determined, and the patient will have learned how to manage himself accurately. Thus the gratifying results to be obtained by the management advocated are secured.

It has been my experience that in the management of no other serious disease is it so easily possible to obtain the intelligent cooperation of all classes of patients. The reasons are probably of this nature: The things required of the patient during the after-management are straightforward and relatively simple; the sufferings of the patient before treatment have often been so severe that he usually requires no further stimulus to do his part. Fortunately, the most accurate cooperation is usually secured from patients who have long suffered from the obstructive type of duodenal or pyloric ulcer.

The nonobstructive type of gastric ulcer requires relatively little attention to details compared with the obstructive type of duodenal and pyloric ulcer. The dosage of alkali required to control the acidity is smaller, and it is seldom, if ever, necessary to remove the remaining food and secretion at bedtime.

Ideal conditions for the healing of peptic ulcer are maintained when the aspirated stomach contents show absence of free hydrochloric acid during the entire time that food and the accompanying secretion are present in the stomach, and all excessive night secretion is controlled.

Experience has shown that when the free acidity is found controlled late in the afternoon and just previous to taking the powders or feedings, the acidity is likely to be controlled at all other times during the feeding hours.

1. Further details relative to management may be found in my articles on Treatment of Gastric Ulcer, Pyloric Obstruction, etc., published in 1911 in Volume III, Handbook of Practical Treatment, edited by Musser and Kelly.

It is not difficult to determine the amount of alkali required between feedings to control accurately all free acidity. If not controlled the first few days by giving the usual amount, then the dose is gradually increased until the acidity is regularly found controlled.

It should be understood that the presence of free hydrochloric acid now and then for a few minutes each day does not seriously interfere with the healing of the ulcer. Such short periods during which corrosion of the ulcer may be possible are as nothing compared with the duration of corrosion to which duodenal and pyloric ulcers are subjected after gastro-enterostomy. In the ordinary surgical treatment of these conditions such ulcers are subjected to the corrosive action of the gastric juice during the whole period of normal stomach digestion, which occupies many hours each day. The majority of pyloric and duodenal ulcers treated by gastro-enterostomy show few symptoms after the operation, and such ulcers probably usually heal in the course of time, the same as the majority of the nonobstructive type of gastric ulcers usually heal without treatment. In either case, however, the conditions for healing are far from ideal.

As will be more clearly stated later, the symptoms of pyloric and duodenal ulcer after gastro-enterostomy and the symptoms of the usual nonobstructive type of gastric ulcer without treatment are approximately the same. Other things being equal, the conditions for healing are approximately the same. Both are subjected to the same duration of gastric juice corrosion. The very great tendency for peptic ulcer to heal, if the hindrance to healing is removed to only a moderate degree, is responsible for the recoveries that occur when gastro-enterostomy is performed for an ulcer located at the outlet of the stomach, causing stagnation of food and secretion.

While the symptoms may be controlled and healing accomplished in the majority of all cases of uncomplicated peptic ulcer by applying the usual or Leube type of medical management; while operative procedure successfully performed, such as gastro-enterostomy and pyloroplastic operations, may be infinitely superior to the Leube and other types of medical management in general use when applied to cases of pyloric obstruction, all types of medical and surgical treatment now in common use accomplish relatively little toward protecting the ulcer from gastric juice corrosion when compared with what may be easily, comfortably and safely accomplished by applying the accurate medical management which I have established and advocated.

In order that it may be known that the statements made in this paper are based on adequate clinical evidence, I feel justified in saying that at the Presbyterian Hospital I have under my medical management from twenty-five to thirty and more private cases of peptic ulcer at all times. Fully 70 per cent. of these cases are of the duodenal or pyloric type, presenting abnormal retention of food and secretion, varying from the slightest to the highest grades. The results obtained by such management are almost beyond belief.

Pyloric obstruction due to spasm of the pylorus, resulting in the retention of food and secretion from one meal to the next during the daytime, and until 3 or 4 o'clock in the morning, and even until the next

morning at breakfast-time, disappears at once under the influence of such management.

Pyloric obstruction, even of the highest grade, and of long duration, as evidenced by the presence of vigorous peristaltic waves, showing through the abdominal wall, history of vomiting food eaten the day before for many months, the aspiration of food eaten twelve or more hours before, and the presence of abundant sarcinae, often rapidly disappears, so that at the end of ten days' or two weeks' management, seven hours after the largest and coarsest kind of a motor meal is given the stomach is found empty.

As unbelievable as it may seem, cases of duodenal ulcer recurrent for years, that have finally developed a high grade pyloric obstruction due to actual anatomic narrowing from indurated, infiltrated and edematous tissue, have yielded completely to the management.

The explanation for such astonishing results is probably as follows: The active more or less annular ulcer at the pyloric or duodenal outlet is embedded in edematous tissue infiltrated with round cells, and other products of inflammation of varying grades. Under the management advocated, the greatest hindrance to healing having been removed, healing and cicatrization of the ulcer begin more or less rapidly, the round cells and other exudative products disappear, the infiltrated tissue grows thinner in all directions, and when healing of the ulcer takes place, notwithstanding the tendency of scar tissue to contract, the opening through the pylorus or duodenum becomes gradually larger instead of smaller. Whatever the explanation, I have accumulated indisputable evidence that the size of the opening through the tissue that is causing the obstruction gradually becomes larger. Recorded observations of such cases now extend over a period of eight years. The early cases of pyloric obstruction due to actual tissue narrowing observed were treated thus medically instead of surgically, because other diseased conditions were present, rendering surgical intervention unusually hazardous.

As a result of the encouraging outcome in these cases, during the past four years, cases have been purposely selected for such investigative work. The results were so uniformly good that within the past two years a constantly increasing number of cases of that type have been treated thus by medical management, without being subjected to surgical operation. Up to the present time our experience is that none has failed to show that the obstruction yields in the course of a few weeks' or months' management, during all of which time, except the first four or five weeks, the patient is on his own responsibility, so far as treatment is concerned, and doing practically all his regular work.

Roentgen-ray studies of cases of pyloric obstruction after gastro-enterostomy have convinced me that very much the same thing occurs after gastro-enterostomy. As the ulcer heals, the food passes more and more through the pylorus. Since the conditions for healing of a pyloric or duodenal ulcer after gastro-enterostomy are not so favorable as they are under accurate medical management, as advocated, the opening up of the obstruction does not take place as rapidly, and perhaps not as completely.

In the light of all present knowledge, the development of granulation tissue leading to the healing and final cicatrization of peptic ulcer is promoted by a given type of medical or surgical treatment directly

proportionate to the influence exerted by that treatment on the duration and intensity of gastric juice corrosion.

The serious defect in the Leube, Lenharz and all other types of medical management, in general use the world over, lies in the lack of accurate knowledge of what is actually being accomplished while the patient is under treatment. As a rule, if pain and other symptoms are well controlled, no attempt is made to determine accurately how much, if any, the duration or intensity of gastric juice corrosion is reduced. Pain of ulcer may be entirely absent when the aspirated stomach contents show varying, even high, grades of free hydrochloric acidity. The peptic corrosion that occurs when a small quantity of free hydrochloric acid is present is approximately as great as when a high degree of free acidity exists. Unquestionably, the lack of accurate control of the free acidity of gastric secretion is responsible for such failures as occur when the various types of medical management in general use are applied to the treatment of peptic ulcer.

When death, jejunal ulcer and serious complications, the result of faulty technic, are excluded, the failures that occur when surgical treatment is applied are attributable to the same lack of efficient control of gastric juice corrosion. Gastro-enterostomy, when successfully performed, usually causes the stomach to empty itself of food and secretion in approximately normal time, but never appreciably earlier than the physiologic limit of normal time.

In 15 per cent. of a series of eighty cases tested by me after gastro-enterostomy, considerable food and secretion were recovered seven hours and as long as twelve hours after the ingestion of a motor meal consisting of ordinary food containing vegetables.

Ulcers of the stomach and duodenum are corroded as long as food and free hydrochloric acid secretion are present in the stomach. When gastro-enterostomy is performed for a duodenal or pyloric ulcer that is causing stagnation of food and secretion, the healing of the ulcer is benefited only proportionate to the number of minutes or hours that the duration of peptic corrosion is thereby reduced.

It must be remembered that after gastro-enterostomy, food and secretion continue to pass through the pylorus proportionate to the size of the opening that exists through the strictured area of the pylorus and duodenum. Only a small fraction of 1 per cent. of all cases of pyloric and duodenal ulcer for which gastro-enterostomy is now regularly performed are near the danger point of starvation because of the narrowness of the opening at the outlet. The average case has lost only moderately in weight. Such loss of weight as does occur is nearly always due to voluntary restrictions in diet because of pain, and not because the opening is actually narrowed to such a degree that sufficient nourishment is unable to pass through.

Any one sufficiently interested to study accurately cases after gastro-enterostomy by means of the Roentgen ray will easily demonstrate to himself that food and secretions are pushed through the pyloric orifice proportionate to the size of the opening at that outlet. When Roentgen-ray meal of the consistency of food is used, the musculature is seen to force the stomach contents against the pyloric outlet with such persistent vigor that none can doubt that the major portion of all food and secretion passes through the

pyloric outlet within a short time after gastro-enterostomy is performed. In every case after gastro-enterostomy, unless the pylorus is occluded by operative procedure, a sufficient quantity of gastric juice is poured through the pyloric outlet to keep the ulcer constantly bathed in the corrosive secretion until the stomach has emptied itself of food and secretion.

A duodenal ulcer after gastro-enterostomy is placed in no more favorable conditions for healing than attend the usual untreated stomach ulcer located distant from the pylorus, or for other reasons unassociated with stagnation of food and secretion. The duration of corrosion in both instances equals that of the normal digestion period, which is several hours each day. The symptomatology of a duodenal ulcer after gastro-enterostomy is similar to that of the ordinary untreated stomach ulcer unassociated with stagnation of food and secretion.

That a duodenal ulcer treated by gastro-enterostomy usually heals in the course of time, and meanwhile is likely to cause but few serious symptoms, is consistent with the probable fact that the majority of stomach ulcers, located, as they are, on the lesser curvature or posterior wall and distant from the pylorus, usually give rise to few serious symptoms and heal without treatment.

Probably only such stomach ulcers as are located at or very near the pylorus, or that penetrate to or beyond the peritoneal coat, or become unusually large, or cause hemorrhage, or develop malignancy, produce serious symptoms.

If the commonly accepted conception of peptic ulcer is correct, namely, that the digestive action of the gastric juice constitutes the greatest hindrance to healing that is amenable to medical and surgical control, then it must follow that the healing of peptic ulcer is promoted most by that type of management which reduces to the greatest degree the duration and intensity of gastric juice corrosion.

No operative procedure as yet devised enables the stomach to empty itself of food and secretion appreciably earlier than normal time. Hence no operative procedure except excision of the ulcer or pyloric occlusion with gastro-enterostomy for duodenal and pyloric ulcer results in protecting a peptic ulcer from the corrosive effect of the gastric juice during the several hours each day occupied by normal stomach digestion. My experience has demonstrated beyond question that it is entirely possible and remarkably easy to exercise practically absolute control over peptic activity for many months, and, if necessary, for years.

The gratifying results to be obtained by applying the treatment or the principles involved in the treatment to cases ordinarily regarded as absolutely intractable to medical management, including such cases as gastro-enterostomy and other surgical procedure legitimately applied have failed to relieve, demonstrate that there can be no lack of incentive for the internist to develop a technic in the medical management of peptic ulcer that is as accurate and painstaking as that required of the surgeon in performing gastro-enterostomy or pyloroplastic operations.

In my service at the Presbyterian Hospital, surgical procedure in the treatment of peptic ulcer is limited to the following complications and conditions that attend ulcer:

1. Perforation.
2. Perigastric abscess.
3. Secondary carcinoma.

When, after careful study of the case, there is a reasonable reason for suspecting that a carcinoma is developing at the seat of an ulcer, if no contraindication exists, the ulcer-bearing area should be widely resected, with due regard to lymphatic distribution.

4. Hour-glass or other rare deformity of the stomach that is causing serious symptoms.

In very exceptional cases the history or Roentgen-ray examination may give evidence of a large, deep excavated ulcer, and justify an attempt to excise the ulcer, or perforate it with a cautery, and then lessen its size by suture.

5. Foci of infection about the roots of teeth, in the tonsils and elsewhere in the body are sought and removed.

Rosenow's contribution to the etiology of peptic ulcer is of the utmost importance relative to the recurrence of ulcer and the prophylactic treatment of the disease.

It is manifestly useless to talk about the end result of any form of treatment of peptic ulcer when the patient harbors an alveolar abscess. An abscess about the root of a tooth may be responsible for recurrences of ulcer extending over a period of years.

6. Hemorrhage of serious nature from peptic ulcer is a direct result of corrosion of blood vessels by the gastric juice. Such corrosion is impossible when the digestive action of the gastric juice is annulled by accurate medical management.

Since serious bleeding practically never occurs after the first week of medical management, as outlined, surgical treatment is considered only in connection with patients who are bleeding when first seen, or within the first week after treatment is begun.

The results of surgical intervention when instituted for the control of serious hemorrhage at the time it is occurring are admittedly not encouraging.

I have subjected relatively very few cases to surgical operation for the control of hemorrhage.

7. Pyloric obstruction of high grade due to actual cicatricial narrowing that fails, under the influence of accurate medical management, to yield sufficiently to allow a motor meal to pass in normal time.

Operative experience shows that of all cases of duodenal and pyloric ulcer presenting definite clinical evidence of obstruction at the outlet, less than 10 per cent. are found at operation to be associated with an actual tissue narrowing of serious grade.

I differentiate two clinical types of pyloric obstruction resulting from ulcer:

1. Pyloric obstruction due to conditions easily removable by two weeks of the accurate medical management advocated. More than 90 per cent. of all cases of pyloric obstruction due to ulcer are of this type.

2. Pyloric obstruction due to anatomic narrowing from infiltrated tissue, some of which may be cicatricial tissue in varying stages of development.

The probable cause of the first is pyloric spasm, inflammatory swelling, and at times, perhaps, a local peritonitis.

If at the end of two weeks of accurate medical management, during which the acidity is properly controlled both night and day, a full motor meal is given and 100 c.c. or more of food is found at the end of seven hours, an actual anatomic tissue narrowing exists, in practically all cases, unless nausea or some

other condition is interfering temporarily with the motor power.

I formerly subjected such cases to gastro-enterostomy.² As previously stated, with reasons given, I am now convinced that unless the opening is so very narrow that death from starvation is threatened, the size of the opening will practically always increase—if both day and night corrosion is accurately controlled. Experience to date with the method has shown that as yet none has failed to open up sufficiently to allow the stomach to empty itself of a full meal in seven hours.

When the pyloric outlet is large enough to permit the stomach to empty itself of a full meal within the limit of normal time, it is useless to perform gastro-enterostomy for peptic ulcer at the pyloric outlet or elsewhere. When an ample pyloric outlet exists, the healing of peptic ulcer can be hastened only by such means as can bring about a reduction of the duration of gastric juice corrosion to a shorter period than that occupied by normal stomach digestion. No operative procedure accomplishes this except when a duodenal or pyloric ulcer is treated by gastro-enterostomy, combined with pyloric occlusion.

The medical management advocated accurately protects the pyloric and duodenal ulcer from gastric juice corrosion, and thus renders gastro-enterostomy combined with pyloric occlusion unnecessary. Gastro-enterostomy combined with pyloric occlusion is not without mortality when performed by those most expert. The mortality of such and all other operative procedures when performed by the rapidly increasing number of those who conscientiously attempt to imitate the expert is known best by those who through persistent endeavor have finally acquired a skill that is attended by a low mortality.

The medical management of peptic ulcer the world over is today practically the same as that advocated by Leube, Riegel and others of twenty-five years ago. Such medical management is efficient, to a certain degree. The general tendency for a peptic ulcer to heal if Nature is aided but slightly is responsible for the cures that can be brought about by it. The majority of all uncomplicated ulcers heal under its influence. No doubt many cases of duodenal ulcer can be cured by it.

If no more accurate means of medical management are at hand, surgical treatment has a very wide field of usefulness in the management of peptic ulcer. It may legitimately be applied only to such conditions and complications of peptic ulcer as are mechanically relievable or removable, and with reasonable safety to the patient.

The old and generally accepted belief that gastric juice corrosion is the most important influence that retards the healing of ulcer receives confirmation from the results that are obtained by all methods of treatment that have contributed to the healing of ulcer.

If the commonly accepted conception relative to gastric juice corrosion is correct, the number of cases of peptic ulcer now generally considered legitimately operable may be enormously reduced by the careful application of the method of medical treatment advocated.

The striking results to be obtained by applying the principle of accurately protecting the ulcer from

2. Musser and Kelly, iii.

gastric juice corrosion would seem to be the best evidence yet produced in substantiation of the old corrosion theory of peptic or digestive ulcer.

For the purpose of lessening the great confusion that has attended the problem relative to the treatment of peptic ulcer since the days of the first successful gastro-enterostomies, I recommend the application of earnest thought to the three fundamental questions, as stated in the beginning of this article. It is only by persistent effort directed toward a rational solution of these essential questions that the greatest progress in the treatment of peptic ulcer is to be attained:

1. What are the causes of peptic ulcer?
2. What retards or prevents the healing of peptic ulcer?
3. What can we as physicians and surgeons do to promote best the development of granulation tissue essential to the healing and final cicatrization of peptic ulcer?

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ACUTE LYMPHATIC LEUKEMIA

ON THE OCCURRENCE OF THE CORYNEBACTERIUM
LYMPHOMATOSIS GRANULOMATOSAE *

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AND

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In 1910 Fraenkel and Much¹ pointed out that peculiar granular bacilli may be demonstrated in the glands of patients in cases of Hodgkin's disease by "reinforced" gram-staining. These bacilli, which closely resemble the granular type of the tubercle bacillus, like them are resistant to antiformin (alkaline hypochlorite solution). Unlike the latter, however, they are not acid-fast, and do not give rise to tuberculous lesions in laboratory animals. In their first communication the writers report on the presence of these organisms in twelve of thirteen cases, of which eleven were definitely known to be uncomplicated by tuberculosis. In a subsequent communication Fraenkel² states that he obtained corresponding findings in four additional cases. He concludes that Hodgkin's disease (lymphomatosis granulomatosa) is in all probability an infectious disease produced by the micro-organism in question, which may be related to, but is not identical with, the tubercle bacillus. Regarding the morphology of the organism the writers merely mention that it appears either in the form of isolated granules of variable size, or of granules joined together in bacillary form. They are gram-positive and are most conveniently demonstrated by antiforminizing the involved glands, and staining with Much's modification of Gram's method.

Cultures of the organism could not be obtained, nor was it possible satisfactorily to infect the common laboratory animals.

Subsequently the findings of Fraenkel and Much were confirmed by writers elsewhere, such as Meyer,³ de Josselin de Jong,⁴ Blumberg,⁵ Jacobsthal,⁶ Beumelburg⁷ and others, so that at a meeting of the medical society of Hamburg on Jan. 2, 1912, Fraenkel² could announce that the organism in question had up to that date been demonstrated in more than thirty cases. None of the various observers, however, seems to have succeeded in growing it, and in his address of the date just mentioned Fraenkel himself says that notwithstanding every effort in that direction he had not yet succeeded in obtaining a pure culture.

This was first accomplished by Negri and Mieremet,⁸ and to them we also owe the first detailed description of the organism. They remark on its pronounced pleomorphism which led them at first to doubt the purity of their culture, so that they resorted to Schauten's⁹ method of isolating a single organism from which a pure culture was then obtained, in which the same variability in size and form was noted, as in the primary growths. The writers regard their organism as identical with that described by Fraenkel and Much, and classify it under the term "corynebacterium," on the basis of its segmented structure, the tending to clubbed or attenuated ends, as well as to true branching, besides the readiness with which it is stained with the usual dyes, while not being acid-fast.

It is interesting to note that the organisms obtained from the tissue were gram-positive, while in culture they were at times positive and at others negative. Analogous results were obtained in a second case.

Inoculation experiments in animals did not lead to any definite conclusions. Nevertheless the writers feel justified, in view of their own findings and those of the earlier investigations, in regarding the organism as the causative agent of Hodgkin's disease, and propose for it the name *Corynebacterium granulomatis maligni*. A search for corresponding antibodies in one of their patients, and in a third case, in which no bacteriologic examination had been possible led to negative results (complement fixation, agglutination, and cutaneous reaction).

Following Negri and Mieremet, positive cultural results were reported by Bunting and Yates¹⁰ in three cases of Hodgkin's disease; in two others the organism was recognized, but not obtained in pure growth, while in a sixth case "a similar organism, morphologically, was stained in the lesions."

The results obtained from inoculation experiments (*Macacus rhesus*) have strengthened the idea that the organism is actually the causative agent of Hodgkin's disease. In one of their animals a chronic lymphadenitis was produced with a typical proliferation of the endothelial cells, beginning proliferation of the stroma

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1. Fraenkel, E., and Much, H.: Bemerkungen zur Aetiologie d. Hodgkinschen Krankheit und der Leukaemia lymphatica, München. med. Wehnschr., 1910, No. 13; Ueber die Hodgkinsche Krankheit (Lymphomatosis granulomatosa) insbesondere deren Aetiologie, Ztschr. f. Hyg., 1910, lxxvii.

2. Fraenkel, E.: Demonstration Much-Fraenkel'scher antiforminfester Stäbchen eines Falles von Lymphomatosis granulomatosa. München. med. Wehnschr., 1911, No. 23, p. 1266; Ueber die sogenannte Hodgkinsche Krankheit, Deutsch. med. Wehnschr., 1912, No. 14.

3. Meyer, O., and Meyer, K.: Zur Aetiologie des malignen Granuloms, Berl. klin. Wehnschr., 1912, No. 36, 1463.

4. De Josselin de Jong, R.: Bijdrage tot de Kennis der Pseudo-leukaemia, Genesck. Bladen, i and ii, 1909; Over acuut malgne Granulom, Nederlandsch. Tijdschr. v. Geneesk., 1911, ii, No. 22.

5. Blumberg, F.: Ueber d. Lymphgranulomatosis, Mitt. a. d. Grenzgeb. d. Med. u. d. Chir., 1912, xxiv, 516.

6. Jacobsthal, E.: Bemerkungen zur Aetiologie leukaemisch-pseudo-leukaemischer Erkrankungen, München. med. Wehnschr., 1910, No. 19, p. 1035.

7. Beumelburg, K.: Zur Aetiologie d. Hodgkinschen Krankheit, Beitr. z. Klinik d. Tuberkulose, 1912, xxiii.

8. De Negri, E., and Mieremet, C. W. G.: Zur Aetiologie des malignen Granuloms, Centralbl. f. Bakteriöl., Part 1, orig., 1913, lxxviii, 292.

9. Schauten, S. L.: Reinkulturen aus einer unter dem Mikroskop isolierten Zelle, Ztschr. f. wiss. Mik., 1905, xxii.

10. Bunting, C. H., and Yates, J. L.: Cultural Results in Hodgkin's Disease, Arch. Int. Med., August, 1913, p. 236; An Etiologic Study of Hodgkin's Disease, THE JOURNAL A. M. A., Nov. 15, 1913, p. 1893.

tissue, marked eosinophilic infiltration and periglandular sclerosis.

Billings and Rosenow¹¹ reported confirmatory findings in twelve cases of Hodgkin's disease, in all of which the bacillus in question was isolated by culture from the lymph nodes, three times in pure culture, while in the remainder it appeared in conjunction with a staphylococcus.

Steele¹² then isolated the same organism apparently, not only from a case of Hodgkin's disease, but also from one of lymphatic leukemia. As the latter observation is especially significant, it may not be out of place briefly to recapitulate the clinical history of the case.

The patient, a boy, aged 12, had passed through an attack of measles at the age of 3, and had had an attack of toothache with swelling of the lymph glands two years preceding the development of his fatal malady. The latter began three weeks before admission to the hospital with a painless swelling on both sides of the neck, followed a week later by enlargement in both axillae and pain in the left upper abdomen. On admission (November 2) the spleen was found enlarged, as also the tonsils and the glands in the groin (palpable).

Blood examination, at this time, showed a leukocytosis of 65,800, of which 80 per cent. were lymphocytes, and 20 per

cent. polynuclears. They stain more deeply at the ends. They stain by Gram's method, are not acid fast and are resistant to antiformin. They grow at first slowly, growth being first visible after five day's incubation. Transplants grow well on most of the ordinary culture media, but best in media rich in proteins. On agar and blood serum the lemon yellow fluorescence observed by Negri and Mieremet is particularly noticeable. On potato the growth appears in small isolated lemon yellow colonies. The growth in bouillon or ascitic bouillon is at first in adherent masses, although later the bouillon is somewhat cloudier. It grows in isolated yellow colonies in gelatin without liquefaction. It does not produce gas in glucose or lactose media.

PERSONAL OBSERVATIONS

Regarding our own observations the following note was made:

Our patient, a young man, aged 20, was referred to one of us (Simon) by Dr. McFarland of Clinton, N. Y. There was nothing of special note in his family or past personal history, beyond an attack of measles, shingles, and smallpox—the latter a year ago. About six weeks ago, he first noticed a painful swelling in the right axilla, which the attending physician took for a beginning abscess, as it was red, swollen, throbbing and very painful. Soon after, other glands began to enlarge, beginning with those in the back of the neck. On December 1, left facial paralysis developed, the

VARIATION IN TOTAL AND DIFFERENTIAL BLOOD COUNT IN CASE OF ACUTE LYMPHATIC LEUKEMIA

Date	Total		Hgb.	Differential							Remarks
	R. B. C.	W. B. C.		Lymph.	L. M.	Polys.	Eosins.	Baso.	Platelets	Normoblasts	
12/ 6/14	35,800	%	%	%	%	%	%	%	Blood Wassermann negative. 2.3% of W. B. C. showed Löwit bodies. 0.3% of W. B. C. showed Löwit bodies. 2.0% of W. B. C. showed Löwit bodies.
12/ 7/14	4,700,000	37,000	60	86.33	1.33	11.6	0.66	0.0	Diminished	0.3	
12/ 8/14	.....	.....	...	89.0	2.0	7.6	1.0	0.3	Diminished	0.6
12/ 9/14	4,560,000	57,500	...	92.0	3.0	4.0	1.0	0.0	Diminished greatly	0.0	
12/10/14	90.3	2.6	7.0	0.0	0.0	Absent	0.0	0.3% neutrophilic myelocytes. 1.6% of W. B. C. showed Löwit bodies.
12/11/14	.....	.....	...	95.3	0.3	3.0	0.0	0.0	Absent	Occasional
12/12/14	4,500,000	75,500	60	91.0	2.3	6.0	0.3	0.3	Absent	Occasional	2.6% of W. B. C. showed Löwit bodies 1.5% of W. B. C. showed Löwit bodies. Patient died.
12/13/14	3,900,000	75,500	60	95.3	2.3	1.6	0.3	0.0	Absent	0.3	
12/14/14	.....	.....	...	97.0	1.0	2.0	0.0	0.0	Absent	Absent
12/15/14	.....	.....	...	.....	....	....	....	...	.....	.....

cent. polynuclears. Following removal of the patient's tonsils and adenoids on November 5, the leukocytes on that day rose to 220,000, with 99 per cent. of lymphocytes, to fall on the following day to 1,800, of which only 42 per cent. were lymphocytes, while the polynuclears rose to 55 per cent. Coincident with this drop in the leukocytes there was a marked diminution in the size of the spleen, and diminution in the size of the lymph glands from the size of an egg to that of a bean.

About November 20, the lymph nodes again increased in size, the spleen again became palpable and the count rose to 9,000, with no change in the differential count, however, until November 28, when the total number rose to 236,000 with 80 per cent. of lymphocytes. Death occurred December 12, due to weakness and adenoid hemorrhage, the leukocyte count having previously risen to 298,000, of which 99 per cent. were lymphocytes. The entire course of the malady thus extended over approximately nine weeks.

Regarding the biologic characteristics of the organism, Steele says:

The bacterium was markedly pleomorphic. Most of the organisms resemble forms of the diphtheria bacillus, but some are short and coccoid. I have not observed any definite branching forms. Some take the stain uniformly, others stain in a granular manner, while still others take the

glands about the angle of the jaw being at that time much enlarged. At this time examination of a blood smear by Dr. McFarland revealed the true nature of the malady. On admission to Mercy Hospital, December 5, the following note was made by Dr. Judd: The patient's general condition was quite good, though he was somewhat pale (hemoglobin 60 per cent.). The most striking features at that time were his facial paralysis and the marked enlargement of all his peripheral lymph glands. This was especially striking in the upper half of the anterior cervical triangle and in the axillary regions, while the inguinal glands, though considerably enlarged, seemed relatively discrete. Physical examination suggested enlargement of the anterior mediastinal glands. Spleen and liver were within normal limits. Here and there on the lower portion of both legs there was a slight punctiform, macular rash.

During the interval between his admission and death, which occurred on December 12, there was no rise of temperature, excepting on three occasions, when it rose to 99.8 100.2 and 101.1, respectively. There was a little nosebleed during the greater part of the time and this, indeed, had been noticed off and on during two or three months preceding the onset of the glandular enlargement.

Death was due to an internal hemorrhage, which began on the day preceding and was temporarily stayed by a transfusion.

The urine showed no special abnormality until the day of death, when a trace of albumin, and a few hyaline casts and a most extensive deposit of colorless uric acid crystals were noted.

11. Billings, Frank, and Rosenow, E. C.: The Etiology and Vaccine Treatment of Hodgkin's Disease, THE JOURNAL A. M. A., Dec. 13, 1913, p. 2122.

12. Steele, A. E.: Corynebacterium Hodgkini in Lymphatic Leukemia and Hodgkin's Disease, Boston Med. and Surg. Jour., 1914, clxx, 123.

Blood examination in this case revealed the typical picture of lymphatic leukemia with a large predominance of the ancestral form. Actual measurements on two occasions showed that only from 16 to 19 per cent. presented a diameter smaller than 8 microns, while in from 45 to 46 per cent. it varied between 8 and 10, and in from 35 to 37 per cent., between 10 and 15. The structure of the nucleus in almost all the cells corresponded to that of the typical lymphoidocyte. Löwit bodies were noted in from 0.3 to 2.6 per cent. of the leukocytes, and mitoses were fairly common. The variations in the total and the differential count are seen in the accompanying table.

The Wassermann reaction was negative.

Cultures from the blood remained sterile, but it was noted that the corpuscular mass at the bottom of the tubes gradually turned a chocolate brown, and that another tube charged with normal blood and citrated glucose bouillon, after inoculation from the original, underwent the same change (digestion due to liberation of ferment from the lymphocytes?).

BACTERIOLOGIC FINDINGS

Within one hour after death a group of enlarged glands was removed from the patient's right groin; fragments were planted on Löffler's blood serum, to which a small amount of hydrocele fluid had been added, and the entire surface was layered with white petroleum oil. No growth was observed until about the end of a week, when in two of the four inoculated tubes a small number of tiny silvery points appeared under the coal-oil layer which we first mistook for very fine air bubbles. After a few days, however, it became manifest that these tiny dots represented colonies of an organism, as they had increased in size and here and there coalesced. To secure as liberal a growth as possible the tubes were not disturbed until the expiration of a fortnight from the date of incubation, when smears were first prepared for microscopic examination. As stain we used a combination of Jenner with Giemsa, followed by differentiation in water for fifteen minutes. In this manner excellent pictures were obtained. Examined with a 1/12 oil-immersion lens the organisms were found arranged in smaller and larger groups composed of individuals of variable size and appearance, but generally characterized by their content of deeply staining granules. When only two were present in an organism and its body was but faintly stained or altogether invisible, the impression of a diplococcus was conveyed, but a careful study showed that the organism was after all a bacillus with a variable number of granules. Some of the organisms contained but a single granule located in one end, which was then as a rule more or less clubbed, while the other was markedly attenuated. In others two granules were seen in polar positions. In still others as many as five were counted, serially arranged, the largest at one end, the smallest at the other; in some of these the body of the organism could be distinguished, while in others the granules merely seemed to occupy a linear position. Bacilli without any granules were scant. In a great many, furthermore, the granules seemed fused into a conical body, giving rise to appearances resembling exclamation marks, which was further accentuated in some by the presence of a separate granule at or close to the apex.

While the length of the individual organisms varied considerably, namely, from 1.3 to 7 microns, the size of the granules differed even more markedly. Globu-

lar bodies were also seen in considerable numbers in our first cultures, whose diameter measured as much as 4 microns. At first we were at a complete loss how to regard these, but subsequent studies proved that they evidently represented enormously swollen organisms, since every transition could be established between the largest bodies and the smallest granules.

With the stain employed the bodies of the bacilli appeared light blue and the granules were intensely deep blue which was also true of the large globular bodies.

Generally speaking, the organisms were smallest in our young primary cultures, while in subsequent and old cultures they were for the most part larger, so that the body of the bacillus could be distinguished much more readily. In these preparations individuals with wavy outline and central granules could be distinguished.

While our primary cultures were obtained anaerobically, later observations showed that the organism also grew in the presence of air, and apparently quite as well. The individual colonies, especially those grown under oil for a couple of weeks and longer presented a waxy yellow appearance which is quite characteristic, and was also noted by Negri and Mieremet.

On plain agar a growth occurred in subcultures after from forty-eight to seventy-two hours, in the form of an exceedingly delicate film, in which, on microscopic examination, the organisms had almost altogether assumed the diplococcoid form, referred to above. When these were retransferred to Löffler's blood serum they assumed the forms described before. The large globular bodies were never seen in the agar growths. The individual colonies appear as little droplets, resembling fat. In litmus milk the organism grows quite well and at first does not seem to affect its reaction; but in old cultures a slight acid production can always be noted. In such cultures a white sediment appears which is canary yellow at the margin of the deposit.

In bouillon, growth takes place very slowly; a sediment gradually begins to form which on shaking rises into the clear supernatant fluid like the nubecula of the urine. After several weeks, however, the entire body of the fluid becomes turbid, and on shaking coarse conglomerates of bacilli may then be observed. Glucose, lactose, saccharose, mannite, and inulin are not fermented.

While we originally stained the organism with Jenner-Giemsa, followed by differentiation in water, and reached excellent results in this manner, satisfactory pictures may also be obtained with ordinary aqueous methylene blue. Its behavior to gram staining was variable. Generally speaking we received the impression that the granules tended to be gram-positive, while the bodies proper were gram-negative. Like other observers we found the organism non-acid fast.

Inoculation experiments with chickens, rabbits and guinea-pigs have thus far remained negative.

Histologic examination of one of the glands showed the typical picture of lymphatic leukemia; there was a generalized hyperplasia of the lymphocytic components of the gland with complete destruction of its normal configuration. Only at one or two points was there a suggestion of follicular remnants. The lymph sinuses and capillaries were filled with lymphocytes and the perivascular connective tissue densely infil-

trated with these cells. Giant cells and eosinophils were nowhere to be seen.

To sum up, then, we have a patient presenting the clinical picture of lymphatic leukemia of the acute type, from whose glands the same organism evidently could be isolated, which appears to occur so constantly in Hodgkin's disease. Since Steele found an organism of the same order in another case of lymphatic leukemia, which likewise appears to have been of the acute type (judging from the clinical history), this can hardly be a coincidence, and naturally raises the interesting question of a possible relationship between the two diseases. Remembering the very different pathologic picture of the two, the existence of such a relationship at first sight seems difficult to realize, and at this stage of our knowledge it would indeed be idle to speculate on the possibilities which suggest themselves. Further observations in acute as well as in chronic lymphatic leukemia are demanded, and most important of all, detailed inoculation experiments in monkeys.

THE TREATMENT OF CLOSED FRACTURES

A PLEA AGAINST UNNECESSARY OPERATIONS

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"The pendulum has swung too far in the direction of operative treatment of fractures" said Dr. W. B. Coley¹ of New York, last December, at the annual meeting of the Southern Surgical and Gynecological Association. This sentence shall be the motto of the present paper.

Because of some unsatisfactory results in the conservative methods, the operative treatment of fractures has gained some ground in the last decade, and has justly become the treatment of choice for a few types of fractures.

Unfortunately, many surgeons, following such extremists as Arbuthnot Lane, have attempted to operate on all fractures, without indications of any sort. This policy makes things much easier, of course; it does away with the study of anatomy and the study of the different types of fractures; the surgeon does not have to think any more, not even for the diagnosis, as this is given to him by the Roentgen rays; he does not have to think about the treatment as it is the same—plating in all cases; he just becomes a mechanic! When a ready-made treatment of this kind takes the place of thought and individuality in surgery, we may expect queer things to happen. We see many offenses against reason and common sense. There is the man who screws an enormous steel plate in the poor little ulna of a baby; the man so ignorant of the extension methods that he holds himself justified in plating the femur of a young child; the man who is in such a hurry to operate that he plates a fractured leg with doubtful circulation, to find out, four days later, that the limb is gangrenous and has to be amputated; and the man who plates everything in sight, even a Colles fracture! Think of this venerable fracture which has been known to the surgical profession for one hundred years! All during that

century its treatment has been more and more simplified, so much so that Professor Lexer² now merely dresses this fracture with a flannel roller bandage! What would Colles say if he knew that there is a man who has hit on the brilliant idea of plating this inoffensive fracture?

It is not easy to fix the proportion of such indefensible and worthless interventions; I have to guess at a figure, but I have strong reasons to believe that about 80 per cent. of the operations now done in fracture cases are utterly unnecessary. Indeed, the vast majority would heal much better if left alone and if some busybodies would stop interfering with them. Jonas,³ reviewing the operative treatment of fractures in 1910, asserts that many fractures plated according to Lane would do just as well without operation; and the same opinion is held by many surgical authorities.

These offenses against common sense, however, sad as they may be for all concerned, are nothing in comparison to the harm done to the patients in case of accidents, and these are by no means rare! The results of conservative methods were bad, we are told, but we have no hesitation in saying that the results of operations for fractures are often worse and sometimes distressing. It is, of course, much to the disadvantage of the conservative methods that a man with a crooked arm or a shortened leg will walk all his life as an opprobrium to the surgeon who has treated him, while the man operated on and dying of septic infection will join the silent majority and will never be heard of any more; and, of course, reports of these cases are not published. But if we listen to the conversations of assistants, nurses, relatives and patients, we hear on all sides many interesting stories of plate removals, endless suppurations, delayed union after plating, deformity in spite of plating, refractures, septic infections, etc., so that we feel justified in concluding that in many instances—well authenticated and well known to us—the operation done for a fracture was not only unnecessary, but was directly injurious to the patient.

Why must we be so cautious in this particular field of surgery, while, with the perfection of modern asepsis, we can confidently promise a healing by first intention in nearly all other clean cases? Because there are some dangers of a very special kind inherent in recent fractures which are not encountered in other aseptic conditions, and which must not be minimized and must not be ignored. These are, first, the well-known danger of infection so liable to invade all bruised and traumatized structures, and second, the deficient callus production which is the rule in the presence of a foreign body.

There is still a most undeniable danger of infection in fracture operations, even in the hands of the best surgeons: 1. The field of a recent fracture is an excellent culture medium. The bruised tissues, the fragments of bone denuded of periosteum and badly nourished, the hematoma, the impairment of circulation, all constitute the best possible conditions for the rapid growth of micro-organisms. 2. There is one source of infection that cannot be eliminated, even in the advanced stage of development of modern asepsis, and that is the skin of the patient. The hands of the surgeon cannot be incriminated because they are covered by sterile gloves and also because we do not touch

2. Lexer, E.: Die Behandlung der Knochenbrücke, München, med. Wehnschr., March 23, 1909.

3. Jonas, A. F.: The Operative Treatment of Simple Fractures, THE JOURNAL A. M. A., Nov. 19, 1910, p. 1773.

1. Coley, W. B.: In discussion on MacLean, H. S.: Modification of Lane's Plates, abstr., THE JOURNAL A. M. A., Jan. 23, 1915, p. 366.

anything in these operations even with the gloved finger; the instruments are boiled and absolutely sterile; but the skin of the patient, owing to the peculiar structure of the epidermis and of the skin glands, is and remains infected in spite of all disinfection methods. As we all know, the upper layers of the epidermis, and also its clefts and the ducts of the sebaceous and sweat glands, are normally the habitat of many micro-organisms. It is just the good luck of surgeons that these microbes are not virulent as a rule; but once in a while some pathogenic germs will be present among them, and when or where that will happen it is impossible to foresee. The surgeons have devised all sorts of methods to shut off this source of infection, which we may call endogenous infection. We use cloth clamps, fixing the sterile towels well inside of the incision with the idea of suppressing all communication between the skin and the interior of the wounds. Others recommend oil silk for the same purpose; others use a coating of a resinous substance to plug the opening of the skin glands; others rely on the action of antiseptics (tincture of iodine, tannic acid, alcohol, etc.) to inhibit the vitality of the micro-organisms for some time at least, or possibly to close temporarily the openings of the glands. The opinion generally accepted now is that our disinfection of the skin is limited to the superficial layers of the epidermis, and that in the depth of the glands or in the clefts of the epidermic layers the life of the bacterial flora goes on just the same. The gynecologists have done some very good experimental work in this direction, and they have found that, a few hours after an aseptic operation, the neighborhood of the incision is full of micro-organisms.

It is easy to imagine that, in the course of an operation, the blood and serum oozing from the wound will necessarily moisten the surrounding sheets and towels, or the coating (if used) will soon become cracked at some point; and sooner or later, through the moist towels, a line of communication will be established between the interior of the wound and the infected secretion of the skin glands, and micro-organisms will be found in the wound. When this will take place in the course of an operation is difficult to say; probably the longer the operation, the greater the chance of this endogenous infection.

As proof that this danger is always present, we have the fact that sometimes a first-class man of scrupulous asepsis will occasionally get an infection after operating on a fracture. For this he will blame the hospital, the nurses, the catgut, the dressing, etc., or he may blame himself and forget that the only culprit is the patient, whose skin cannot be boiled. McGruder,⁴ in his article on fractures, finds that many fatalities following fracture operations have been reported by experienced surgeons; Lemoyne Wills,⁵ in a small series, reported two cases; Waterhouse⁶ reports one personal case, and quotes two instances of fractures plated by great surgeons followed by infections, one ending in disarticulation of the shoulder, the other in disarticulation of the hip.

It is quite likely that a slight infection of the same kind (endogenous) takes place in all operations lasting a long time, in laparotomies, for instance, but a healthy

organ with high power of resistance like the peritoneum always succeeds in destroying these few germs, while bruised and traumatized tissues will, on the contrary, be powerless against them.

This is the reason why such experiments as plating bones or cartilage, opening articulations to nail some fragments, etc., commonly done in animals with normal tissues full of vitality, cannot be accepted as conclusive for similar intervention in human beings whose tissues have been the seat of a severe trauma. I have read with interest the paper by Drs. Harry Sherman and Dudley Tait⁷ on the subject, and I am also familiar with the work of my friend W. S. Handley⁸ of London, suggesting the transarticular route for operations on certain fractures; but, although I fully appreciate the good pioneer work done by them in this direction, I am not quite convinced that joints which are bruised and the seats of fractures and hematoma in men will behave as nicely as the perfectly healthy joints of animals, which have more resistance to infection than man has anyway.

The second main danger arising from a fracture operation is the deficiency of the callus. As assistant in a busy surgical service taking care of a very large fracture material, Professor Roux' clinic in Lausanne, Switzerland, I saw exactly one case of nonunion in four years. But now, since so many fractures are being operated on, delayed union, nonunion, and absence of callus are surprisingly frequent occurrences. In many cases of accidental refractures of plated bones, the Roentgen rays have shown that the metal plate was the only support of a limb, and that hardly any callus formation had taken place even after several months. It seems certain, therefore, that the presence of a foreign body (plate screw, ivory peg, or whatever it may be) seriously interferes with the nutrition of the bone and exerts a sort of inhibition on the callus formation. McGruder⁴ confirms our opinion that delayed union follows internal fixation. Stimson⁹ concludes from the study of many roentgenograms that internal fixation apparatus (plates, foreign bodies, etc.) increase or prolong the preliminary rarefaction of the bone and that nonunion is frequent after their use.

Keeping in mind these dangers of operations of fractures, and remembering also the shortcomings of bloodless procedures, when shall we operate and when shall we not?

In my opinion, operation is indicated in recent fractures, when the surgeon, carefully weighing in his mind the advantages and the disadvantages of the two methods, finds that the prospects of a serious impairment of function are so great in a given case if treated conservatively as to outweigh the risks and dangers of an operation; especially when the conservative method has been tried in identical cases by many experienced surgeons of great reputation and of recognized authority, and has been found by most of them to yield only unsatisfactory results. We object to amateurs and dilettanti assuming the right to initiate operative measures in types of fractures which the majority of the great professional surgeons declare curable by bloodless methods.

4. McGruder: *Am. Jour. Surg.*, 1914, xxviii, 1.

5. Wills, W. Lemoyne: In discussion on Martin, E. Denegre: A Plea for the More Careful Diagnosis and Treatment of Fractures of the Extremities, *THE JOURNAL A. M. A.*, Dec. 18, 1909, p. 2073.

6. Waterhouse, H.: *Brit. Med. Jour.*, July 9, 1910.

7. Sherman, Harry, and Tait, Dudley: *Fractures Near Joints and Into Joints*, Surg., Gynec. and Obst., August, 1914.

8. Handley, W. S.: *Transarticular Route in Operation for Difficult Fractures of the Knee and Elbow*, *Brit. Med. Jour.*, Oct. 5, 1912.

9. Stimson: *Treatise on Fractures and Dislocations*, 1913.

A marked deformity in itself (if not attended by loss of function) is not an indication to operate (for example, a large callus on a clavicle, or a large callus on a femur without shortening). Nor is our wish to secure a good cosmetic result a sufficient reason to operate, nor the fact that the operation is easy: nothing is easier in the world than wiring or plating a bone that lies directly under the skin, such as the clavicle or the tibia, and that can be done so quickly that the risk of infection would probably be small. We know that, but it is our duty to refrain from doing such operations if we think that the same functional result can be attained without operation.

The preliminary report of the American Committee on Fractures¹⁰ is entirely too favorable to operative procedures, and many of the fractures it would allow skilled surgeons to operate would heal just as well if properly treated by conservative methods.

It is a fundamental fact, accepted by all in fracture work, that a good anatomic reduction and fixation of the fragments is essential in order to obtain a good function of the limb. But this excellent principle has been carried *ad absurdum*! The friends of the operation *à outrance* want a bone to have exactly the same geometric outline as it had before the accident, while experience has proved conclusively (see Tuffier,¹¹ Scudder¹² and others) that in most cases this is not at all essential, and that a general good alignment of the fragments will give an excellent functional result even if there remains a slight lateral dislocation (in transverse fractures) or a slight overriding in oblique fractures. Yet many operations are undertaken not at all as a necessity to insure good function, but simply and solely to satisfy the sense of anatomy and geometry of the surgical eye, and this cannot possibly be accepted as an indication.

If, then, conscious of the risks involved and of the great responsibility we assume when operating on recent fractures, we restrict such interventions to the cases in which they are clearly indicated, a change will come in the methods and in the results obtained. Instead of looking on the plating of fractures as an everyday procedure, which is crowded into a busy morning list at the hospital, between uterine curettements, adenoids, tonsils, circumcisions and other things of relative asepsis, the assistants and the personnel will come to look on a fracture operation as something rare, as an intervention of higher dignity, the preparation for and the conduct of which must be more solemn than that of a laparotomy, and whose consequences in a case of failure mean a disaster for the patient, and a blot on the reputation of the hospital and of the operator. The surgeon will devote more time to prepare himself thoroughly, so as to operate neatly and above all rapidly by the simplest and quickest method; not only will he follow the Lane technic, but also he will do all in his power to avoid the contamination of the bone surfaces by contact with the skin of the patient. The knife which has been used for the skin incision shall not be used for any other dissection; if the incision is too narrow and there is danger of the skin rubbing against the fragments of the bone, the surgeon will not hesitate to add lateral incision so as to divide the skin into flaps which can

be better retracted and, if necessary, fixed out of the way by temporary stitches. He will always try to succeed with the most simple appliances and use the minimum of foreign material to insure fixation.

It is these and many other little details that count, and if fracture operations were carried out in this way, we could take their risk with confidence and recommend them to the patients with the conviction that we are fully justified in doing so.

I cannot conclude this paper without remarking on the steady improvement of the conservative methods in the last decade. Under the influence of Calot and other orthopedists, the making of a plaster cast has become a work of precision, exact and accurate in all details, so that it now yields much better results than formerly. The tendency to replace the circular plaster bandage by plaster splints, allowing early massage and movements, must also be hailed as a distinct step forward for many cases. Another great improvement is the much shorter immobilization of fractures of all bones which have not to bear weight, and also the general use of massage, with the understanding that, in fracture cases, massage should never be prescribed on a sheet of paper, like a drug, and left to a mechanical masseur, but should always be done by the surgeon himself, as early as possible and as long as necessary.

The greatest advance has been made in the technic of extension, especially by Bardenheuer¹³ and Heusner, whose methods have taken the place of the old Buck and Volkmann extensions. It is the consensus of opinion in Europe that Bardenheuer's results are probably the best that have ever been obtained in fracture work by any method, and it is a matter of great surprise to me that his name should be so seldom mentioned here.

Robert Jones,¹⁴ analyzing the Report of the Committee on Fractures of the British Medical Association in 1912, says that difference in good results in recent cases (79 per cent. with operations and 70 per cent. with the old conservative methods) is so small that it could easily be made up by the improvement of the old procedures, in which I heartily agree with him.

CONCLUSIONS

1. Operations on recent closed fractures, as they are done today—wholesale and indiscriminately—are utterly unnecessary in most cases. With Scudder, Stimson, Bevan, Murphy, Frank Martin, Matas, Ochsner, Lexer and others,¹⁵ I hold that the vast majority of fractures do not require operations. Conservative methods must be given a trial in most instances, and will probably succeed in 90 per cent. of the cases.

2. Operations done on a large scale by chance operators or amateurs are responsible for a high percentage of bad results. (This is no wonder, and can be easily remedied if these men will let the fractures alone.) But what is of much greater importance and concern to us in the fact that first-class surgeons, operating on scientific indications and with unimpeachable asepsis (McGruder,⁴ Waterhouse,⁶ Lambotte, Lemoyne Wills⁵) have recorded instances of infection which illustrate the ever present danger of the endogenous

10. American Committee on Fractures: Preliminary Report, abst., Brit. Med. Jour., May 24, 1913.

11. Tuffier: French Surgical Congress, 1911.

12. Scudder, C. L.: Treatment of Fractures, with Notes upon a Few Common Dislocations, Philadelphia, W. B. Saunders Company, 1911.

13. Bardenheuer and Graessner: Technik der Extensionsverbände, 1909, p. 14.

14. Jones, Robert: Report of the Committee on Fractures, Brit. Med. Jour., Dec. 7, 1912. Report of the Committee on Fractures of the British Medical Association, 1912.

15. Tr. Am. Surg. Assn., 1911.

infection arising from the skin of the patient, a danger which no method of disinfection has succeeded in completely eliminating and which cannot be ignored, especially in view of the lowered vitality and resistance of the tissues resulting from violent trauma.

3. The presence of a foreign body (especially when large) interferes with the production of a good callus, and this is proved by roentgenoscopy (see Stimson⁹ and others).

4. Operations must be reserved for really irreducible fractures, and even here (clavicle) only when actually needed, that is to say, when conservative methods have been found or are known on authority of many experienced surgeons to be powerless to insure good functional results.

5. If we have to operate, let us first have a special and elaborate preparation for an operation on recent fracture, as it should not be considered a part of the daily routine, but an intervention of great dignity, in a class by itself, which in regard to care and asepsis ranks next to a trephining operation and certainly above any laparotomy; and above all, let us operate rapidly so that the bruised and devitalized tissues may not have time to become the prey of the infectious germs which are always present in the epidermis of the patient, in spite of all our methods of disinfection. Let the intervention always be the very lightest that is compatible with a good result, as a simple incision with a few manipulations will often suffice to replace the fragments correctly (see Scudder,¹² Willems,¹⁶ Keppler,¹⁷ Bier,¹⁷ Schlange,¹⁷ Clairmont¹⁷ and others). If an internal fixation apparatus has to be used, let us always employ the minimum of foreign material (Cotton,¹⁸ Tuffier¹¹), preferably a temporary silk or an absorbable suture (Stimson).

As to the best time for an operation (when indicated), the observations of the greatest authorities (Murphy, Trendelenburg, Lexer and others) have shown that after the first week has elapsed, much of the dead material (serum and hematoma) has been absorbed; at this time the bone and periosteum have begun to show signs of new life and proliferation, and are consequently in much better condition to defend themselves against infection. According to my views on trauma and infection, I shall not as a rule operate before the end of the first week, and cannot approve of the practice of operating the first or second day on the ground that it is easier; reduction by operation is just as easy after a week or so, and the risks of infection are considerably less.

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16. Willems: French Surgical Congress, 1911.

17. Keppler: Die blutige Stellung schlecht stehender Frakturen, Deutsch. Ztschr. f. Chir., February, 1913.

18. Cotton, F. J.: Operative Treatment in Joint Fractures, THE JOURNAL A. M. A., July 20, 1912, p. 190.

MONGOLIAN IDIOCY AND SYPHILIS*

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The etiology of Mongolian idiocy is unknown. The various suggestions which have been made with regard to the causation of this peculiar form of infantilism remain as yet but tentative proposals. This paper is concerned with a discussion of but one of the proposed etiologies, namely, syphilis. The theories thus far propounded may be summarized as follows:

1. Mongolism is caused by maternal exhaustion, because the Mongolian children are usually the last of large families.

2. Mongolism is caused by pressure on the basal ganglia of the brain, in proof of which it is cited that (a) the anteroposterior diameter of the cranium is shorter than in normal children, (b) the occiput is usually flat, and (c) the weight of the medulla relative to the remainder of the brain is less than in normal brains.

3. Mongolism is caused by agenesis of the cortex cerebri, because (a) the cortex is thinner than in normal brains, and (b) the pyramidal cells are fewer in number and have fewer processes than do those of normal brains.

4. Mongolism is due to parental syphilis. This paper is concerned with the latter hypothesis. The suggestion of a connection between syphilis and mongolism was first made by Sutherland. Sutherland's conclusion and the observations on which it is based are worth quoting *in toto*.¹

It must be remembered that the characteristic features of mongolism are present at birth, and they are of such a nature as to suggest a causative agent at work from a very early period of fetal life. General causes, such as parental alcoholism, nervous disease or insanity in the family, are not likely to produce such an exact type of disease as exists in mongolism. It seems probable that one and the same cause is at work in all cases and that this is some disease that affects the fetus *ab ovo* and is directly inherited from one or both parents. Among such possible diseases tuberculosis has been suggested, but a parental history of that affection does not stand out prominently among my cases. On the other hand, I have been struck by the prevalence of hereditary syphilis. Out of a total of twenty-five cases syphilis was definitely present in eleven patients, and from the symptoms and history it was strongly suspected in three others. This is a large proportion, even allowing for the frequency of syphilis in infants, and my investigations among the earlier cases were not specially directed to this point, nor were the patients all seen at an age when the evidences of the disease would be pronounced. It has been suggested to me that mongolism may be syphilitic in origin, not an active manifestation of hereditary syphilis, but due to an arrested development of certain parts of the brain from disease in the germinal cell—a parasyphilitic condition. Among the parasyphilitic conditions to which Fournier has directed attention are delayed mental and physical development leading to imbecility and infantilism, and weakened vitality leading to early, and often sudden, death. These are also characteristic of the condition under discussion. Active syphilitic disease may in these cases be communicated during fetal life or it may not, and its absence can not be regarded as disproving the syphilitic origin of mongolism. The incidence of active syphilis in fetal life is followed by a succession of symptoms pointing to progressive disease. In mongolism, on the other hand, all the evidence indicates the existence

Technic of Breast Feeding.—The young, inexperienced mother should be instructed in the most elementary details concerning nursing. She is shown how to retract the parenchyma of the breast from the nipple so that the infant's nose will not be buried in the mamma and respiration will not be constructed in this manner. If she trains the baby to grasp the areola as well as the nipple, the milk flows more freely and the nipple is less liable to be traumatized and rendered painful. The nipples should be kept scrupulously clean, and may be washed before nursing, using plain water; at least not strong antiseptics.—Isaac Abt, *Detroit Med. Jour.*, February, 1915.

* From the Psychopathic Laboratory of the University of Chicago.

1. Sutherland, G. A.: Mongolian Imbecility in Infants, *Practitioner*, 1899, lxiii, 632.

of some factor leading to an arrest of development at a very early stage, without progressive disease. Further investigation is required to determine the exact etiologic factor, but I believe it will be found to be a definite parental disease and not a general degeneracy, and the association of parental syphilis and mongolism is sufficiently frequent to suggest a causal relationship (p. 641).

It will be noted that Sutherland's suggestion was made on the basis of clinical findings and the family history. With the discovery of the causal connection between the *Spirochaeta pallida* and syphilis, it is now possible to test the validity of Sutherland's hypothesis by new methods. These new methods are, (1) serologic tests of the blood serum and spinal fluid of mongols, and (2) the demonstration of the spirochetes in the nervous system and other organs of the mongols. As the results of the serologic tests are not conclusive, the final proof or disproof of the syphilitic hypothesis will have to rest on the histologic search for the spirochete in the nervous system or other organs of the mongols. Inasmuch as material of this sort is difficult to obtain, I have not yet been able to prosecute the latter research.

The diagnosis of mongolism depends entirely on the peculiar facial expression and the mental deficiency. Langdon Down's "ethnic" classification of aments² had little to justify it beyond the author's questionable theory that different races of the human stock represented and typified certain levels of intellectual and cultural attainment. His "Negroid," "Malay" and "American" idiots have long since been forgotten. His group of "Mongolians" has been verified and confirmed by all subsequent workers. The group is constant and typical; the name is characteristic.

Representative members of the group are undersized, bullet-headed, blepharitic, drooling, or tongue-sucking idiots, or low-grade imbeciles. The constant traits of the Mongolian physiognomy are the oblique palpebral fissures, the protruding, transversely fissured tongue, the brachycephalic head, the blepharitis, and a grimacing grin. Next to the head, the hands and the feet are most characteristic. The hands are unusually large, the fingers thick and blunt, with two typical features—the thumb, which is cut off obliquely, and the little finger, the second phalanx of which is abnormally short. The feet are thick, large and clumsy: Associated with these more constant characteristics, there are several variable pathologic traits commonly encountered. Strabismus is frequent. Cardiac lesions of sufficient severity to impair peripheral circulation and produce cyanosis and coldness of the extremities are very common. Spastic paralyses of the legs are seen in varying degrees. Pulmonary disease in the form of tuberculosis and bronchitis afflicts many of them. In disposition they are usually affectionate and tractable to the extent of their very limited intelligence. In behavior they are restless and grimacing. They are heavy on their feet and clumsy in the use of their hands.

The spinal fluid of twenty mongols has been examined. One reported examination from the literature is included in Table 1. General information about the material is given in the clinical summary. The serologic study included the Wassermann reaction on the blood serum and the spinal fluid; the cell count of the spinal fluid; the determination of the globulin content of the spinal fluid by the Ross-Jones, Nonne,

and Noguchi methods; and the Lange gold chlorid test. The technic of the tests may be briefly outlined.

TECHNIC

1. *Wassermann Reaction*.—The Noguchi modification of the Wassermann reaction was used. The amboceptor titer was 0.001 c.c., which produced in twenty minutes complete hemolysis of 1 c.c. of a 1 per cent. suspension of human corpuscles in the presence of 0.05 c.c. guinea pig complement and 1 c.c. of 0.9 per cent. sodium chlorid solution. The antigen was the acetone insoluble extract of beef heart; 0.02 c.c. of a one-tenth dilution was effective in binding the complement in the presence of a positive syphilitic serum; 0.1 c.c. of a one-tenth dilution caused the first degree of inhibition of hemolysis in a negative serum. The antigen did not produce hemolysis in the absence of amboceptor and complement; 0.05 c.c. of fresh guinea pig serum was used for complement; 0.1 c.c. blood serum and an amount of spinal fluid varying from 0.4 c.c. to 1 c.c. were used in the tests.

2. *Cell Count*.—The cell count was made within two hours after drawing the spinal fluid. The diluting fluid was made of 50 per cent. glacial acetic acid and 50 per cent. Wright's stain. The Thoma-Zeiss counting chamber was used. All the cells in the ruled area of 9 square millimeters were counted. The calculation of the number of cells per cubic millimeter was made by multiplying the number of cells in the ruled area by 10/8. The fraction 10/8 is obtained from the correction of 10/9 for the dilution and the 10/9 for the 9/10 of a cubic millimeter, which is the cubic contents of the ruled area of the counting chamber.

3. *The Globulin Content*.—The globulin was determined by the Ross-Jones ring test,³ the Nonne "Phase I" reaction and the Noguchi butyric acid test. For the Ross-Jones test a neutral, saturated solution of ammonium sulphate was used; 0.2 c.c. of clear spinal fluid was placed in a small test tube and an equal amount of ammonium sulphate placed under it with a capillary pipet. An excess of globulin is indicated by the appearance of a white ring at the line of junction of the two liquids. This test is said to be positive when a ring is observed. The Nonne "Phase I" reaction was obtained from the Ross-Jones test by mixing the two fluids after three minutes. An opalescent or flocculent precipitate was called positive. The Noguchi butyric acid test as described by Ellis and Swift⁴ was used: 0.2 c.c. of spinal fluid was added to 0.5 c.c. of 10 per cent. butyric and heated to boiling; 0.1 c.c. of 4 per cent. sodium hydroxid was added. The reaction was gaged according to the scale proposed by Ellis and Swift:

- opalescent to very faint haze.
- ± faint haze to haze.
- + fine granular precipitate.
- ++ heavy granular or coarse flocculent.
- +++ very heavy flocculent precipitate.

4. *The Lange Gold Chlorid Test*.⁵—The gold chlorid solution was made from double distilled commercial Hydrox water, which was double distilled in Jena glass before using. All glassware except the condenser was cleaned in 50 per cent. hydrochloric acid and sterilized with dry heat. For each 100 c.c. of water 1 c.c. of a 1 per cent. solution of gold chlorid, 1 c.c. of a 2 per cent. solution of potassium carbonate, and 1 c.c. of a 1 per cent. solution of 40 per cent. formaldehyd solution are required. In making the solution the water is heated uniformly to 58 C., when the required amount, according to the proportions just given, of gold chlorid and potassium carbonate are added. The solution is then heated as quickly as possible to 85 C., when the required amount of formaldehyd solution is added. Diffusion

3. Ross, G. W., and Jones, Ernest: On the Use of Certain New Chemical Tests in the Diagnosis of General Paralysis and Tabes, Brit. Med. Jour., 1909, i, 1113.

4. Ellis, Arthur W. M., and Swift, Homer F.: The Cerebrospinal Fluid in Syphilis, Jour. Exper. Med., 1913, xviii, 166.

5. The best published account of the preparation of materials for this test is given by Miller and Levy, The Colloidal Gold Reaction in the Cerebrospinal Fluid, Bull. Johns Hopkins Hosp., May, 1914, xxv, 133.

2. Down, J. L.: Observations on an Ethnic Classification of Idiots, London Hosp. Rep., 1866, iii, 259.

is facilitated by agitation of the vessel and its contents. A suitable gold chlorid solution should be red in color, with a tint of orange to it, clear to both transmitted and reflected light, and it should not precipitate on standing. In performing the test on a spinal fluid ten dilutions in 0.4 per cent. sodium chlorid solution are made. The dilutions are 1/10; 1/20; 1/40; 1/80; 1/160; 1/320; 1/640; 1/1280; 1/2560; 1/5120. In Table 1 under the caption "Gold Chlorid" these dilutions in order are indicated by the figures 1, 2, 3, etc. A positive reaction is a change in the color of the solution caused by the precipitation of a part of the colloidal gold chlorid. Usage varies with regard to the number of color changes which are distinguished. Lange⁶ in his original article distinguished eight colors: Roth (0), the original color of the unchanged gold chlorid, Rothblau (1), Blau-roth (2), Violet (3), Dunkelblau (4), Hellblau (5), Weissblau (6), and Farblos (7). Miller and Levy distinguish

RESULTS OF EXAMINATION OF BLOOD AND SPINAL FLUID IN MONGOLIAN IDIOTS

Case No.	W. R. Blood	Cerebrospinal Fluid															
		W. R.	Cells	Globulin													
				Ross-Jones	Nonne	No-guehi	1	2	3	4	5	6	7	8	9	10	
1	Negative	Negative	2	+	+	+	2	4	4	3	2	0	0	0	0	0	
2	Negative	Negative	2	+	+	+	1	1	1	2	3	1	0	0	0	0	
3	Negative	Negative	*	+	+	±	1	1	1	1	0	0	0	0	0	0	
4	Negative	+?	1	+	+	+	1	2	2	2	1	0	0	0	0	0	
5	Anti-comp.	Negative	1	+	+	+	1	2	3	3	3	2	1	0	0	0	
6	Negative	Negative	6	+	+	+	0	1	2	4	5	5	2	0	0	0	
7	Negative	Negative	8	+	+	+	2	3	3	3	3	2	1	0	0	0	
8	Negative	+?	3	+	+	+	1	1	1	0	0	0	0	0	0	0	
9	Negative	Negative	1	+	+	+	1	1	2	2	2	0	0	0	0	0	
10	Negative	Negative	1	+	+	+	0	1	1	1	0	0	0	0	0	0	
11	Negative	Negative	1	+	+	+	1	1	2	3	2	1	0	0	0	0	
12	Negative	++	23	+	+	+	0	1	2	2	1	0	0	0	0	0	
13	Anti-comp.	+++	*	+	+	+	1	2	3	3	2	1	0	0	0	0	
14	+++	++	7	+	+	+	1	2	3	3	3	2	1	0	0	0	
15	Not made	+++	16	+	+	++	1	3	3	4	3	1	0	0	0	0	
16	+++	+++	0	+	+	++	2	3	4	4	3	0	0	0	0	0	
17	Not made	Negative	1	+	+	—	1	1	2	3	2	0	0	0	0	0	
18	Not made	Negative	1	+	+	±	1	2	3	3	1	0	0	0	0	0	
19†	Not made	Negative	14	—	—	+	1	1	1	0	0	0	0	0	0	0	
20‡	Not made	Negative	11	—	—	**	1	1	1	2	2	0	0	0	0	0	
21	+	Negative	1	+	..	..	2	3	3	2	1	1	0	0	0	0

* Not counted.
** Not made.
† Father known syphilitic.
‡ Brother of Case 19; father known syphilitic.

five color changes. I have followed Lange. The numbers indicate the extent of the color change in the corresponding tube.

The results are shown in Table 1. Case 21 is taken from the article of Miller and Levy.⁷ This case is not taken into account in the percentages which are given. The conclusions to be drawn from this work are:

1. The Wassermann reaction on the blood serum of Mongolian idiots was positive in 10 per cent. (2 in 20) of the cases.

2. The Wassermann reaction on the spinal fluid was undoubtedly positive in 25 per cent. (5 in 20) of the cases. The Wassermann reaction on two fluids was doubtful. The gold chlorid reactions of these two fluids, Case 3 and Case 8, do not show typical luetic changes.

3. Pleocytosis was present in 20 per cent. (4 in 20) of the cases.

4. The globulin content was increased in 90 per cent. (18 in 20) of the cases.

6. Lange: Ueber die Ausflockung von Goldsol durch Liquor Cerebrospinalis, Berl. med. Wehnschr., May 6, 1912, No. 19, p. 897.
7. See Note 5. Referred to in their article as a mongoloid idiot. M (70). Note that the Wassermann reaction on the spinal fluid is negative. The Lange is positive; globulin is positive; cells and Wassermann reaction on blood serum positive.

5. The gold chlorid reaction shows color changes of two or more degrees in 90 per cent. (18 in 20) of the cases.

6. The color changes of the gold chlorid are in the luetic zone.

7. The father of Case 19 and Case 20 is known to have syphilis at present. This infection was acquired before his marriage. One child born dead preceded the two Mongolian children. The only abnormality in the spinal fluid of the children is the pleocytosis and the questionable Lange reaction in Case 20.

8. The globulin content and the gold chlorid reaction parallel each other.

CLINICAL SUMMARY OF THE CASES

CASE 1.—Lincoln State School and Colony. Female. Age 15 years. Mental age by the Binet-Simon test, 4 years. General facial appearance is that of a typical mongol. The pupillary reactions to light and accommodation are slow. Convergent strabismus. Few small corneal opacities. Chronic blepharitis and conjunctivitis. Tongue with well marked transverse fissures. Hands short and stubby. No obvious paralysis of limbs. Reflexes: biceps normal; triceps normal; umbilical normal; patellar equal, but lively; plantar normal; tendo achillis normal; Gordon, Oppenheim and Chaddock negative. No hernia. Cyanosis of the extremities. Subject to chronic bronchitis. Skin dry. Lumbar puncture, Jan. 30, 1915: 4 c.c. clear spinal fluid withdrawn. Pressure moderate. Blood for Wassermann reaction.

CASE 2.—Lincoln State School and Colony. Female. Age 14 years. Mental age by the Binet-Simon test, 4½ years. The pupils react to light and accommodation. They are round and equal in size. Slight convergent strabismus. No corneal opacities. No blepharitis. Tongue slightly fissured transversely. Hands are broad and short. No paralysis. The biceps reflex is normal, as is the triceps and umbilical. Patellar reflexes are equal on both sides and normal in amount. Plantar reflex normal. Tendo achillis normal. Oppenheim, Gordon and Chaddock are negative. There is no hernia or cardiac lesion. Probably incipient tuberculosis in the apices of the lungs. Skin dry. Lumbar puncture, Jan. 30, 1915: 5 c.c. clear fluid withdrawn. Blood was taken for Wassermann reaction.

CASE 3.—Lincoln State School and Colony. Female. Age 7½ years. Mental age by the Binet-Simon test, 3 years. The pupillary reactions to light and accommodation are normal. There is no strabismus or opacity of the cornea. Chronic conjunctivitis and blepharitis marginalis. Marked transverse fissuring of tongue. Hands are thick, broad and short. Uses left hand more than right. No other evidence of paralysis. Biceps and triceps reflexes could not be elicited. Umbilical reflex normal. Right patellar reflex sluggish; left patellar reflex normal. Tendo achillis and plantar reflexes normal. Oppenheim, Gordon and Chaddock negative. No hernia. No cardiac lesion or abnormality in the lungs. Skin is dry. Lumbar puncture, Jan. 30, 1915: 4 c.c. fluid withdrawn. Blood in the first tube. Blood for Wassermann reaction.

CASE 4.—Lincoln State School and Colony. Female, 20 years of age. Mental age by Binet-Simon test, 4 years. The pupils react normally to light and accommodation. Slight convergent strabismus. No opacities of cornea. Chronic blepharitis marginalis and very severe chronic conjunctivitis. Marked transverse fissuring of the tongue. Hands are thick, broad and short. No paralysis. Biceps and triceps reflexes are exaggerated. Plantar reflex is normal. Umbilical reflex is lively. Patellar reflexes are exaggerated. Tendo achillis is lively. Oppenheim, Gordon and Chaddock are negative. There is no hernia, cardiac or pulmonary lesion. Skin is dry. Lumbar puncture, Jan. 30, 1915: 4 c.c. clear fluid were withdrawn. Blood for Wassermann reaction.

CASE 5.—Lincoln State School and Colony. Female. Age 22 years. Mental age by the Binet-Simon test, 4 years. Pupils react normally to light and accommodation. Con-

vergent strabismus. No corneal opacity. Chronic conjunctivitis and blepharitis marginalis. Tongue is fissured transversely. Hands are thick, broad and short. No paralysis, but gait is shuffling. Biceps, triceps and umbilical reflexes are normal. Patellar reflexes are lively on both sides and especially on the left. The plantar and tendo achillis are normal. Oppenheim, Gordon and Chaddock are negative. There is no hernia. Aortic regurgitation; capillary pulse; waterhammer pulse. Roughened breath sounds on both sides. Skin dry. Lumbar puncture, Jan. 30, 1915: 4 c.c. clear fluid withdrawn. Blood for Wassermann reaction.

CASE 6.—Lincoln State School and Colony. Male. Age 18 years. Mental age by the Binet-Simon test, 3 years. Pupillary reactions are normal to light and accommodation. No strabismus and no corneal opacities. Blepharitis marginalis. Slight transverse fissuring of the tongue. Hands are thick, short and stubby. Shuffling gait. Biceps and triceps are normal, but active. Umbilical and cremasteric reflexes normal. Patellar reflexes are exaggerated, but equal on both sides. Plantar and tendo achillis are normal. Chaddock, Oppenheim and Gordon are negative. No hernia. No cardiac lesion. No pulmonary abnormality. Skin dry. Lumbar puncture, Jan. 29, 1915: 4 c.c. clear fluid withdrawn. Blood for Wassermann reaction.

CASE 7.—Lincoln State School and Colony. Male. Age 12½ years. Mental age by the Binet-Simon test, 2 years. Pupillary reactions are normal to light and accommodation. There is no strabismus or corneal opacity. No blepharitis. Marked transverse fissuring of tongue. Hands are broad and stubby. No paralysis. Biceps, triceps, umbilical, cremasteric, patellar, plantar, and tendo achillis are normal. Gordon, Oppenheim and Chaddock are negative. No hernia. Second pulmonic tone accentuated. Roughened breath sounds in both apices. Lumbar puncture, Jan. 29, 1915: 5 c.c. clear fluid withdrawn. Blood for Wassermann reaction.

CASE 8.—Lincoln State School and Colony. Male, 12 years of age. Mental age as determined by the Binet-Simon test, 1 year. Pupillary reactions to light and accommodation are normal. Convergent strabismus. No corneal opacities. Chronic blepharitis marginalis and chronic conjunctivitis. Tongue is fissured transversely. Hands are broad and short. No paralysis. Biceps and triceps reflexes are normal. The umbilical and cremasteric are normal. The patellar, plantar, and tendo achillis are normal. The Oppenheim, Gordon and Chaddock are negative. No hernia. No cardiac or pulmonary abnormality. Lumbar puncture, Jan. 29, 1915: 5 c.c. clear fluid withdrawn. Blood for the Wassermann reaction.

CASE 9.—Lincoln State School and Colony. Male. Age 27 years. Mental age by the Binet-Simon scale, 5 years. Pupillary reactions to light and accommodation are normal. No strabismus. No corneal opacities. Chronic conjunctivitis. Tongue is fissured transversely. Hands are broad and short. No paralysis. Biceps and triceps reflexes normal. Umbilical and cremasteric normal. Patellar reflexes lively. Plantar and tendo achillis normal. Oppenheim, Gordon and Chaddock negative. No hernia. No cardiac lesion. Chronic bronchitis. Skin dry. Lumbar puncture, Jan. 29, 1915: 4 c.c. clear fluid withdrawn. Blood for Wassermann reaction.

CASE 10.—Lincoln State School and Colony. Male, 29 years of age. Mental age as determined by the Binet-Simon test, 4 years. Pupillary reactions to light and accommodation are normal. Convergent strabismus. No corneal opacities. Chronic conjunctivitis. Tongue slightly fissured. Hands broad and thick. No paralysis. Biceps and triceps reflexes normal. Umbilical and cremasteric normal. Patellar reflexes lively. Plantar and tendo achillis normal. Oppenheim, Gordon and Chaddock negative. No hernia. No cardiac or demonstrable pulmonary lesion. Skin dry. Lumbar puncture, Jan. 29, 1915: 5 c.c. clear fluid withdrawn. Blood for Wassermann reaction.

CASE 11.—Lincoln State School and Colony. Male. Age 10 years. Mental age according to the Binet-Simon test, 1 year. Pupillary reactions to light and accommodation are normal. Slight convergent strabismus. Small opacity of cornea of right eye. Chronic conjunctivitis. Marked trans-

verse fissures of tongue. Hands are broad, short, thick. No paralysis. Biceps, triceps, umbilical, cremasteric, patellar, tendo achillis, and plantar reflexes are normal. Chaddock, Oppenheim and Gordon are negative. No hernia. No cardiac lesion. Pulmonary tuberculosis. Skin is dry. Lumbar puncture, Jan. 29, 1915: 4 c.c. clear fluid withdrawn. Blood taken for the Wassermann reaction.

CASE 12.—Lincoln State School and Colony. Male, 27 years of age. Mental age as determined by the Binet-Simon test, 5 years. Pupillary reactions to light and accommodation are normal. No strabismus. No corneal opacity. No blepharitis or conjunctivitis. Tongue is fissured transversely. Hands are broad, short and thick. No paralysis. Biceps and triceps are normal. Umbilical reflex is normal. Cremasteric reflex is slow. Patellar reflex is active. Plantar and tendo achillis are normal. Oppenheim, Gordon and Chaddock are negative. No hernia. No cardiac or pulmonary lesion. Lumbar puncture, Jan. 29, 1915: 4 c.c. fluid withdrawn. Blood taken for Wassermann reaction.

CASE 13.—Lincoln State School and Colony. Male. Age 15½ years. Mental age as determined by the Binet-Simon scale, 4 years. Pupils react to light and accommodation. Divergent strabismus. No corneal opacity. Chronic conjunctivitis. Slight transverse fissuring of tongue. Hands are thick, short and broad. No paralysis. Biceps and triceps normal. Umbilical, cremasteric, patellar and tendo achillis normal. Oppenheim, Gordon and Chaddock negative. Umbilical hernia. Mitral regurgitation. Chronic bronchitis. Dry skin. Lumbar puncture, Jan. 29, 1915: 6 c.c. spinal fluid withdrawn. There was blood in the first tube. Blood for the Wassermann reaction.

CASE 14.—Psychopathic Laboratory, University of Chicago. Female Jew. Age 9 years. Mental age as determined by the Binet-Simon test, 3 years. Born at full term; weighed 9 pounds. Teeth came late. Walked at 4 years. Began to talk at 4 years. Had convulsions in infancy. Pneumonia at 4 years. Measles at 5 years. Scarlet fever at 7 years. Chronic bronchitis every winter. Cephalic index 80.9. Weight 18.8 kg. (Normal for her age 23.9 kg.) Height sitting 62.8 cm. (Normal for her age 68.32 cm.) Height standing 113.1 cm. (Normal for her age 125.24 cm.) Pupils are round, equal, react to light and accommodation. No strabismus. Tongue deviates slightly to the left, is fissured transversely. Epitrochlear gland on left side palpable. Heart tones are negative. Breath sounds are rough. Umbilical hernia. Biceps and triceps are lively. Umbilical normal. Patellar reflexes normal. Plantar, tendo achillis normal. Oppenheim, Gordon and Chaddock normal. Hands are short and broad. Thumb cut off obliquely. Hemoglobin 90 per cent. Lumbar puncture, June 16, 1914: 6 c.c. fluid withdrawn. Blood taken from arm for Wassermann reaction.

CASE 15.—Psychopathic Laboratory, University of Chicago. Male. Age 10 years. Mental age not determined by Binet-Simon test. Patient is the fourth child of a family of eight children. Opacity of cornea of right eye. Tongue broad, fissured transversely. Brachycephalic. Occiput flat. Hands thick and broad. Thumb cut off obliquely. No cardiac lesion. Lumbar puncture, June 23, 1914: 8 c.c. clear fluid withdrawn. No blood was taken for Wassermann reaction.

CASE 16.—Central Free Dispensary. No. 85515. Rush Medical College. Male. Age 15 years. Mental age not determined by Binet-Simon test. Uses few words, such as "Ma," "Pa," "Yes." Has never used sentences. Blepharitis marginalis. Old keratitis with central opacities of both corneas. Strabismus. Kyphoscoliosis. Head asymmetrical and short in anteroposterio diameter. Knee jerks decreased. No record of other reflexes. Lumbar puncture, May 19, 1914: 6 c.c. clear fluid withdrawn. Blood taken for Wassermann reaction.

CASE 17.—Oak Forest Infirmary, Oak Forest, Ill. Female, 2½ years. Spastic paralysis of legs and arms. Does not talk. Extremities cold and cyanotic. Lumbar puncture, Nov. 11, 1914: 4 c.c. clear fluid withdrawn. Blood not taken for Wassermann reaction.

CASE 18.—Oak Forest Infirmary, Oak Forest, Ill. Male, aged 7 years. Spastic paralysis. Lumbar puncture, Nov. 11, 1914: 4 c.c. clear fluid withdrawn. Blood not taken for Wassermann reaction.

CASE 19.—Psychopathic Laboratory, University of Chicago. Male, 8 years of age. Mental age as determined by the Binet-Simon test, 3 years. Cephalic index .82. Weight at birth 3 pounds. Double hernia at birth. Convulsions at 3 years. Anisocoria. Strabismus. Heart and lungs negative. Testes not present in scrotum. Triceps and biceps reflexes were not elicited. Abdominal and cremasteric reflexes absent. Very awkward in use of limbs. Very restless and occasional rigors. Typical mongolian thumb. Skin rough. Lumbar puncture by Dr. Peter Bassoe, Presbyterian Hospital, Jan. 23, 1914: 6 c.c. clear fluid withdrawn.

CASE 20.—Presbyterian Hospital, Chicago. Male, 6 years of age. Brother of Case 19. Mental age not determined. Very restless, irritable. Drools continually. Lumbar puncture by Dr. Peter Bassoe, Presbyterian Hospital, Jan. 23, 1914: 6 c.c. clear fluid withdrawn. Father known to have syphilis which was acquired before marriage. One child born dead preceded the two mongolians.

POLYDACTYLISM AS A HEREDITARY CHARACTER *

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Polydactylism is the occurrence of more than the normal number of digits on either the hands or feet. Usually there is but one extra finger or toe, but a

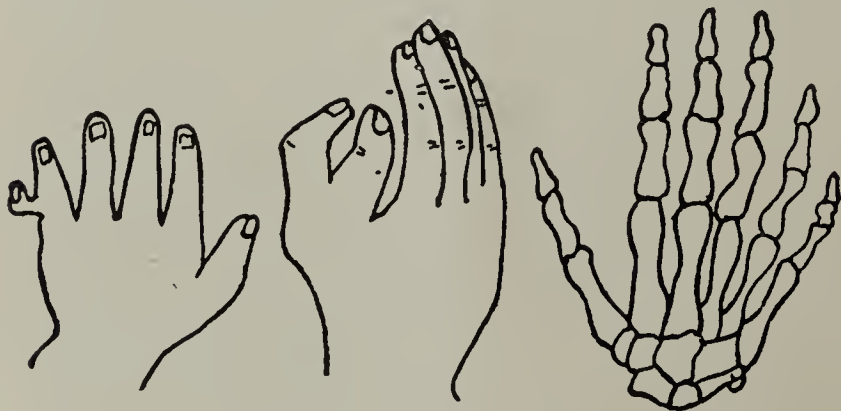


Fig. 1.—After Annandale.

far greater number have been reported; for example, one case with thirteen fingers on each hand and twelve toes on each foot, a number of cases with ten fingers and various others varying in the number of supernumerary digits down to one. All sorts of combinations may exist as to whether a single hand or foot is affected or a foot and a hand, etc.

Such a member may be rudimentary, in which case it usually amounts to little more than a fleshy tumor growing out from the side of the finger or toe to which it is attached, or else a well-developed digit having completely developed phalanges and muscles, articulating with the head or side of the metacarpal bone or phalanx of the normal digit to which it is attached. Not infrequently such a supernumerary digit has a separate metacarpal bone of its own which articulates with the bones of the carpus. Figure 1 illustrates the several forms.

Polydactylism is not a rare anomaly, and the following two cases occurring in one family are reported merely because they appear as a feature in an interest-

ing family tree which exhibits clearly the hereditary nature of this trait.

R. W., aged 30 months, and M. W., aged 16 months, are sister and brother and only children. R. W. exhibits, at present, five fingers on each hand, but at birth she had an extra little finger on each which, though fairly well developed, were removed. She has six good toes on each foot; there are only five metatarsal bones, the extra toe, in each instance, articulating with the head of the metatarsal bone of the fifth toe. The second and third toes of each foot are partially webbed.

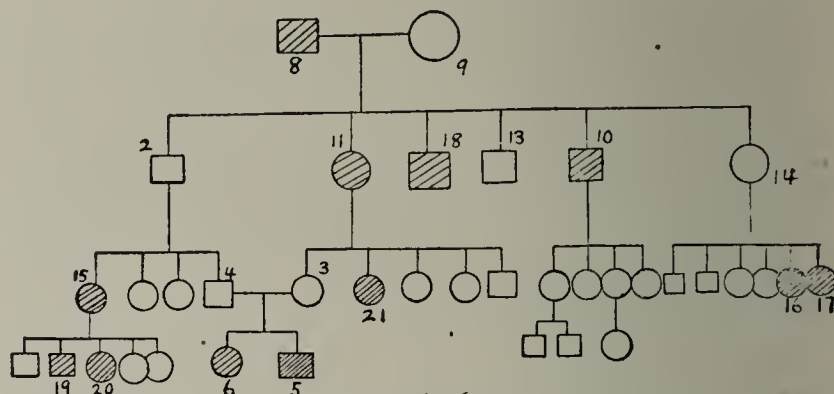


Fig. 2.—Squares indicate males. Circles indicate females. Shaded areas indicate affected persons.

6 had six fingers on each hand, fairly developed, articulating with fifth metacarpal bones; the extra fingers were removed. Has six good toes on each foot; five metatarsal bones, extra toes articulating with head of fifth metatarsal bone. Second and third toes partially webbed on each foot.

5 has six perfect fingers on each hand; six metacarpal bones on each hand; six perfect toes on each foot; five metatarsal bones in each foot.

8: Six fingers on each hand.

10: Six fingers on one hand.

11: Six fingers on one hand.

18: six fingers on each hand and six toes on each foot.

16: Six fingers on one hand.

17: Six fingers on one hand.

15. Six fingers on each hand, both rudimentary and removed. Has still a sixth toe on left foot, fairly good, articulating with head of fifth metatarsal bone.

20: Six fingers on right hand, very rudimentary and warty growth at head of the fifth metacarpal bone of left hand.

19: Exactly the same condition as 20.

21: Six fingers left hand, very rudimentary.

In all cases the supernumerary finger or toe is respectively ulnar or peroneal in disposition.

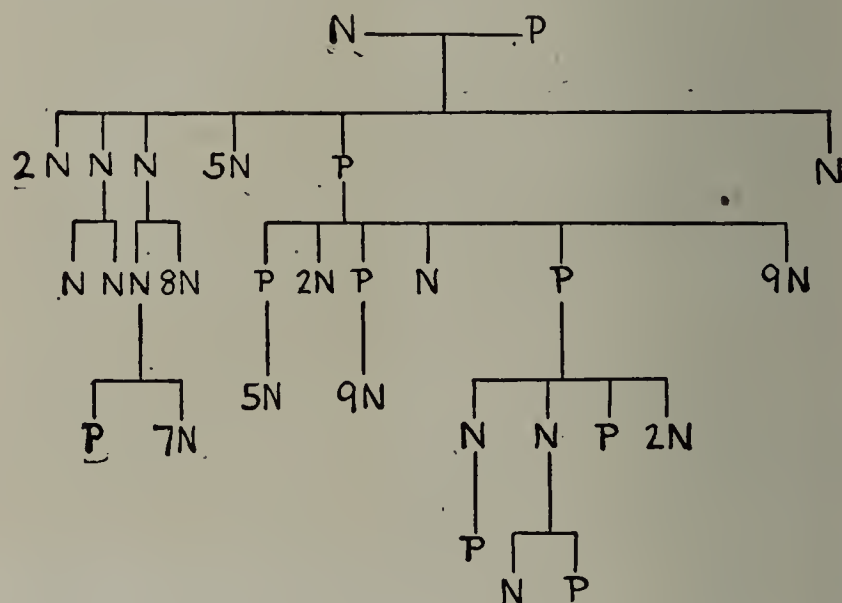


Fig. 3.—Struthers, July, 1863. N = normal; P, polydactyl.

M. W., aged 16 months, presents six perfect fingers on each hand, each having six metacarpal bones; he has also six very good toes on each foot, but only five metatarsal bones, the extra toe articulating with the head of the metatarsal bone of the fifth toe on each side.

Examination of the parents reveals neither extra fingers or toes nor evidence of such having ever existed. But the important fact, bearing on the present discussion, that the parents are first cousins is elicited. Reference to the chart of the family tree

* Read before the Harlem Medical Association, City of New York, May 5, 1915.

(Fig. 2) will serve to show which members of the stock exhibit the anomaly.

Before proceeding to a discussion of the chart and what deductions may be made from it, it may be well to review such of the essential features of the mendelian scheme of inheritance as bear some relation to the series under consideration.

The first proposition is that an inheritable character such as color, hair length or the number of digits may be labeled as either dominant or recessive according as it declares itself or else recedes from view in the offspring. For instance, in the mating of a pure black guinea pig with a pure white one, the offspring are all black, black color being dominant over white; or in the mating of horned animals with hornless, the offspring exhibit the hornless character. The character which declares itself was called by Mendel the dominant character, and the other which recedes from view, for the time being, the recessive.

It should be noted that dominance is an important but not an essential feature in mendelian heredity. Indeed, the behavior of a dominant character is often irregular, and this very meristic character, polydactylism, which we now have under discussion, is one which presents great variations in the expression of its dominance, if, indeed, it may be considered to be a dominant.

But it is the segregation of unit characters in the germ cell, called by Mendel "segregation," which is his important discovery. Take, for instance, an offspring of a pure black guinea pig and a white one: such an animal, though black, has received from the parents both the factor for producing white and the factor

for producing black offspring. But in any single germ cell of this animal the factor for producing white or that for producing black exists alone, never the two together. Some germ cells contain the black factor and some the white factor, but no cell contains them both. This is "segregation."

To proceed then: In respect to any unit character, such as height, there exist two allelomorphs, namely, tall and short, or in respect to color, say black and white, or in regard to horns, hornless and horned, and the factors for the production of any brace of these

pairs may both exist in any individual, being inherited from the parents, but the germ cells of such an individual will each contain only one of the opposed factors. Therefore, if a parent DR in composition mates with DR, we can have offspring DD or DR or RR; and depending on the make-up of the parents, it is easily figured what the composition of the offspring may be. The possibilities are:

DD with RR gives all DR.

DR with RR gives 1 DR and 1 RR.

DR with DD gives 1 DD and 1 DR.

DR with DR gives 1 DD, 2 DR, 1 RR.

DD with DD gives all DD.

RR with RR gives all RR.

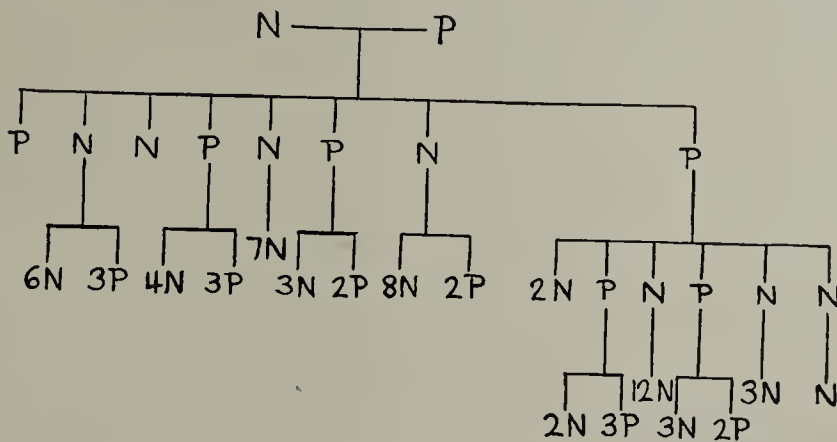


Fig. 4.—Fackenheim, 1888. N = normal; P, polydactyl.



Fig. 5.—Polydactylism in offspring but not in parents, who were first cousins. See Figure 2.

Polydactylism has been considered an irregular dominant to the ordinary five fingered condition: dominant because in transmission it has usually shown the character of a dominant trait; but irregular because from time to time normal individuals transmit the character without exhibiting it themselves, as will be seen by reference to Figures 3 and 4. This was also shown by Castle in his experiments with polydactyl fowl. Such a variation occurs in Figure 2 where 11 transmits the polydactylism through 3 to 5 and 6 without 3 exhibiting it, or 8 transmits through 2 and 4 to 5 and 6 without either 2 or 4 being affected, and similarly from 8 through 2 to 15 and from 8 through 14 to 16 and 17.

Let us assume, then, that polydactylism is dominant to the normal condition of five fingers and five toes, and consider the family tree in hand in that light.

Individual 8, DR in composition, mates with 9, RR in make-up. The offspring may be either DR or RR in kind; 10, 11 and 18 being polydactyl are obviously DR; 13 is possibly RR, but there are no children to determine whether he might be an irregular dominant DR. From appearance, 2 and 14 are RR, but from the fact that they both transmit the character to their young they must be labeled irregular dominants DR; 10 has children all recessive, apparently, and grandchildren of the same type RR, contrary to expectation but no departure from rule; 14, while not polydactyl, must be considered an irregular dominant DR, as two of her children, 16 and 17, are affected.

In the same manner the rest of the tree might be followed out, but it will be better to confine our attention to the ancestry of 5 and 6. The parents of these children, as stated before, show no evidence of polydactylism, but both 5 and 6, their only children (Figs. 5 and 6), are markedly affected. It should be noted that the parents are first cousins.

It is obvious that either 3 or 4 must be an irregular dominant DR, as the character, polydactylism, is trans-

To decide that polydactylism is a recessive unit character we need only assume that the dominant five fingered condition is but imperfectly dominant; in other words, that the recessive character is from time to time able to declare itself. In considering six fingers dominant we were obliged to accept the equivalent assumption. Finally, it may be suggested that if the history, by chance, had begun and ended with the record of the parents of the children, the parents first cousins and neither affected and the children both affected, the evidence would be considered favorable to proving polydactylism a recessive character.

In conclusion I would like to state that I do not suggest that this tree proves polydactylism to be a recessive character; I mean rather that the evidence is not convincing so far that it is dominant in nature.

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MULTIPLE CARTILAGINOUS EXOSTOSES —HEREDITARY DEFORMING CHON- DRODYSPLASIA

A BRIEF REPORT ON A LITTLE KNOWN DISEASE*

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During a recent service at the Children's Hospital there appeared a case which was rather puzzling as regards diagnosis. After some study I was able to classify it as an example of a disease little known in



Fig. 6.—Polydactylism in offspring but not in parents, who were first cousins. See Figure 2.

mitted to the children; indeed, it is more reasonable to suppose that each parent is DR in composition, and has contributed each a D to each child, making them both DD, which would account for the well-developed abnormality which they present. Other polydactyls in the tree being only DR in composition, we have the distinction in appearance between the homozygous or pure dominant DD and the heterozygous dominant DR. One other polydactyl in the tree, 18, did present twelve fingers and twelve toes, but his condition is not verified, as he died some years ago in Russia.

To sum up, then, on the assumption that polydactylism is dominant, we have three departures from mendelian expectation in 2, 3 and 14 transmitting the character without exhibiting it, or five variations if transmission through 2 and 4 to 6 is admitted. It should be remarked that such a skip from 8 through 2 and 4 is a notable departure in the behavior of a dominant character. A further fact to be borne in mind is that, leaving out 5 and 6, all the affected persons excepting 18 show but an incomplete development of the anomaly, in most cases but a single rudimentary toe and at most, in the case of 15, one extra toe and two very rudimentary fingers.

Keeping these facts in mind, it is worth while to examine the data on the assumption that the character might be recessive in nature. We are confronted at once by the following errors: The polydactylism should not appear in any person in the series with the exceptions of 5 and 6; in their case (5 and 6) with their parents, each DR in composition, they could receive a dose of R from each and thus, being RR, would exhibit the polydactyl character. All others, being either DD or DR in nature, should show the dominant five fingered state. Therefore we are obliged to meet ten departures from the rule; but let it be remembered that in every instance but one the polydactylism is very imperfectly developed.



Fig. 1.—Photograph of arms of a girl aged 11 years, showing characteristic deformity. Note shortening and curvation of forearms, bulging in the region of lower epiphyses, and projection of head of radius.

this country, which commonly goes under the obscure name of multiple cartilaginous exostoses. Further search brought to light roentgenograms of several other cases which represent the same affection. On the basis of this material I have begun an investigation of the condition, and later hope to present a thorough consideration of the subject. At this time

* From the Orthopedic Clinic of the Children's Hospital.

I shall simply call attention to the matter by presenting briefly some of the salient characteristics of the disease, with photographs and roentgenograms of this patient, and photomicrographs of a specimen taken from an affected epiphysis.

TERMINOLOGY

The names given the affection are varied and confusing. The term most generally applied in English



Fig. 2.—Nearer view of hands and forearm. Both hands are closed as tightly as is possible, on account of globular enlargements on fingers and metacarpals, some of which can be seen. The enlargement above the wrist and the deformity of the forearm are plainly visible.

is the one already quoted, which was established by Virchow, following the classification of Astley Cooper, who, however, knew nothing of the disease. Other terms used are: hereditary multiple exostoses, multiple cancellous exostoses, ossified diathesis and rhachitiform enchondrosis. In France it goes under various names, exostoses epiphysaires nombreuses, exostoses ostéogéniques multiples or héréditaires or familiales, exostoses juxta-epiphysaires or de croissance multiples, exostoses congénitales symétriques nombreuses, dyschondroplasia (Ollier), etc. The Germans, following Cooper and Virchow, at the present time adhere generally to exostosis multiplex cartilaginea, or its German equivalent, although some call it after the French, Wachstums-exostosen, and others add the term familiäre or hereditäre.

In an attempt to correct the confusion by giving the disease a more definite name, and one suggesting its true pathology, Kienböck in 1903 and 1910 called it chondral or exostotic dysplasia, and Boggs of John Hopkins, writing of a case in 1913, called it multiple congenital osteochondromata. The first name is not clinically descriptive, and the second is too suggestive of tumor or neoplasm.

The disease is a distinct clinical entity. Its chief characteristics, as will appear later, are:

1. The occurrence of multiple more or less symmetrical cartilaginous and osteocartilaginous growths within and upon the skeletal system, generally benign, and resulting from a disturbance in the proliferation and ossification of the bone-forming cartilage.

2. The occurrence of certain typical secondary distortions and deformities of the skeleton.

3. The demonstration of inheritance in a large proportion of the cases. Hyperostoses above the affected epiphyses are the rule, but true exostoses are less frequent, and of secondary consequence.

In short, the affection is a chondrodysplasia, of hereditary or at least congenital origin, accompanied by secondary deformities of the skeleton. Accordingly I shall call it hereafter hereditary deforming chondrodysplasia.

OCCURRENCE AND DISTRIBUTION

The disease probably occurs in man all over the globe, and there is evidence of a similar affection in animals. Although it is considered among the unusual conditions, it is far more frequent than most of us imagine. I have been able to collect over 300 articles on the subject, representing approximately 600 cases. Although the great majority of these are from Germany, France and England, in that order, cases have also been reported from Russia, Italy, Japan, Denmark, Norway, Holland, Bulgaria, Roumania, Ireland, Scotland, Galicia, Switzerland, Sweden, Egypt and the Argentines. In a series of 236 cases reported in readily accessible German, French or English articles since 1890, 60 per cent. were Germans, 27 per cent. were



Fig. 3.—Roentgenogram of right hand and forearm, anteroposterior and lateral views. Note the disproportionate lengths of the radius and ulna, and the curvature, chiefly of the ulna. The radius can be seen dislocated at both upper and lower ends. Note the abnormality of the epiphysal lines, most marked in the lower end of ulna, and least in upper end of radius. All the diaphysal ends show in varying degree the changes described in the text. (The photomicrographs which follow were made from a narrow section 2 inches long cut longitudinally through the affected region and across the epiphysis of the left ulna.)

Fig. 4.—Roentgenogram of right ankle, lateral view. The fibula is relatively much shortened and the end of the shaft shows a great deal of disturbance. The tibia is slightly affected. (This patient has a bad double valgus.)

French, 8 per cent were English, and other nationalities made up 5 per cent.

A total of about a dozen cases have been reported in America, by half a dozen authors. Four of these,

reported forty years ago by Gibney, were from a family of German immigrants, one reported by Leidy was of Irish birth, and the rest are given as American or not mentioned. The patient whose case is illustrated in the accompanying photographs is of French Canadian origin. That the incidence in this country is greater than these figures would indicate is suggested by the fact that since I began this study, four cases occurring in this community have been called to my attention.

It is interesting to note that in sex the males greatly predominate. Reinecke, writing in 1891, showed that in 163 cases in which the sex was given, the male outnumbered the female 3 to 1. In the 236 cases referred to, appearing since that date, I have found the proportion to be 5 to 2 in favor of the males. The proportion of females affected was much larger among the French and English (about 33 per cent.) than among the Germans (about 22 per cent.).

ilies; in two families it could be traced through four generations, in fifteen through three, in twenty-one in two generations. In two cases it was transmitted by an unaffected mother, two mothers had affected children by different husbands, and one father had affected children in two marriages. In two instances it was seen to skip a generation. It was found to be transmitted through affected males thirty-five times, and affected females twenty times. These figures correspond well with those of Gossage and Carling, who recently studied sixty-seven affected families.

The lack of demonstration of heredity in any given case may depend on the fact that the condition has been frequently found to exist without the knowledge of the subject, and that the affection may skip a generation and be transmitted by an unaffected female. There is no good evidence that an unaffected male can transmit the disease.

Other congenital conditions may accompany the affection, such as angioma, supernumerary fingers or toes, and microdactyly. There seems to be no special predilection for the first-born.

PATHOLOGY

A great deal has been written about the pathology of the condition, and some confusion regarding it exists at the present time. The reason for this is that most of the theories date from pre-Roentgen days, and that the attention of the pathologists has been directed toward the relatively unimportant exostosis, rather than to the intermediary cartilage at the epiphysial line, where the root of the trouble seems to lie. I have been fortunate in being able to get a specimen from across the epiphysial line in a young patient, and this has received careful study at the hands of Dr. Ash of the pathologic department of Harvard. There is no specimen of just this sort, I believe, on record.

The disease consists, in brief, of a disturbance in the process of proliferation and ossification at the intermediary cartilage during the period of skeletal growth. Wherever bone is being laid down in cartilage, there the disorder may occur; accordingly, it skips the membranous bones of the cranium and face. The process of cartilage cell proliferation, instead of being orderly, with an orderly zone of calcification, is exceedingly irregular. The

growth of cartilage is excessive, and the zone of proliferation and the end of the diaphysis are filled with masses of cartilage cells in irregular groupings, with some intermingling of marrow, and with here and there an imperfect effort at calcification.

Under the microscope the resemblance to chondroma is striking. This extends for some distance up the shaft, so that the end is usually ballooned out, with a thin irregular cortex, and in the roentgenogram it is greatly rarefied, so that it has much the same appearance as a cyst. The cartilage of course casts no shadow, and what little ossification there is shows up in fine strands running up and down and obliquely across the irregular cystic space. The Roentgen ray shows the epiphysis to be small or misshapen,

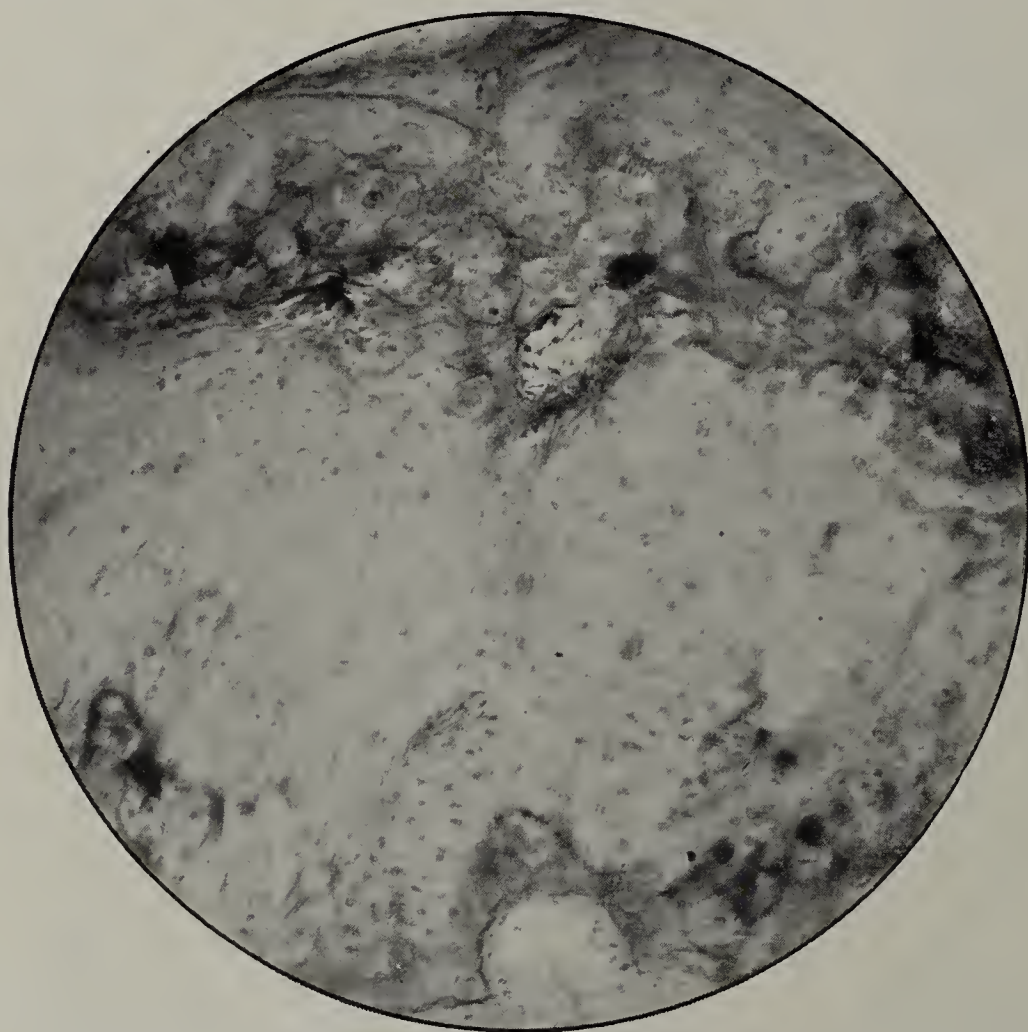


Fig. 5.—The epiphysial line, as seen with moderate magnification. Note the excess of cartilage cells, the irregularity of the cell columns, and the general disorderliness as compared with a normal epiphysis.

HEREDITY

The question of heredity in this disease is a large one, on which I can barely touch. The earliest writers recognized that it was transmitted by inheritance, and time and further investigation have substantiated this. It is now generally accepted that heredity plays the most important if not the only rôle in its occurrence.

Reinecke was able to find in the literature preceding 1890, much of it vague and uncertain, thirty-six families in which 172 cases occurred. Of these, 1 showed the disease in five generations, 2 through four generations, 15 through three, and 12 in two. In the 236 more recent cases already referred to, heredity was demonstrated in 176, no heredity was found in 18, and in the remaining 42 heredity was uncertain or not mentioned. Of these, 174 occurred in forty-two fam-

the intermediary cartilage narrow, irregular, oblique or zigzag, and sometimes prematurely ossified.

Scattered along in the thickened and hyperactive periosteum of the end of the shaft are to be found clumps or nests of cartilage cells, persisting uncalcified where they were left in the process of growth. These groups may develop later into cartilaginous exostoses or chondromas.

Accompanying this pathologic picture there are certain secondary and characteristic skeletal deformities, more marked of course as the child grows older, and consequent on the retardation and faulty line of growth. A shortness of stature is practically constant. The patients are always medium height or below, and sometimes they are so dwarfed as to resemble a cretin. Curiously enough, the lack of growth is in the legs, and not the trunk, and the longitudinal center of the body will be found not at the pubes, but some distance above it. The upper limbs are also short. This retardation is always, within certain limits, symmetrical.

Next most characteristic is a relative shortening of the ulna. The radius is usually less affected than the ulna, and its growth in length is accordingly less defective. It outstrips the ulna in its development, and something has to give way. Usually the radius dislocates at its upper end, and protrudes under the skin in the region of the external condyle, which is atrophied or underdeveloped. This condition has frequently been miscalled "congenital dislocation of the radius." Less frequently the radius dislocates at the carpal end, throwing the hand way over to the ulnar side, so that it may even stand at right angles to the forearm. Once in a while the interosseous membrane gives way, and the radius bows outward without dislocating at either end. In rare instances the relation between radius and ulna has been found reversed.

Other characteristic deformities, which I shall merely mention, are a high grade pes valgus, depending on a disproportionately greater retardation in the fibula than in the tibia, and knock-knee. Rarely the reverse deformity, varus, has been noted. Scoliosis, which is probably secondary to some relatively slight asymmetry in the growth of the legs, is not uncommon. Irregular and jagged hyperostoses are frequently found about the affected epiphyses in the adult, and occasionally an exostosis on the shaft of a long bone.

Beside the limbs, we find the pelvis and scapula frequently affected. The pelvis is likely to be encroached on or deformed to such a degree that it endangers life in childbirth. Drescher's patient, for instance, died, and the baby was found to be affected. Tumors of the scapula develop to such size that a considerable depression is made in the chest, involving three or more ribs. The ribs themselves often show exostoses, and sometimes synostoses, developing from the head, angle or costochondral junction. Here we commonly have a well-defined rosary. The clavicle and the spine may show outgrowths as well. On the head, exostoses sometimes appear on the lower jaw or

about the base of the skull. The most typical occurrence here is at the spheno-occipital junction, small outgrowths (ecchondrosis spheno-occipitalis, Virchow) being found at this point in most necropsies on chondrodysplastic subjects.

ETIOLOGY

Hereditary deforming chondrodysplasia is to be classified roughly with rickets, fetal chondrodystrophy, osteomalacia, osteogenesis imperfecta, dwarfism, gigantism, acromegaly and cretinism. It has frequently been confused with myositis ossificans. Various theories as to its origin have been held, but most of them have not been found tenable for long. That it should have been considered secondary to rickets, as it was by Virchow and by many before and after him, is not surprising in view of the nature of the bony deformities. The microscopic changes are totally unlike.

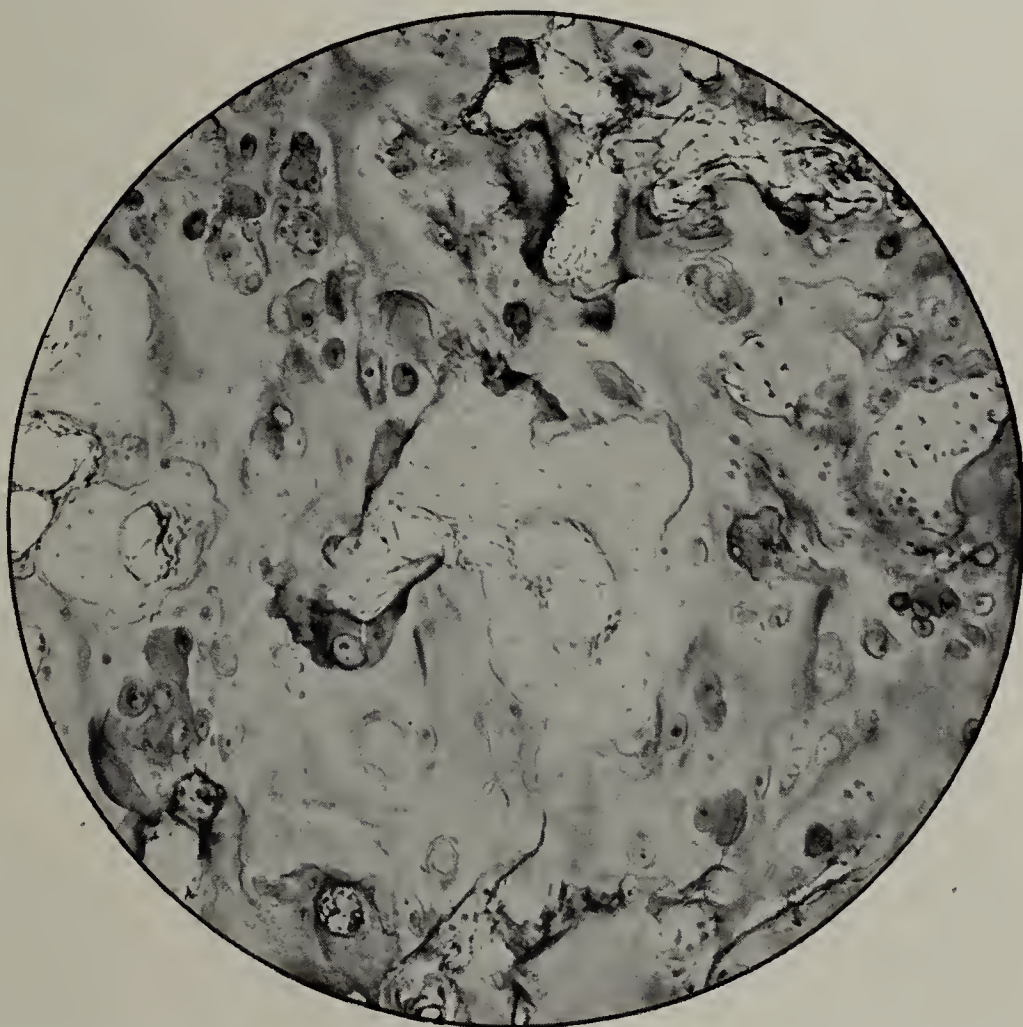


Fig. 6.—High power view of epiphyseal tissue. Bone is being laid down on irregular cartilaginous trabeculae. The cartilage is in great excess, and the cells are atypical in arrangement. Calcification is irregular. Note the mitotic figures.

The thyroid has been blamed for the condition, partly because its chief area of occurrence lies within nearly the same geographic lines as does the center for cretinism. In a few cases there seems to have been coincident thyroid changes in the patient or his family.

Tordeus considers it a trophic disturbance, depending on disease of the central nervous system, and a few cases have shown coincident degenerative conditions of the central nervous system.

The condition has been called infective, because in a few cases the appearance of bony growths has been preceded by febrile attacks, with rheumatic pains.

The syphilitic theory has been generally discarded. As much cannot be said, however, for its association with tuberculosis. Pissavy goes so far as to say that

he has found tuberculosis noted in forty of 100 cases, and in the antecedents of forty-three. This association, at any rate, seems common enough, whatever its significance.

Finally we come to the now well-accepted view of the inheritance of a faulty anlage for the bone-producing intermediary cartilage.

SYMPTOMS AND COMPLICATIONS

The condition is a developmental one, and the hyperostoses, deformities and exostoses increase on a parallel with skeletal growth. With the cessation of skeletal growth, or at about 22 years, they become stationary. In rare cases slight regression seems to have taken place. Except for the unusual cases with febrile attacks, noted above, there are no symptoms, and many persons have been rounded up—relatives of patients who have come under observation—who never knew they were affected. Even with considerable deformity, function is usually good, although a bad valgus is likely to be troublesome. Occasionally a large hyperostosis will impede the action of the adjacent joint, or a pointed exostosis cause pain on certain motions. Cases have been cited of perforation of bladder and of pregnant uterus by pelvic exostoses.

In many cases the bony projections are provided with bursae. They are subject to all the affections of bursae, such as suppuration, and this may lead to secondary necrosis of the exostosis. Sometimes they contain many loose bodies, like joint mice. Or bony projections may fracture from trauma, and remain movable, or reunite. There are seven cases on record in which, as the result of trauma (often mild), a large

The most frequent and the most serious complication is the development of a rapidly growing or malignant osteocartilaginous tumor in persons afflicted with this disease. Lenormant and Lécene in 1905 collected twenty-four cases of this nature, most of them fatal, and I have found in the literature about a dozen more. This would figure about 5 per cent. of the total number of reported cases. The ages at which this development has been noted lie between 11 and 59, but it usually

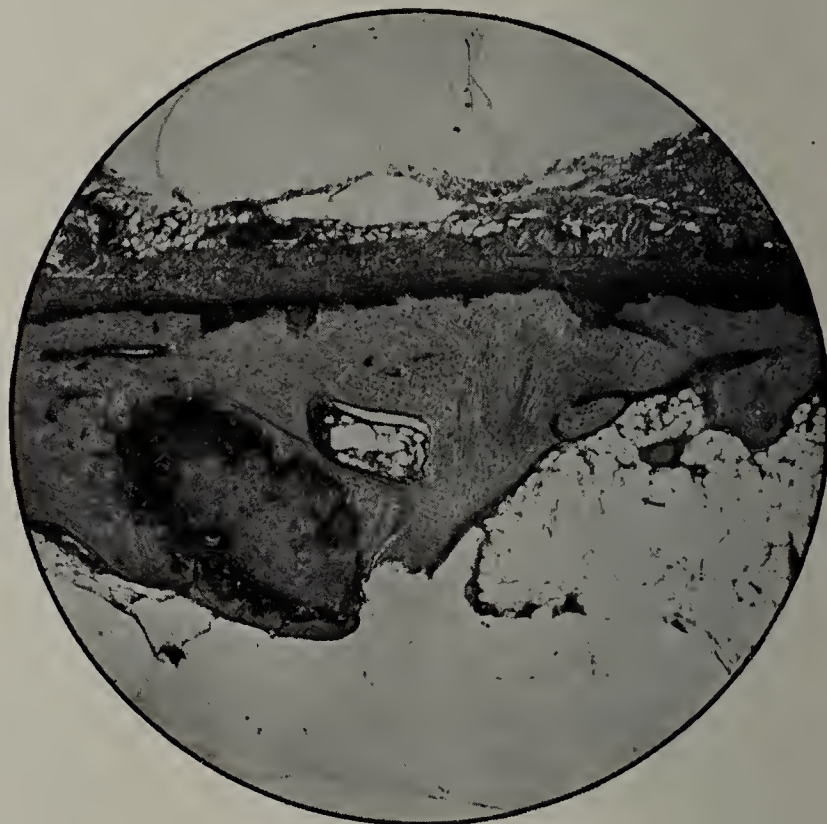


Fig. 8.—Low power view of cortex more than an inch from epiphysal line. Note the cartilage inclusion in the thin cortical layer; the bony growth enclosing the island of cartilage projects into the marrow space and not externally.

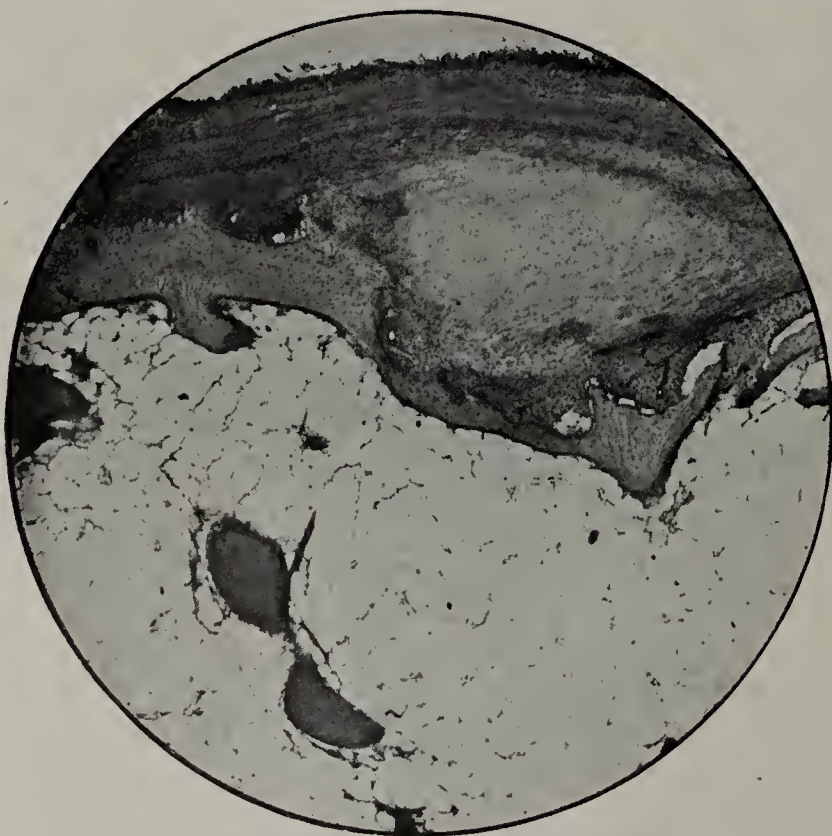


Fig. 7.—Low power view of cortex and periosteum one-half inch above epiphysal line, showing an island of cartilage in the periosteum. The cortical bone is abnormally thin, the periosteum is thickened, and its osteogenetic layer shows an apparently increased activity.

artery (usually the popliteal or femoral) has been torn on the apex of a bony outgrowth, causing an aneurysm. I have found two cases on record of paralytic club-foot from involvement of the peroneal nerve in a hyperostosis, one of fatal spastic paresis from bony growths in the spinal canal, and a few questionable cases of intracranial growths.

occurs soon after skeletal growth has ceased, or between the ages of 25 and 35. Any increase in an exostosis after the cessation of skeletal growth should be treated with suspicion, and surgical steps at once taken. Excision should be carried well into normal cortex and medulla.

Beyond this, treatment is indicated only when the removal of a bony growth will facilitate joint function, or when an osteotomy will correct a disabling deformity. Bony operations for corrective purposes may conservatively be postponed until skeletal maturity.

362 Commonwealth Avenue.

Definition of Condensed Milk, Evaporated Milk, Concentrated Milk.—The Joint Committee on Definitions and Standards of the American Association of Dairy, Food and Drug Officials, the Association of Official Agricultural Chemists, and the United States Department of Agriculture, on Nov. 20, 1914, adopted the following definition and standard for condensed milk, evaporated milk, concentrated milk:

"Condensed milk, evaporated milk, concentrated milk, is the product resulting from the evaporation of a considerable portion of the water from the whole, fresh, clean, lacteal secretion obtained by the complete milking of one or more healthy cows, properly fed and kept, excluding that obtained within fifteen days before and ten days after calving, and contains, all tolerances being allowed for, not less than 25.5 per cent. of total solids and not less than 7.8 per cent. of milk fat."

THE CELLULOID TUBE IN FINGER INJURIES

ITS USE IN ADDING LENGTH TO THE TERMINAL PHALANX AFTER TRAUMATIC LOSS OF TISSUE *

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When a partial traumatic amputation of the terminal phalanx of a finger takes place, one of two conditions is found: Either the part is cut away clean with little damage to the remaining portion, or the part is crushed off and the tissues adjacent to the amputated portion are more or less traumatized.

After the ordinary healing by granulation, we often find a sensitive stump in which the bone is covered only by a thin scar.

The question arises as to the best method of early treatment, especially when the bone is exposed.

In order to obtain a good functional result we must contrive to place a pad of tissue over the bone. This may be done rapidly and satisfactorily by shortening still more the exposed bone and closing the soft parts over it, but this method gives a shorter stump.

In certain occupations the loss of all or a portion of the terminal phalanx of a finger is a matter of considerable economic importance to the skilled worker. It is often advisable to preserve the remaining length of the finger, and if possible to replace the loss of tissue, thus giving a more

The advisability of tissue transplantation suggested itself at once, and the method of utilization of pedunculated flaps from the chest or abdominal walls to replace the loss was considered.² This method, however, can be carried out only in the hospital, as constant supervision of the patient is essential on account of the irksome position necessary.

The majority of the patients with these injuries are treated in the outpatient department, so a method must be used which would give good results without the necessity of admission to the hospital.

The most promising procedure seemed to be that of stimulating the growth of granulation tissue on the end of the stump, and in some way to confine the growth to the desired size and direction.

In searching for means to accomplish this I thought that a stiff non-adhesive material which could be wrapped around the finger would be satisfactory. After a number of experiments, I found that sheet celluloid $\frac{1}{200}$ inch thick would be best for the purpose. This material was transparent and could be cut in a pattern which, when rolled, formed a tube adjustable to the size of the finger.³

TECHNIC

The stump is painted with tincture of iodine. The shaped piece of celluloid, after being soaked in mercuric chlorid, 1:1,000, for a sufficient time, is sponged off with ether or alcohol. It is then wrapped around the finger and secured with narrow adhesive strips, thus making a tube which is slightly smaller at its free end than at its base. When the tube is properly adjusted, it will hug



Fig. 1.—A, a convenient pattern by which to cut the celluloid; B, the celluloid tube in place, partially filled with a blood clot; patient seen shortly after accident. C, after removal of tube; the line of the amputation can be seen, and above it the molded clot: Note the snug fit of the tube in B, and the clearness with which the skin can be seen through it.



Fig. 2.—A, end view of finger stump; celluloid tube applied twenty-four hours after accident. B, three days later; note clot. C, fourteen months after accident; the wound was healed in thirty-five days.

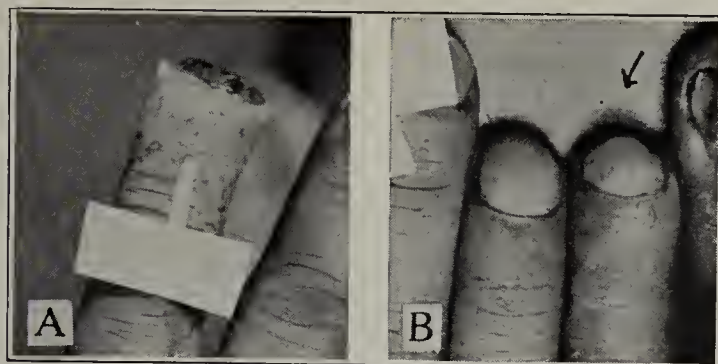


Fig. 3.—A, finger stump four days after accident, before application of celluloid tube. B, finger ten and one-half months after accident; the healing was complete in thirty days.

useful and less painful stump, and at the same time one which is less disfiguring.

After seeing quite a number of these cases, it occurred to me that some simple procedure might be devised by which this object could be accomplished.¹

* From the Surgical Outpatient Department, Johns Hopkins Hospital.
1. One should always replace the amputated portion unless it is too much traumatized, or unless a period longer than three or four hours has elapsed between the time of the accident and the first treatment. This procedure is attended with little danger, and if the replaced portion does not regain its vitality, it can be easily removed and the building up process then inaugurated.

closely the edge of the wound, and will gradually become larger until it impinges on the first interphalangeal joint. The celluloid may extend as far beyond the finger tip as is needful, and in addition to its primary function, it also serves as a splint for the finger and as a protection to the wound.

2. Tietze: Deutsch. med. Wchnschr., 1898, p. 278. Kausch: Ibid., 1909, p. 2146; 1911, p. 283. Payr: Ibid., 1910, p. 781. Klapp: Ibid., 1912, p. 1569.

3. G. W. Meil (Denver Med. Times, January, 1910, p. 273) advised in partial traumatic amputations of the terminal phalanx that the granulations be stimulated and then molded by means of adhesive plaster.

In cases seen early, a blood clot is allowed to form in the tube. This clot serves as a scaffold for granulations. If the soft parts are lacerated and spread apart, they are gathered together and held in place by the tube.

In those cases which are seen after the granulations have started, every effort is made to stimulate their growth, and to train this growth along the tube.

Any desired medication may be applied to the wound after the celluloid is in place, either by pouring it into the tube, or by packing the tube with gauze. The dressing in this way comes in contact with the wound, and is confined by the tube. A loose gauze plug is then placed in the mouth of the tube, and over all a small dressing secured by a bandage.

SUMMARY OF CASES

Number: Fifteen cases, males, 13; females, 2.

Ages: From 16 to 50 years.

Color: White, 13; colored, 2.

Occupation: Operators on machines, 15.

Etiology: All were injured in machines.

Situation: Right forefinger, 5; left forefinger, 4; right middle finger, 2; left middle finger, 3; right thumb, 1.

Duration of lesion before coming under my care: From one hour to twenty-six days.

Amount lost: From 0.75 cm. of the tip to the entire terminal phalanx.

Amount gained: From 0.5 to 1.25 cm.

Type of lesion: The nail was involved in all. In two there was some loss of tissue, the remaining soft parts of the terminal phalanx being mushroomed out and badly crushed, although still attached to the finger by pedicles. In neither of these was the bone involved. In thirteen the amputations were more or less clean cut, with little crushing of surrounding tissues, and in all of these the bone was involved. In ten of these the lesion involved more of the dorsal than of the palmar surface. In one the skin was involved equally on both aspects of the finger, and in two the lesion involved slightly more of the palmar surface.

Treatment: The celluloid tube was used in all in addition to stimulation. In one in addition to the foregoing small deep grafts were used to hasten healing.

Duration of treatment: Entirely healed after 10, 21, 24, 26, 28, 29, 30, 33, 34, 35, 36, 38, 39, 45 and 66 days, with an average of 33 days. The cases taking the greater number of days before healing were those in which the wounds were seen late, and which were prevented from prompt healing in order to give more length to the stump.

Results: There is increase in length of the soft parts in all, and in four instances slight increase in the length of the bone.

There is not a single painful stump in the series. The pad of tissue over the bone is quite movable, and soft in all. Voluntary flexion of the terminal phalanx is excellent in all, even when only a small amount of the phalangeal bone remained.⁴

REMARKS

The accident may be caused in many ways. In this series they were all caused by presses of one sort or another.

The tissue loss of the terminal phalanx varied from only the soft parts to that of the entire phalanx.

The lines of section were in varying directions, but the involvement was usually more on the dorsal than on the palmar surface.

There was no retraction of the edges, the sections being as though cut through a banana or a sausage.

The comparative value of the different fingers varies with the occupation, but it may be safely stated that the thumb, the index and the middle fingers are the most generally useful. The method is simple and the patient can return to his home at once, and do light work after a short time.

A very small gauze dressing around the celluloid

suffices. Any jar on the end of the tube is transmitted to the finger behind the wound, much as is the case in an artificial limb, where the weight-bearing portion is not on the end of the stump, but on the normal tissue above it.

The granulations may be observed through the transparent celluloid without its being necessary to remove the tube.

There is sometimes sweating of the skin of the finger if the tube is allowed to remain in place for longer than two or three days. The tube may be easily removed, as it does not stick, and after cleansing, it may be replaced, or a fresh tube adjusted.

The thickness of the granulating area can be stimulated by various means. As

the granulations grow, the epithelium from the skin edge also grows, and often it is difficult to prevent it closing over the stump before the desired length is obtained. In these instances the epithelial edges should be retarded with silver nitrate.

4. The celluloid tube has also been used with success as a protective dressing for other lesions of the terminal phalanx, such as compound fractures, lacerations, etc.

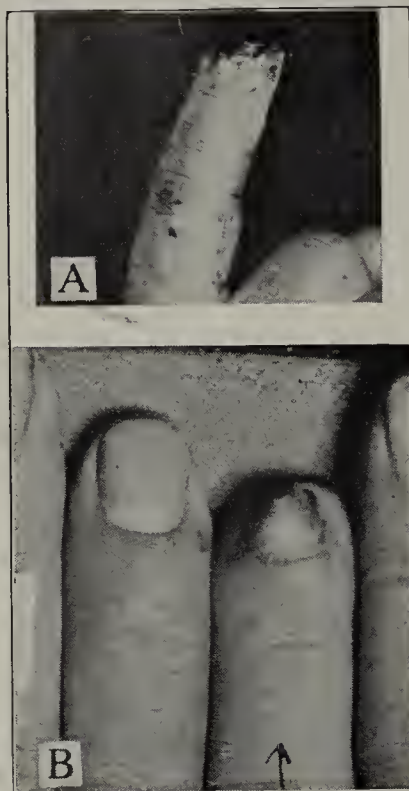


Fig. 4.—A, finger stump two weeks after accident, before treatment with celluloid tube was begun. B, fourteen months later; the wound healed in twenty-eight days.

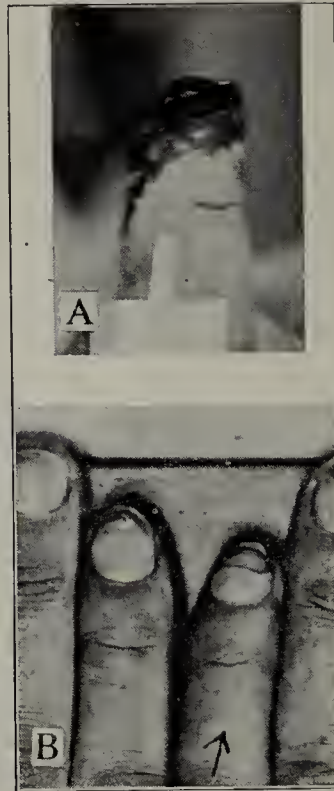


Fig. 5.—A, finger stump five days after accident, before treatment; B, finger three and one-half months later.



Fig. 6.—A, finger stump with molded blood clot, five days after application of celluloid tube. B and C, nine months after accident; the wound was healed in thirty-six days.

In some cases when the granulations are sufficiently advanced, it is advisable to cover them with small deep grafts, in order to give a more stable and quicker healing. It might have been better to have grafted more of this series.

The cases seen soon after the accident give the best results as far as increased length is concerned.

Building new tissue on the end of the stump is slow, but in the end it will preserve the bone which remains, and cover it; and will also often add materially to the length of the stump. If the joint is uninvolved, even a short bit of terminal phalangeal bone will form the basis for a shortened terminal phalanx, which may be voluntarily extended and flexed, and can be used nearly as well as an intact terminal phalanx.

From the standpoint of function, increased length and improved appearance, the results have been better than with any other method with which I am familiar.

1200 Cathedral Street.

SUBCONJUNCTIVAL INJECTIONS OF SALVARSANIZED SERUM IN OCULAR SYPHILIS

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In a paper published about a year ago, Dr. W. H. Hough¹ made the following statement:

That the organisms have not been found as a rule near the blood vessels, but generally in the gray matter at some distance from them, and that salvarsan appears to have a greater predilection for most of the other tissues of the body than it has for nerve tissue, as Uhlmann has shown in his studies of the neurotropic action of this chemical, may explain in part the inefficiency of salvarsan administered intravenously in the treatment of these conditions.

The close analogy of the ocular circulation to that of the brain suggested to me a reason for the pathology of ocular syphilis that had not heretofore, to my knowledge, been applied in ocular therapeutics. Because of the terminal feature of the ocular circulation, the spirochetes were able to take such a position in the eye as to protect themselves from the blood stream and thus escape, as far as possible, the power of the blood and of measures therapeutically applied. I thought that if salvarsan could be directly brought into contact with the organism, the chances for cure would be much greater. It had been previously shown by experiment that the injection of solutions of salvarsan into the spinal canal had been productive of destructive changes, and it was inferred that the use of such solutions in the eye was inadmissible. The marked benefit and absence of untoward results that followed the use of salvarsanized serum in cerebrospinal use determined me to apply it subconjunctivally in ocular syphilis.

CASE 1.—The first case was that of a chorioretinitis with pigment proliferation in the macular region.

R. P., chauffeur, aged 28, had an initial sore about five years before admission to the George Washington Hospital in November, 1913. Two years previous to admission, while living in the country, he had had an inflammation in the right eye that practically destroyed vision in that eye. It was a specific chorioretinitis, central, and destroyed the entire

macular region. On admission he presented a central chorioretinitis of the left eye with beginning pigment proliferation. Vision was 6/60. An immediate Wassermann was double plus. The patient was given salvarsan intravenously and Hough prepared serum, four doses of which were given subconjunctivally at intervals of two days. He left the hospital in two weeks from admission with vision 6/12 plus, the pigment proliferation arrested and diminished and the general inflammatory reaction altogether subsided. He was seen several months later and vision was then 6/9 in that eye.

CASE 2.—The second case was a child, Mary A., aged 6, with an interstitial keratitis. In this case congenital syphilis was diagnosed, as the mother had previously been treated for nasal syphilis in the same hospital service. She was first treated early in November by two subconjunctival injections of serum. Being a very refractory child, the mother not being able to control her, serum was given to the mother and used by dropping directly into the eye. This was carried on without difficulty and seemed to produce good results, the infiltration clearing quite rapidly, and at the end of four weeks was but faintly seen on oblique illumination. The mother then discontinued her visits, so that the final outcome is not known; but the rapid clearing of the eye in this case gave a fair presumption that the serum is much more rapid in its effects than the old methods of treating interstitial keratitis.

CASE 3.—A third case, the records of which cannot be found, was an old disseminated choroiditis, in which the patient had had several doses of salvarsan with but little improvement in vision. Three or four doses of serum were given, which improved vision one line. The patient then drifted away from the dispensary service, so that no further information could be obtained.

An important consideration in conducting these tests was to establish the advisability of using the serum subconjunctivally. It was found that there was no more reaction from the serum than from ordinary salt injections: that it was rapidly absorbed and did not cause any great pain or inconvenience. The marked improvement which the injections seemed to promise determined me to present the matter to my colleagues of the Washington Society of Ophthalmologists, Dec. 19, 1913. Following this presentation, Lamb took up the work in his service at the Freedman's Hospital, rich in clinical material of this character. From the report of his experiences² the following quotations are selected:

A third case of double plastic iridocyclitis of both eyes had been treated for three weeks when I saw him. The right eye had posterior synechiae; the left eye had marked posterior synechiae with a gumma, which was a very, very large one. The first injection cleared the right eye of the posterior synechiae, the left was partially benefited and the second and third injections improved the left eye, which finally healed, inflammation having subsided, with adhesions between that portion of the iris which had been gummatous and the anterior capsule of the lens.

He mentions a case of interstitial keratitis which was cured within three and one half months, whereas other methods take a year or more. He also says, "These cases, which resisted all the drastic measures, including the injection of salvarsan, should be sufficient to illustrate the efficacy of the treatment." Dr. A. H. Kimball has used the treatment on a number of patients at the Episcopal Hospital with uniformly good results. No report of his experiences has been published.

In the discussion following Lamb's paper before the District of Columbia Medical Society, Hough stated that the researches of Ehrlich and others have shown

1. Hough, W. H.: Intraspinal Injection of Salvarsanized Serum in the Treatment of Syphilis of the Nervous System, Including Tabes and Paresis, *THE JOURNAL A. M. A.*, Jan. 17, 1914, p. 183.

2. Lamb: *Washington Med. Assn.*, March, 1915.

that salvarsanized serum has a distinct spirocheta-cidal power, a power greater than that exercised by salvarsan itself.

It is believed from the work that has been done that the procedure is safe and entirely justifiable logically; that it brings the serum into direct contact with the location of deposit of the spirochetes in the eye, and therefore marks a step forward in ocular therapeutics.

1545 I Street, N.-W.

HYDROTHERAPY IN THE TREATMENT OF MENTAL DISEASES

ITS FORMS, INDICATIONS, CONTRAINDICATIONS AND UNTOWARD EFFECTS

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The forms of hydrotherapy available are ordinary sponging (cold or tepid), hot packs, cold packs, enteroclysis, hypodermoclysis and the free use of water internally. Hot packs and cold packs are especially advantageous in those conditions in which the tubs, cabinets and sprays are contraindicated. They are exceedingly useful in the extramural treatment of the insane, and possess unusual advantages in the intramural treatment of the various psychoses. The free use of water by mouth is indicated in all forms of insanity. Enteroclyses as well as hypodermoclyses are especially advantageous in the treatment of all cases showing exhaustion, excitement or depression. Swimming pools are useful for exercise and diversion.

METHODS OF ADMINISTRATION

Many hospitals overlook the free administration of drinking water in the treatment of these diseases. In order that the patient may receive the necessary amount of water, the physician in charge should prescribe the amount desired, just as he would the use of drugs. Every physician who graduates from a recognized school at this epoch is certainly familiar with the application of cold and hot packs, the time and length of application depending on the physical condition of the patient, the effect desired and results obtained.

One should be very guarded as to the class of insane for which he prescribes cabinet sweats. This form of treatment is indicated primarily in all those cases which show signs of autointoxication, regardless of their psychoses. The contraindications are marked physical deterioration, advanced circulatory disturbances, renal diseases, etc., as well as a disturbed condition of the patient.

This treatment should always be given by trained nurses or skilled attendants, well versed in the operation of the cabinets as well as in the interpretation of physical symptoms. Aromatic spirit of ammonia should be close at hand, an ice cap applied to the head, and water given freely during the time of sweating. Perspiration usually becomes profuse at the expiration of about ten minutes, and here the patients should pass immediately into the shower for subsequent sprays in order to avoid catching cold. Cabinets should be well protected, all heat pipes or frame work properly protected, and doors to the cabinets should be such that they can be opened quickly. The neck should be well

covered, and a large towel should enclose the patient's lower body in order that the procedure may be done as modestly as possible.

CONTINUOUS BATHS

In speaking of continuous baths one naturally infers the warm bath, a bath which does not drop below 88 or exceed 100 F. I know of no condition other than physical impairment which would prevent the use of continuous baths; they can be used in cases of depression as well as marked excitement. Aside from their therapeutic effect they have a moral influence over certain incorrigible patients. Incorrigibility itself is not an indication. The bath may be administered in several forms; tubs may have separate regulators, but preferably, one central stand should be the control. Patients may be given the freedom of the bath or they may be restrained, depending on the nature of the case as well as the therapeutic result desired. To my mind, if the nonrestraint form of bath is to be used, it would be preferable to have swimming pools erected for this purpose whereby the patient can have freedom of movement and mental diversion as well as freedom from restraint. The continuous tubs are to be used for cases requiring active therapeutic medication.

The majority of patients for whom the baths are prescribed in the Philadelphia Hospital for the Insane usually receive the restraint form of treatment, because they are usually of the most violent classes, in which a quick relaxation is desired. This restraint may be accomplished by a swinging hammock suspended in the tub with an ordinary restraining sheet superimposed and the head well protected with a rubber ring, with the patient sufficiently high in the tub to prevent strangling. We have found that in placing the patient in the tub, if he is given a dose of Epsom salt, a relaxation is quickly obtained; a simple bandage applied to the eyes and ears to shut out external stimulation also has given good results in this particular class of cases.

Our experience teaches us that a bath of short duration at frequent intervals has more advantages than a prolonged bath of days or weeks.

UNTOWARD EFFECTS

The effects of tub baths at times are disastrous, particularly if the nurse in charge is derelict in her duties, or the hot water regulators should become unmanageable. The most unfavorable which we have had in this institution were eczema, particularly if the patients were given a long period of continuous treatment. Other serious effects were heat stroke and heat exhaustion.

When the plant was first installed, a few of the patients developed an eczematous condition of the skin. Within the past five years we have had no untoward results except in two cases which are here briefly enumerated:

CASE 1.—A patient was admitted to the hospital suffering from insanity in which there was marked psychomotor restlessness; all means to secure relaxation had failed and the tub bath was prescribed; at the time he was placed in the tub his physical condition was good and there were no contraindications; the attendant in charge of the patient was skilled in his work. Suddenly, during the course of the treatment (after only a few hours), the patient became pale and prostrated; he was immediately removed from the tub, placed in the ward and a physician and graduate nurse summoned, who rendered all medication possible. The patient's temperature was not elevated abnormally, the pulse was rapid

running, and the respirations were increased. He died during the night from heat exhaustion.

CASE 2.—A patient (of Dr. Abramovitz) was admitted to this department suffering from insanity (mania) in which there were periods of psychomotor restlessness, and on previous occasions he had received the tub treatment without any untoward effects. Suddenly, when in the tub (after only a few hours), he became prostrated. He was immediately removed from the tub and placed in the ward, the physician and graduate nurse summoned, and all medication possible rendered. His temperature was elevated, pulse rapid running and the therapeutic treatment given was one usually prescribed for heat stroke. The patient received stimulation hypodermically, cold water by bowels, and ice compresses until there was a response, at which time the application of cold was replaced by the application of heat; hot water bottles and hot enemas were given. The patient made an uneventful recovery so far as heat stroke was concerned.

SHOWERS AND SPRAYS

The showers and sprays are particularly advantageous in cases of depression, such as melancholia, praecoxes, neurasthenias, etc. The rain sprays and especially the Scotch douche have a tendency to arouse these patients from their stupid state. We use the showers and sprays more in this hospital than we do the continuous baths, for here we have freedom of restraint, exercise and mental diversion; the tubs, like certain drugs, are used only when distinctly indicated.

LOCATION OF HYDROTHERAPY PLANT

In visiting the various state hospitals and hospitals abroad, I could not help being struck with the location of many of the hydrotherapy plants. Some were located off from the main buildings, which necessitated carrying the patients to and fro on stretchers with all the subsequent exposure to heat or cold. Some were installed in basements, some in close proximity to one department, absolutely slighting the other sections.

In our own institution a handsome outfit, of its day, was located in close proximity to the neurologic infirmaries and acute receiving wards of the insane department, which was an excellent idea. The female division, however, was on the opposite side of the quadrangle, which necessarily meant carrying all patients across the yard for their baths and subsequent stretcher cases to their receiving ward. The receiving ward was badly located, being in the third story, in which were dispersed cases of all descriptions. An effort was made to transfer the acute receiving ward of the female section so that it would be adjacent to the hydrotherapy plant; in carrying out such a scheme we were successful, and at the present time we have the acute male and female receiving sections in close proximity to hydrotherapy; in fact, a bed can be wheeled from either ward into the continuous bath room without exposure. One cannot help but see how such an arrangement would be exceedingly advantageous from the standpoint of medical administration and otherwise. We have been very successful in the manipulation of this plant, and our therapeutic results have been indeed gratifying.

CONCLUSIONS

The indications for hydrotherapy treatment are excitement, depression, elimination, autointoxication and when a relaxation is desired or mental diversion and exercise.

Water by mouth, enteroclysis, hypodermoclysis, cold packs and hot packs may be used in any form of insanity.

The continuous bath is indicated in excitement and depression, showers and sprays in depressions and stuporous cases.

The contraindications are, first, the tub baths should not be prescribed for cases with marked physical deterioration, wasting or advanced physical diseases or skin diseases; second, cabinet sweats are contraindicated in cases in which there is marked excitement as well as marked physical disease.

The untoward effects of hydrotherapy are prostration, shock, acute circulatory disturbances, heat exhaustion and heat stroke, burns, injuries and complicating physical diseases, such as pneumonia, etc., if the baths are not properly given and the patients properly clad after the treatment.

All hydrotherapy plants should be located on the first floor in close proximity to the receiving wards of both sections; if not, tubs should be installed adjacent to the wards where refractory bed cases are treated. Hydrotherapy plants should be well ventilated, heated and conveniently arranged, proper apparatus installed and kept in proper working order, and the plant should be for therapeutic measures instead of an "exhibit building" for visitors, or for the purpose of securing statistical tables for annual reports.

"Lunatic asylum" is the proper nomenclature for an institution which has no hydrotherapy outfit; to call such an institution a hospital would be a misnomer and, to say the least, exceedingly out of place.

Thirty-Fourth and Pine Streets.

THE DIAGNOSIS OF PREGNANCY

A SIMPLE METHOD BASED ON THE PRESENCE OF
SPECIFIC ENZYMES IN THE URINE

R. H. MALONE, M.D.

MONTREAL

It has been clearly demonstrated by Abderhalden, and the host of workers following in his footsteps, that protective enzymes are developed in the body as a result of the presence of a foreign protein in the blood stream, whether that protein be derived from placental tissue, or carcinoma in the body, or be introduced from without for experimental purposes.

These enzymes, proteolytic in nature, have been found in the serum: their function is to digest the foreign protein and split it into amino-acids, in which form it may properly circulate in the blood stream, and be absorbed by the cells.

While working with Dr. A. A. Bruère at the Royal Victoria Hospital, Montreal, on a method of performing the Abderhalden cancer test without the use of dialysing thimbles, I observed that a serum which gave a strongly positive test after incubation for twenty hours was negative on the following day. The suggestion was made that certain enzymes had dialysed out, causing the further splitting of peptone and amino-acids into simpler bodies which would not give the ninhydrin reaction. Theoretically one might now expect that an enzyme which is dialysable through a parchment thimble would also pass through the kidney and be found in the urine.

It was at this stage that Professor Adami called my attention to Kiutsi's work on urine diagnosis¹ in which

1. Kiutsi, M.: Kiutsi's Urindiagnosis by means of "Filtration Process," June 10, 1914; printed by Bunyeido, Sapporo (Japan).

this passage of specific enzymes through the kidney was made the basis of a wide-spread method for the diagnosis of disease.

Kiutsi's method is as follows:

By filtering urine of a pregnant through animal charcoal, the urine is clarified and protein and peptone taken off, i. e., let it be filtered through animal charcoal several times until biuret reaction is no longer positive. Then 5 c.c. of so treated urine is put into a test tube. Into it 0.1 gm. of Kiutsi's placenta is added and the mixture is left for six hours or fourteen hours. After this the entire liquid is filtered through a filter paper into another test tube, and 2 c.c. of sodium hydroxid is added. After shaking the contents a little, the test tube is held by the left hand in a slanting position. With the right hand the copper sulphate solution is taken in 1 c.c. pipet. On letting the copper sulphate solution run down slowly by the inside of the tube, where two liquids meet, a brilliant purple color may be formed. Then the reaction is positive. But if no such coloration takes place, the reaction is negative.

Kiutsi says that he has "repeated this method hundred times, and never missed," and says, "By this method the early pregnancy, the early abortion and the extra-uterus pregnancy could positively be detected, and its reliability put even myself to astonishment." He also states that he has been able to diagnose cancer, nephritis, tuberculosis of the lungs, renal glycosuria and other diseases by this method, using the proper substrate in each case.

Kiutsi, while indicating the broad outlines of this method, is careful not to give any details regarding the preparation of his dried substrate, and has avoided pointing out the precautions which have to be taken to obtain uniform results. His paper is remarkable, and that not alone from the importance of the fundamental observation and the naïveté and quaintness of its diction. Undoubtedly the combination of the claim to have discovered a practically universal diagnostic method, with what appears to be a purposeful silence regarding the finer but essential details of that method, must create at first an unfavorable impression. Nevertheless, the observations tallied so remarkably with our own as to demand confirmation. The work, if correct, opens up such a large field for research that I sought to verify it by a similar series of experiments.

In the absence of any details as to the method of preparing the dry substrate, the following plan was adopted:

Two placentas were obtained, freed from blood by washing in saline solution, and then in running water, and treated according to Abderhalden's directions until the water in which a portion of this substrate had been boiled for five minutes gave no ninhydrin reaction.

One half of the placental tissue thus treated was placed in a sterile jar containing 50 per cent. glycerin in water, covered with toluene and kept in the ice-box. The other half was treated as follows:

It was minced finely, dried in the oven at 80 C. (176 F.) for four hours, and then over night at 55 C. (131 F.). Next day it was ground to a fine powder in a sterile mortar and kept in a desiccator over calcium chlorid for three days. The appearance of the substrate is that of a fine, dry, brown powder which can be kept in a closely stoppered bottle without fear of autolysis or bacterial action.

The use of animal charcoal, as recorded by Kiutsi, for the purpose of removing bodies giving a positive biuret reaction was found unsatisfactory. The method was slow and tedious, fresh filters of charcoal had to

be employed for every sample of urine, and often the filtrate showed a purplish tint because of coloring matter absorbed from the charcoal. As a substitute method, shaking with kaolin was tried. Experiments were then conducted to determine:

1. The amount of kaolin necessary to remove from the urine all bodies giving a positive biuret reaction.
2. The optimum amount of dry substrate to be employed.
3. The optimum incubation period.
4. The effect of the acidity or alkalinity of the urine on the reaction.
5. The effect of bacterial growth during the incubation of the urine to be tested.

As a result of these experiments, the following method was devised, and has been found to be satisfactory:

A freshly passed specimen of urine from a pregnant woman is tested for albumin by the biuret test. If the test be positive, 15 c.c. of urine are shaken with 0.3 gm. of kaolin for ten minutes in a mechanical shaker, filtered and tested again; the biuret test should now be negative. If it be still positive, the process must be repeated. Ten c.c. of biuret-negative urine are then neutralized with either 1 per cent. acetic acid, or 2 per cent. sodium carbonate solution, 0.2 gm. of dried placenta added, and the whole well shaken. The shaking I find essential. Five-tenths c.c. toluene is added to restrict bacterial growth. The mixture is incubated for twelve hours, filtered, and 5 c.c. tested by the biuret test. If negative, the remaining 5 c.c. are left in contact with the substrate, incubated for four hours longer, and tested again.

Controls of the urine of the pregnant woman without substrate, of urine from a male with and without substrate, from a nonpregnant female with and without substrate, and of the substrate in 10 c.c. of distilled water are set up and tested in the same way.

The urine of the pregnant female in contact with the substrate should give a positive biuret reaction; all the controls should give negative reactions. The color of a positive test varies from deep purple to lilac or rose in different cases. All blues and greens are negative.

Up to the present time fifty-nine cases have been examined. Of these, twelve urines tested *before* the foregoing technic had been fully developed gave the following results: One male gave a negative reaction both with the blood serum and the urine; of the eleven pregnant females, only two gave a positive reaction with the urine, although in every case the blood serum was positive. Since using the kaolin method, and adopting the precautions mentioned in the preceding paragraphs, the results have been very satisfactory.

RESULTS OF EXAMINING URINES IN FORTY-SEVEN CASES

Cases	No.	Results
Pregnant females.....	29	All positive
Males	6	All negative
Nonpregnant females.....	9	8 negative, 1 positive (fibroid of uterus)
Ectopic gestation.....	3	All positive.

These positive results in pregnant females were gained in the main from urines of cases estimated as from the twenty-eighth to the thirty-sixth week of gestation. Two cases were at about the third month.

It is perhaps scarcely necessary to point out that, as compared with Abderhalden's delicate and complicated serum test for pregnancy, this method is both simple and expeditious.

A DIAGNOSTIC SIGN OF GELATINOUS
CARCINOMA OF THE BREAST

W. S. HALSTED, M.D.

BALTIMORE

I recall having examined within the past twelve years five cases of colloid carcinoma of the breast—cases in which the colloidal portion (or portions) of the new growth was large enough and near enough to the surface to be palpable. In all but one of these there was conveyed to the finger on testing for elasticity a peculiar sensation which in the first instance made me apprehensive lest I had ruptured a possible capsule of the nodule, although there was no apparent alteration in its size or shape.

I find it difficult to describe the tactile impression. It might be defined as a delicate swish or crush of a jellylike structure under tension, with the suggestion of a delicate bursting.

In no instance have I obtained the sensation twice in the same case, nor has any assistant felt it on making the examination before or after mine. Presumably there is lost to the physical properties of the tumor a something essential to the production of the sign.

In Case 1, a large lobulated colloid carcinoma, the sign was not observed.

In Case 2, the right mamma had been amputated for a carcinoma which in spots was colloidal. A year or two later this patient returned with what seemed to be a like growth of the opposite breast. It was faintly lobulated and in places seemed to be elastic. While I was testing, with moderate force, the resiliency of one of the nodules, the described sensation under the finger was noted. I was alarmed, thinking that I must have ruptured some portion of the tumor, and urged the patient to permit operation at once. She did not consent, and returned to her home in another city. I wrote to her afterward, but was never given the opportunity to determine the nature of the growth.

The third patient presented herself a year or two later. Nothing was observed at the first examination of her mammary tumor to recall the previous case. But on the operating table, in the course of the examination under ether, the faint but unmistakable "swish" was felt. The carcinoma proved to be of the colloid variety, and there was no macroscopic evidence of damage having been done to the tissues by the examination.

It was perhaps five or six years after this experience that Dr. Finney invited me one day to come to his clinic to examine the breast of a patient under ether on whom he was about to operate. The tumor, about the size of a guinea-egg, was, as I recall it, not unquestionably elastic. Trying to determine this particular point and while I was exercising, perhaps, rather more force than usual, the identical swishing or crushing sensation was reproduced at my finger tips. Instantly the two previous experiences were recalled to mind, and I tentatively predicted colloid carcinoma; and such the tumor proved to be.

The fifth patient, referred by Dr. Branson of Philadelphia, consulted me a few weeks ago. The tumor was unmistakably a carcinoma, hard and infiltrating. There was a suggestion of elasticity near the surface. The patient was admitted to the Johns Hopkins Hospital, April 12. On the operating table, five days later, in the course of the examination under ether, the crush or swish, the characteristic (I do not venture

to say pathognomonic) sensation was felt over the elastic spot. The diagnosis of colloid carcinoma was made with considerable confidence, and it proved to be correct. The deeper part of the neoplasm was a typical scirrhus; surmounting this was an ovoid nodule, about 3 cm. in diameter, of colloid carcinoma.

In none of the cases was there recognizable any macroscopic evidence of traumatism.

Inasmuch as this sign manifested, I might say obtruded, itself unsought in the four successive cases, it is not possibly a creation of my fancy.

In each instance the unmistakable swish was a surprise. Not once had I in mind the possibility of colloid cancer until the peculiar sensation was felt.

I have not experienced this tactile impression nor have I tested for it in colloid goiter.

I shall be interested to learn if other surgeons have made this observation.

1201 Eutaw Place.

SARCOMATOUS DEGENERATION OF A
UTERINE FIBROMA FIVE YEARS AFTER
ROENTGEN-RAY TREATMENT FOR
PRESSURE AND HEMORRHAGE *

GEORGE ERETY SHOEMAKER, M.D.

Gynecologist to the Presbyterian Hospital

PHILADELPHIA

The subject of the treatment of fibromas of the uterus by non-surgical methods is one of such importance, that all data having a bearing on the subsequent behavior of such growths should be carefully recorded. The time must of necessity be very great which must lapse in any individual case, before the final evidence can be secured as to the subsequent degenerations, for example, after the application of the Roentgen ray or radium. Of peculiar importance is the question whether the sarcomatous or other forms of malignant degeneration are less liable to occur after such treatment, or whether they occur at all.

While no exact percentage can be given, it is certain that sarcomatous degeneration is a definite risk in untreated fibroma of the uterus.

Many series of reports, especially those of aggregates made up from many sources, are almost without statistical value, as for a long time in many clinics, routine examination of all tumors was not made, only those being studied which looked suspicious to the eye.

Winter¹ in a series of 253 cases examined systematically, found 4.3 per cent. of sarcoma.

Ellice MacDonald,² analyzed seven hundred carefully studied cases and found malignancy complicating in 5 per cent. of all cases, though but 1 per cent. were sarcomatous. Necrotic changes were found in 8 per cent.

Certain writers have argued that after Roentgen-ray treatment no cases of malignancy have been observed. It is obvious, however, that not until the end of the patient's life, can it be stated that malignant degeneration will not occur. The Roentgen-ray treatment of fibromas has been carried out for but comparatively few years, so that it will be many years

* Read before the College of Physicians of Philadelphia, April 7, 1915.

1. Winter: *Ztschr. f. Geburtsh. u. Gynäk.*, 1906, lvii, 23.

2. MacDonald, Ellice: *Tr., Sec. on Obst. and Dis. of Women*, 1909, p. 93.

yet, before the final outcome of these treated cases can be known. The difficulty is further increased by the fact that those patients who have subsequent trouble after any form of treatment, operative or otherwise, usually consult other physicians. We get other men's postoperative hernias, rarely our own. It will not do, however, to infer that we never have any.

I desire to put on record as a contribution to the subject, the history of a patient known through conference with her physicians for many years, who finally developed sarcoma in a fibroid tumor, about seven years after Roentgen-ray treatment was begun, and five years after it was stopped.

The patient, Mrs. I. H., now aged 56, married, one child, one miscarriage, underwent at my hands nineteen years ago, in consultation with Dr. John H. Musser, an operation for laceration of the perineum. She then had no tumor. She was not seen again until April, 1914, when she was referred by other physicians for operation, and I removed a large tumor, which proved to be a sarcomatous degeneration of a multiple fibroid of the uterus. The following interesting history was obtained of her experiences and treatment at the hands of various physicians during the intervening years. There had been one attack of gallbladder inflammation and jaundice, in October, 1913.

The menstrual flow had remained normal until early in 1907, when it increased, and also partial suppression of urine occurred. Examination by Dr. Rachel Williams discovered a large fibroma of the uterus, tightly filling the lower abdomen, and pressing on the urinary tract. She was then subjected to electrical treatment for the tumor by an electric specialist, who writes on cataphoresis. This treatment is said to have continued for nearly a year, one or two treatments a week, with no effect observed.

In November, 1907, Roentgen-ray treatments were undertaken by Dr. Newcomet to diminish the size of the growth; the patient being referred to him by Dr. Williams. He writes that she received at this period 54 treatments of ten minutes each at 20 inches distance; spark-gap 4 inches. In spite of leather protection for the skin, considerable reaction was produced, followed by bronzing and local dilatation of vessels; which effects are, by the way, still observable. He further states that the tumor was reduced to about one-fourth of its size, and hemorrhage was controlled by April 1, 1908. Nine months later, in January, 1909, the tumor grew again to the level of the umbilicus and 11 more treatments were given by Dr. Newcomet. In November, 1909, he found the growth just above the pelvic brim. It then apparently remained quiescent until November, 1912, when it began to grow, hemorrhage reappearing in December, 1913. Dr. Newcomet refused to administer the Roentgen ray longer, and advised operation. The patient delayed, seeking other opinion, but as has been stated, finally reached me for operation in April, 1914.

On examination the bleeding was now found very dark brownish or black; there was no odor; no leukorrhea; the systolic blood pressure was 180; the patient was quite stout; the heart sounds good. The abdomen showed a number of hemorrhagic spots in the skin apparently produced by the Roentgen ray, and a number of reddish spots were scattered over the mucous membrane of the cervix and upper vagina. The tumor was round, smooth, moderately fixed, a little irregular in outline, hard, reaching to the umbilicus, no infiltration of surrounding tissue. I advised immediate removal of a growing tumor which at the patient's age of 56 had shown signs of activity and had resumed bleeding after a cessation of five years.

A very smooth recovery followed abdominal hysterectomy. There were no parietal adhesions. Dr. William Evans and Dr. Rachel Williams were present. One year after operation the patient reported herself entirely well.

Dr. Damon B. Pfeiffer, the pathologist of the Presbyterian Hospital, has kindly furnished the following report:

The specimen consists of a large, irregularly shaped uterus measuring roughly 15 by 10 cm. The greater part of the mass consists of a rounded tumor, which on section presents the appearance of a myoma. There is no sharp demarcation between the mass and the uterine wall. Several small sub-peritoneal nodules are also present. The uterine cavity is opened. The endometrium presents no abnormalities. The fallopian tube is distorted and somewhat thickened. The ovary appears normal.

Microscopically, the ovary is normal, the tube is moderately thickened and fibrous, presumably the result of chronic interstitial salpingitis sometime in the past. Sections from the large tumor or mass show, in some places, areas of hyaline degeneration and in other portions the growth is extremely cellular. The cells are relatively large, but vary considerably in size, appearance and nuclear content. Many mitotic figures can be seen, and at the margin of such actively proliferating areas, there can be seen at times evidences of invasion of the older and less cellular portions of the growth. There is no sign of extracapsular invasion or metastasis, but the evidences of rapid atypical proliferation above mentioned warrant the belief that sarcomatous transformation has occurred.

CONCLUSION

It is the complications of fibroid tumors which render them important. Hemorrhage; pressure; intestinal adhesions; stasis, or obstruction; pressure on the uterus or bladder; secondary renal disease; heart lesions; salpingitis; appendicitis; pregnancy, necrosis or other forms of degeneration; associated malignancy may be mentioned.

In the study of end-results time is necessary. That treatment must be advised which best eliminates most complications as well as the tumor, and which preserves, if possible, sexual characteristics by its technic. This treatment in a large proportion of cases is surgical.

1831 Chestnut Street.

UPPER BRONCHOSCOPY FOR A FOREIGN BODY IN AN INFANT THREE MONTHS OLD

STANTON A. FRIEDBERG, M.D., CHICAGO

An infant 3 months of age in some manner introduced a closed safety pin into her mouth. About all the history obtainable was that the accident was followed by the appearance of some frothy secretion, after which the child fell asleep. She was very restless and could not cry aloud. On this account she was taken to a hospital, and an unsuccessful attempt was made to remove the pin. A roentgenogram showed the pin with the closed end downward about the level of the sternal notch. I saw her the next afternoon. There had been no trouble in nursing nor any marked respiratory distress. The temperature was 101 F.

The bronchoscopic tube was passed through the larynx, and the pin was seen at the lower part of the trachea, its lower portion projecting into the right main bronchus. It could not be removed through the small tube, so they were brought out together. No anesthetic was used. The temperature rose to 101.8 F. after the operation, but declined to normal within forty-eight hours. The voice returned the day following the operation.

This case is reported to emphasize the fact that tracheotomy is not necessarily indicated for the removal of foreign bodies from the air passages in infants and young children. A tracheotomy in this instance would have added an unnecessary and serious danger to the recovery of the child.

104 South Michigan Avenue.

Special Article

PRACTICAL PHARMACOLOGY *

(Continued from page 1583)

XIX

DRUGS WHICH ACT MAINLY ON THE HEART

THE DIGITALIS GROUP—(Continued)

STANDARDIZATION

We have no satisfactory means of standardizing the digitalis bodies; there is no chemical test for determining the amounts of the various pure principles present, and none of the biologic tests is free from objection.

The forthcoming Pharmacopeia will probably direct the standardization of digitalis bodies by means of the frog test, which consists in determining the amount required to cause the frog's heart to stop with the ventricle in systole in one hour. This test has the disadvantage of not affording a comparison of the therapeutic activities of such different members of the group as strophanthus and digitalis; for example, the amount of digitalis required to kill a frog of given weight by this method will have far greater therapeutic activity than the strophanthus required to kill a frog of the same size.

Guinea-pigs are preferred by some for standardizing these drugs, and the determination of the fatal dose by intravenous injection in cats has been suggested as affording a fairly satisfactory means of comparing the therapeutic activity of all digitalis bodies.

STABILITY

It has been generally taught that digitalis leaves and all of the galenical preparations of digitalis deteriorate rapidly despite any amount of care in preserving them. This appears to be one of the numerous errors in vogue regarding this drug, for digitalis leaves certainly retain their activity for many years with little loss, and the tincture also keeps extremely well if made with 70 per cent. alcohol. The infusion deteriorates rapidly, despite the addition of a small amount of alcohol, and should not be kept for more than a week, and preferably not more than three days in warm weather.

Among the curious misconceptions in vogue concerning digitalis is the belief that the tincture and the infusion have different therapeutic properties. The tincture represents the leaf fully, and so does the infusion when it is made properly—which, however, is not always the case.

THERAPEUTIC USES

There are few drugs which have more sharply defined uses than the digitalis bodies. They are indicated in all cases in which the tonicity of the heart is impaired, and while loss of tonicity is either the cause or the result of a large proportion of the symptoms observed in cardiac disease of long standing, there are stages of cardiac disease in which digitalis does harm. It probably finds its greatest field of usefulness in those cases of cardiac insufficiency which are induced by auricular fibrillation, and in

acute dilatation, though it may cause improvement in chronic dilatation also.

It is not necessary to discuss the various symptoms which result directly and indirectly from impairment of the circulation, for serious impairment of the heart is usually attended with symptoms which direct attention to the heart at the time that digitalis is needed, and whatever the symptom which the patient complains of, whether it be difficulty in breathing, swelling of the legs or an unpleasant feeling in the region of the heart, the use of digitalis is based ultimately on its capacity for improving the heart's tonicity directly and indirectly through its causing heart-block and slowing with improved nutrition and added rest with recuperation.

Digitalis is sometimes used in the treatment of tachycardias which are not attended with auricular fibrillation, but it is seldom of benefit in paroxysmal tachycardia, especially in those cases in which the impulses arise in the ventricle, and when used in that condition its action must be watched carefully, and its administration discontinued when full therapeutic doses fail to cause improvement.

Heart-block has been mentioned as one of the effects of digitalis, and it might be supposed that this condition, when present, constitutes a contra-indication to the use of digitalis; but it is neither an indication nor a contra-indication for the drug. If a want of tonicity attends heart-block, digitalis may be used, even though it may convert a partial into a complete block.

Acute dilatation with its threat of impending death sometimes affords an opportunity for results that are positively brilliant, for occasionally such a patient will show marked improvement within a few minutes after the intramuscular or intravenous injection of strophanthin, and he may be restored to comparative comfort within a few hours.

Auricular flutter is a condition attended with an extremely rapid beat of the auricles and usually of the ventricles; digitalis converts this condition into one of auricular fibrillation, and at the same time heart-block is induced with the result that the ventricle is made to beat more slowly, in the manner already described. In some cases the ventricle is made to beat regularly and more slowly without heart-block apparently.

Digitalis bodies are contra-indicated in sinus arrhythmias, which are characterized by an irregularity of the whole heart, due to some abnormal condition in the sinus region.

It will be observed that nothing has been said in regard to the various valvular lesions as indications or contra-indications for the use of digitalis. This is because a valvular lesion alone is neither an indication nor a contra-indication for the drug. Various valvular lesions are found complicating other cardiac conditions, but so long as the heart maintains an adequate circulation it does not require digitalis whatever the lesion, and when it begins to fail owing to a want of tonicity it demands digitalis no matter what valvular lesion may exist, even aortic regurgitation being no bar to its use when loss of tonicity prevents it from maintaining an adequate circulation.

The most diverse views are held regarding the use of digitalis in pneumonia, diphtheria and other infectious diseases. There can be no question that the tonicity of the heart is frequently impaired in such conditions, but it is obvious that digitalis has no direct

* This is the nineteenth of a series of articles on useful drugs—on practical pharmacology for the general practitioner. As soon as completed, these articles, elaborated by additional subjects, will be published in book form.

action on the toxins which cause the injury to the heart. There is no reason to anticipate such excellent results from its use in these conditions as in auricular fibrillation, in which it removes the immediate cause of injury to the ventricle, and in acute dilatation, in which it inaugurates a cycle of improvement.

The pharmacologic actions of caffeine and camphor have been discussed and attention has been called to the fact that we have no satisfactory explanation to offer for their use in cardiac disease.

Caffeine may increase the tonicity of the heart, but it is practically impossible so to regulate the dosage that the action will be limited to that which is desired. It seems probable that any value which it may have in improving the circulation is due to its stimulation of the vagus, whereby the pulse-rate is slowed, and to its stimulation of the vasomotor centers, causing a rise of blood-pressure with the consequent improved nutrition of the heart.

It does not cause heart-block, which plays such an important rôle in the effects of digitalis in auricular fibrillation, but it may be of value in certain cases of acute cardiac dilatation, by reason of its action on the musculature.

The diuretic action of caffeine results in the removal of a larger proportion of water than of salts from the circulation, and this facilitates the reabsorption of fluid from edematous tissues; hence caffeine is useful as an auxiliary to the digitalis bodies in dropsical conditions; but it should be used with caution, for caffeine and the digitalis bodies have synergistic actions on the heart.

Camphor stimulates the medullary centers, and it is possible that its beneficial action in cardiac disease is due to the stimulation of the vagus and the vasomotor centers.

While we are unable to state the exact dose of camphor which is suitable for use in these conditions, it is probable that much larger doses than those commonly advised will be needed, probably not less than 0.5 to 1.0 gm. (8 to 15 grains).

We would again call attention to the inadvisability of using caffeine intravenously, even in urgent cases of cardiac disease, and to the advisability of injecting small doses *very slowly*, if it is so used.

DOSAGE

Examination of various posologic tables inclines one to think that this question is in a confused state because of the great differences in the amounts of digitalis bodies advised by various authorities. The reason for these differences is not far to seek. Digitalis is given for a definite action, and it is given until that action is induced, or until the appearance of toxic symptoms indicates that the limits of safe dosage have been approached. Patients vary rather widely in the amounts required to produce a given effect, dependent somewhat on the way the drug is given.

The single dose of digitalis leaf is given as 0.065 gm. (1 grain), while that of the tincture is 1 c.c. (15 minims), which represents 0.1 gm. (1.5 grains) of the leaf. This inconsistency probably arises from a mistaken idea that the tincture does not represent the full activities of the leaf. The dose of the infusion is given as 8 c.c. (2 fluidrams), which corresponds closely with the dose of the tincture, but there is more ground for the belief that the infusion does not always represent the leaf fully.

It seems certain that we must sooner or later revise our methods of administering digitalis and its preparations. An adult who has not had any previous medication will usually require a total of about 1 to 2 gm. (15 to 30 grains) of digitalis of good average quality, or the equivalent of the tincture—from 10 to 20 c.c. (from 2.5 to 5 fluidrams)—to produce the full therapeutic effects. Nevertheless we do not advocate such single doses as 10 c.c. (2.5 fluidrams) of the tincture.

No one should administer any dose of digitalis without observing the effects carefully, and stopping the administration or diminishing the dose when the therapeutic effects are induced, or when toxic symptoms indicate that the limits of therapeutic dosage are being approached. The following effects are to be especially noted as indicative of digitalis action, and as signs for diminishing the dose or discontinuing it altogether.

Slowing is fairly common, but it is not an invariable result, and disaster has resulted from persisting in the administration of digitalis because the rate failed to show the influence expected of the drug, for the rate may become more rapid with other toxic symptoms without preliminary slowing.

When the auricles are fibrillating, the rate at the apex and that of the wrist-pulse should be determined; the difference, known as the "pulse deficit," indicates the number of beats which are too feeble to be felt at the wrist, and in general denotes the relative efficiency of the heart. With improvement in the force of the heart-beat a larger proportion of the apex-beats can be felt at the wrist, so that the pulse deficit decreases, and the wrist-pulse may actually increase in rate, while the apex-beats diminish as the heart's condition improves with digitalis action. When all beats are felt at the wrist the maximum digitalis action is approached or reached. One should never make the mistake of counting the wrist-pulse alone in such cases.

Partial or complete heart-block is a fairly common symptom of digitalis action; coupled rhythm, or bigeminal pulse, during digitalis medication calls for its immediate discontinuance. The substitution of a regular rhythm for an irregular one also indicates therapeutic action.

While these signs of digitalis action are commonly attended with improvement in the patient's condition, some of them, the coupled beat, for example, may be observed even while the patient grows worse. The clinical symptoms alone cannot be depended on to show the limits of dosage.

The following clinical signs of improvement are valuable as showing that enough digitalis has been given, or that the dosage may be reduced: improvement in breathing (a patient who has been forced to sit up and who breathes with difficulty begins to breathe more easily and is able to sleep while lying down, while the cyanosis diminishes); marked increase in the amount of urine secreted while the intake of water is limited, and a simultaneous disappearance of edema; the diminution or disappearance of epigastric pain, and especially of tenderness and pain along the margin of the liver; the disappearance of nausea and vomiting. The latter symptom calls for a word of discussion because it is frequently misunderstood.

Venous congestion due to cardiac insufficiency is commonly attended with gastric disturbances, includ-

ing indigestion, nausea and vomiting, and since one comes under treatment as his symptoms grow worse, it often happens that nausea and vomiting begin or are accentuated very soon after beginning digitalis medication, and they are then commonly attributed to the local action of the digitalis. It must be emphasized that *digitalis has no such local action on the stomach in doses which are used therapeutically*. If the administration is continued the nausea and vomiting will frequently stop with the appearance of other signs of improvement. One must therefore not take nausea and vomiting as a sign of the full digitalis action in the absence of the other signs mentioned above when it occurs early in the administration.

The following applies only to patients who have not had medication with any digitalis body during the previous two weeks:

One who suffers from cardiac insufficiency attended with auricular fibrillation may take 5 c.c. ($1\frac{1}{4}$ fluidrams) of a standard tincture of digitalis by the mouth at the first dose, and 1 c.c. (15 minims) every four hours thereafter until some signs of digitalis action are obtained, provided he can be watched carefully and the medication is discontinued at once when they appear. This will serve to induce the therapeutic effects in suitable cases within from twelve to twenty-four hours.

Strophanthin is suited only for intramuscular or intravenous injection, and is especially useful where immediate action is essential, as in acute cardiac dilatation. The single and daily intravenous or intramuscular dose is from 0.5 to 1 mg. ($\frac{1}{120}$ to $\frac{1}{60}$ grain), preferably in 4,000 parts of normal salt solution, as concentrated solutions may cause considerable pain.

We believe that strophanthus and the tincture are unsuited for oral administration, for the reasons already given. The tincture may be given intramuscularly when strophanthin is not available, but the intramuscular dose of the tincture must be carefully regulated, for a single dose of 2 minims has caused death in a patient who had previously taken digitalis. It must be borne in mind that all digitalis bodies are strictly synergistic, so that half a dose of each of any two digitalis bodies constitutes a full dose.

The single or daily intramuscular dose of tincture of strophanthus is about 0.1 gm. ($1\frac{1}{2}$ minims), which should be well diluted with normal salt solution. This dose should not be repeated within twenty-four hours. Even this dose would be dangerous immediately after other digitalis medication.

The dose of true digitalin has never been determined, but it is too expensive for general therapeutic use; digitalein is not obtainable in pure form; consequently its activity is too variable to justify its therapeutic use. Digitoxin is somewhat less variable in activity, but the physical difficulties in the way of its use interfere with its intravenous and intramuscular injection; it can be dissolved in alcohol or made into pills or tablets and used by the mouth. The dose is about 1 mg. ($\frac{1}{65}$ grain), and 0.5 mg. ($\frac{1}{125}$ grain) may be given thereafter at intervals of four hours, provided the patient is watched carefully for the signs of digitalis action, and the administration discontinued when these are observed. It is an extremely dangerous drug in the hands of those who are not skilled in the treatment of cardiac disease. The action of digitoxin is very persistent.*

PROPRIETARY PREPARATIONS

The well-known disadvantages of all the digitalis bodies, especially their variability and their tendency to cause nausea and vomiting, have led to the introduction of numerous proprietary preparations, nearly all of which have been exploited with extravagant praise.

Digalen is claimed to be a solution of amorphous digitoxin, but no such substance as amorphous digitoxin is known to science, and several investigators have submitted evidence that digalen is either a solution of impure digitalein or of another substance with actions similar to it.

It is sometimes claimed that the defatted tincture of digitalis is less actively emetic than the official tincture. The therapeutic dose of the official tincture of digitalis contains about 6 mg. ($\frac{1}{10}$ grain) or less of the fat—not enough to account for the emetic action; hence if a defatted tincture is less actively emetic than the official, it must be because it is a weaker preparation, containing less of the active principles of digitalis.

Digipuratum is an extract of digitalis from which inert matter has been removed and sugar of milk added to make it of the same degree of activity as the leaf. It was formerly claimed to be less actively emetic than the official leaf, but the claim is not substantiated by the results of pharmacologic experiments. It is many times more costly than the official leaf.

Digipoten is much like digipuratum.

Cumulation, so called, or persistence of action, is an inherent property of every digitalis body. Every digitalis body causes nausea and vomiting in overdoses, and no proprietary substitute has as yet been offered which is less nauseant in proportion to its therapeutic activity than digitalis.

In some cases persistence of action is a decided advantage in that, when once the action on the heart is induced, it obviates the necessity of further medication while the heart continues to improve.

The physician who uses digitalis leaf or tincture of good quality—and there is no difficulty in getting these of good quality—can have the satisfaction of knowing that with these he can accomplish all that can be accomplished with any digitalis preparation whether it be official or proprietary, except in those infrequent cases in which intramuscular or intravenous injections are required to avoid loss of time, and in such cases the official strophanthin may be used.

Solution of strophanthin is now available in ampules containing 1 mg. ($\frac{1}{60}$ grain) each, for intravenous or intramuscular injection.

Unfortunately, we have no pure principle from digitalis itself which is suitable for subcutaneous, intramuscular or intravenous injection, but strophanthin has an exactly similar qualitative action on the heart and it may be used for intramuscular injection.

The solution should be injected deeply into the lumbar muscles, but not subcutaneously, as the latter is very painful.

Only one dose is usually administered in twenty-four hours by this method. It is not adapted for continuous administration, but it is a life-saving measure in acute cardiac dilatation.

(To be continued)

* Owing to lack of space the materia medica of this series has been omitted. It will be included when this series is published in book form.

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THE VARIETIES OF PNEUMOCOCCI CAUSING LOBAR PNEUMONIA

Although the causative organism of lobar pneumonia is definitely known, much remains to be learned regarding the mode of infection and the nature of the disease. With the discovery of pneumococci in the mouths of normal individuals, the belief became prevalent that pneumonia was an autogenous infection depending on a change of virulence of these mouth pneumococci, or a decrease in resistance on the part of the host. Proof of this theory is lacking, however, and evidence now at hand indicates that the strains of pneumococci causing the infection in 80 per cent. of cases differ inherently from those inhabiting the mouth under normal conditions. Furthermore, it seems probable that pneumonia is a contagious disease and is acquired by contact with patients suffering from the disease, or with true pneumonia carriers.

Recent investigation¹ along lines suggested by Neufeld indicates that the pneumococci from cases of lobar pneumonia may be divided into four groups by immunologic tests, namely, protection of animals against infection, and by agglutination with the serum of immunized animals. In three of these groups the lines are well defined, while the fourth group is made up of different strains which show no relation to one another by tests with specific immune serum. In New York City, Dochez and Avery² during the past two years did not find any strain which did not fall into one of these four groups. These investigators state that similar results were obtained by Walker in Boston and Lewis, in Philadelphia. In a study of strains obtained from lobar pneumonia occurring in South Africa, they also found a coincidence in three groups, but none like those in the fourth group.

Is it possible that this grouping of pneumococci is only temporary and that the organism under the influence of environment may change into other groups? Dochez and Avery were unable by frequent animal passage, by growth on a variety of mediums, or by

storage in a dry state to effect a change of one type into another. From the deep sputum in tuberculosis, Lyal³ isolated pneumococci of the mouth class only. Since in pulmonary tuberculosis the pneumococci live in the lung under circumstances somewhat similar to those of pneumonia, one would expect a change into the virulent type if such a thing were possible. The transmutation question is far from settled, but the investigators mentioned are impressed with the constancy with which the pneumococci groups retain their characteristics.

In a study of the pneumococci in the mouths of healthy persons unexposed to pneumonia, Dochez and Avery did not find a single strain belonging to any of the three types of pathogenic cocci. All belonged to Type 4, which is of very low virulence and responsible for only about 20 per cent. of pneumonia. They also found that after a patient recovers from lobar pneumonia, the virulent type of organism is soon replaced by the nonvirulent type commonly found in the mouth. In one instance the pneumococcus of the virulent type disappeared as early as the twelfth day. In the instances in which the organism persisted for some time, there was always a delayed resolution. Virulent forms of pneumococci, however, were found in the mouths of attendants and others intimate with pneumonia patients. Also in these cases the strain isolated from the mouth of the attendant was always of the same type as the one isolated from the patient. Hence such persons may be regarded as true pneumonia carriers. It is important also to note that in addition to the presence of virulent organisms in the mouth, other conditions in the mouth must be suitable before pneumonia can develop.

The manner in which the biologic types of pneumococci may arise, and the conditions under which newly acquired pathogenic qualities may be preserved are illustrated in the recent work in South Africa. Pneumonia has been epidemic among the mine laborers of the Rand for several years. Many natives are brought there from tropical African regions where pneumonia is unknown and the natives are undoubtedly highly susceptible to it. When they come into contact with the white people, among whom pneumonia is not uncommon, many of the blacks are stricken with the disease. Lister studied the organisms in these cases and found that they fall into five groups easily recognized from one another by immunologic tests. Three of the groups correspond with the three pathogenic types studied by the New York observers, while two groups have not been encountered elsewhere, and probably are peculiar to South Africa. This is perhaps what happens: Among the whites on the Rand are sporadic cases of pneumonia, due as sometimes in this country to the pneumococcus in the mouth, that is, organisms of the slightly virulent Group 4 of Dochez and Avery.

1. Dochez, A. R., and Gillespie, L. J.: A Biologic Classification of Pneumococci by Means of Immunity Reactions, *THE JOURNAL A. M. A.*, Sept. 6, 1913, p. 727.

2. Dochez and Avery: *Jour. Exper. Med.*, 1915, xxi, 146.

3. Lyal: *Jour. Exper. Med.*, 1915, xxi, 146.

In the susceptible South African this organism produces pneumonia readily, and, since there is no racial immunity to this disease, it is passed on from person to person, and a new pathogenic type of organism is evolved. It is possible that the new types, after several generations among the South Africans, may attain sufficient virulence to become infectious for the white race, which at present is relatively immune.

The common assumption that pneumonia is an autogenic infection is entirely out of accord with recent observations. On the other hand, the evidence indicates that pneumonia is a contact disease in 80 per cent. of the cases, the infection being acquired from patients suffering with the disease, or from healthy carriers. These pathogenic strains are divisible into four groups by immunologic tests, and these groups do not differ in different parts of the world. Although these groups are apparently quite stable, the South African observations suggest that new types of pathogenic organisms may develop when there is no immunity in the race or races affected.

THE VASOMOTOR CENTER

The blood vessels and the functions associated with them are at present conceived to be dominated in large measure by a nervous control which has its center in the medulla. The behavior of this mechanism, which is responsible for the maintenance of arterial tone and for the regulation of arterial blood pressure, is a matter of everyday importance to the physician. By it the blood supply and, accordingly, the performance of the organs and tissues are influenced in large measure; while many of the drugs which are employed to change the vascular conditions have their actions interpreted from the standpoint of how they influence the vasomotor apparatus. The normal control of the latter is adjusted along with the influence excited by variations in the functions of the heart so as to maintain a blood supply suitable to the needs of the different parts of the organism. It is commonly believed that all of the vessels in the body are ordinarily kept in a state of tonic contraction by impulses arising in a localized region of the medulla. That portion of the nervous system which is concerned with vasomotor effects is, however, also played on by impulses coming from various regions. Whether the state of continued activity which is responsible for the so-called vasomotor functions could be produced in the absence of all the stimuli which play on it from all portions of the body, as well as from the higher centers of the brain, is not easily decided. In any event, the reflex features of the vasomotor activities are conspicuous.

The belief that both the arterial tonus and the vasomotor reflexes are controlled by the same master cells, the so-called motor center, has been questioned by Por-

ter.¹ He summarizes the facts by reminding us that it is known that stimulation of the central end of many nerves causes reflexly a rise or fall in the blood pressure, and that the central mechanism for this purpose lies in the bulb near the calamus scriptorius, since the destruction of this region puts an end to vasomotor reflexes. It is known, further, that the moderate constriction or tonus of the blood vessels is maintained by impulses that stream continuously from the same region, for the blood vessels dilate when the nerves connecting them with the bulb are severed or when the vasomotor region is destroyed. This reflex and this tonus are fundamental truths in the physiology of the circulation.

If both the maintenance of arterial tone and the vasomotor reflexes are controlled by the same apparatus, and if, as has frequently been contended, the tonus itself is a reflex incited by an unceasing flow of impulses from the periphery, any influence which will affect the reflexes should alter the tonus. Furthermore, a measurement of the vasomotor reflexes should reveal the condition of the physiologic apparatus for the maintenance of both functions if the reflex and tonus are the results of the energy of one and the same nerve cell. Changes induced by drugs in the two functions of the center should be in the same direction. The newest experiments by Porter² in the Laboratory of Comparative Physiology at the Harvard Medical School show that curare, for example, may more than double the sciatic and the depressor reflex change in blood pressure, while the arterial tonus is left substantially unchanged. In Porter's opinion it seems impossible to reconcile these results with the present conception of the vasomotor center. Unless this can be done, he believes it will be necessary to accept the existence of a vasotonic and a vasoreflex center, related but separable.

LIGHT-STROKE

There is an Italian proverb, "All diseases come in the dark and get cured in the sun." Interpreted from the standpoint of modern bacteriology and sanitary science, this statement has something to commend it, for light is today recognized as a potent defense against pathogenic micro-organisms by virtue of the destructive action which it exerts on them. Light, however, unquestionably has pathologic as well as physiologic effects on higher organisms. Under ordinary circumstances, we are exposed to sunlight of moderate or moderated intensity for limited periods. Exposure to intense sunlight, on the other hand, is by no means an innocuous procedure. Freckles are a familiar indication of a physiologic response to light, since they make

1. Porter, W. T.: The Relation of Afferent Impulses to the Vasomotor Centers, *Am. Jour. Physiol.*, 1910, xxvii, 276.

2. Porter, W. T.: The Vasotonic and the Vasoreflex Center, *Am. Jour. Physiol.*, 1915, xxxvi, 418.

their appearance on those parts of the body which are exposed to the sun's rays. Predisposed individuals react with more pronounced cutaneous symptoms under conditions in which sunlight is believed to play a rôle as a causative agent. Indeed, the skin is not the only organ which may react.

In this connection, the phenomenon of sunstroke is at once suggested. This term is, however, subject to much confusion and misconception. Some of the symptoms attributed to it are, without question, associated with heat exhaustion induced by elevated temperatures. There is some evidence in medical literature of the possibility of what Manson has termed sun traumatism, in which the heat regulation may not be alone at fault; for precisely similar effects have not been observed after exposure to heat from such artificial sources as furnaces. In so-called sun traumatism the morbid state is characterized as a rule by sudden death occurring without a warning. The sense of distress in a hot sun is not precisely like that provoked by a hot fire. This justifies one in raising the question as to whether the sun light as such may not produce serious pathologic consequences, particularly if the subjects have not become gradually habituated to sun exposure.

The photodynamic action of certain organic substances, to which attention has been called of late, may have a bearing on the problems raised by some of the pathologic effects of light. It has been shown that injection of suitable sensitizing compounds into albino mice (which lack skin or hair pigments to protect them against the direct action of the light rays) renders the animals peculiarly irritable when kept in the light, though they show no untoward effects in the dark. Hematoporphyrin, a derivative of the pigment of the red blood corpuscles belonging to the group of investigated photodynamic substances, is of special interest because it is actually known to arise in the animal body under pathologic conditions. The symptoms which the animals treated with hematoporphyrin develop in the light are not due to any inherent toxicity of the compound itself. They ordinarily consist of lesions of the skin, accompanied by subcutaneous edemas and other severe effects. These may assume an acute or a chronic form and are not infrequently fatal in their experimental outcome.¹ In trials on himself, Meyer-Betz² has actually demonstrated the photosensitizing effect of hematoporphyrin on man. The most recent progress in this field is represented by Hausmann's ability to sensitize animals with porphyrins to such a degree that profound reactions are produced immediately on exposure to light.³ In his earlier work, to which reference has already been made, the cutaneous symptoms usually were the first manifestations of

abnormality, disturbances of the central nervous system making their appearance much later, if at all. By Hausmann's new technic it is possible to render animals so responsive to the effects of light that as soon as they are exposed to the rays they promptly enter into a narcosis terminating fatally in a few minutes. By treatment with the light of a quartz lamp, suitably prepared mice manifest the chronic forms of this sensitization. The ultraviolet light is also concerned in the change. Brief treatment with light from a quartz lamp may lead to necrosis.

This intensely acute mode of death by exposure to light has been expressively designated as light-stroke (*Lichtschlag*) by Hausmann to distinguish it from the manifestations of true heat-stroke. It offers an experimental analogy, perhaps, to the obscure harmful effects of sunlight which still await a rational scientific interpretation.

THE RECRUDESCENCE OF TYPHUS

Civilization is only a thin crust, covering possibilities of relapse into savagery. Long ages have been required to bring civilized man by slow and painful stages to his present condition. Only a few months are required for him to relapse into the condition of barbarism from which he emerged. In times of great disaster, when the conventions of civilized society are removed, man again becomes an individualist, striving like primitive man or like the beasts of the jungle for food and shelter and even for life itself, and ruthlessly abandoning any refinements or customs which might impede him. Under such conditions, he easily reverts to the habits of his former savage state. Even the diseases of barbarism return.

A striking illustration is the reappearance of typhus fever in the war-swept countries of Europe. From the plague of Athens as described by Thucydides, down through the ages, typhus has always appeared at times of disaster. Always the companion of war and misery, known at different times by its old names of camp fever, siege fever, famine fever and jail fever, it raged all over Europe during the Napoleonic wars, only to die out in later years so completely as to be almost forgotten. "The history of typhus," says Hirsch, "is written in those dark pages of the world's history which tell of the grievous visitations of mankind by war, famine and misery, of every kind." Murchison says that a complete history of typhus would be the history of Europe during the last three and a half centuries. Clemow, in his "Geography of Disease," says that "in the earliest ages of the world's history, typhus accompanied famine, sieges and wars." Yet both civilization and science had practically forgotten it. All authorities of the present generation have described it as a rare disease. Several generations of medical men grew up and died with hardly any knowledge of it. So completely was it forgotten

1. Hausmann, W.: Die sensibilisierende Wirkung des Hämatoporphyrins, *Biochem. Ztschr.*, 1910, xxx, 276; *Strahlentherapie*, 1913, iii, 112.
2. Meyer-Betz: *Deutsch. Arch. f. klin. Med.*, 1913, cxii, 476.
3. Hausmann, W.: Ueber die sensibilisierende Wirkung der Porphyrine, *Biochem. Ztschr.*, 1914, lxvii, 309.

that Ricketts was obliged to go to Mexico for material to study it, while a few cases which appeared in the tenement districts of New York were not recognized and were widely discussed as a possible new disease. Yet six months of war with its accompanying horrors bring back mankind's old enemy, the companion of famine, rapine and barbarism in a thousand wars.

This relapse into barbarism, hopeless though it may be, is robbed of at least a part of its horrors, so far as typhus is concerned, by the scientific advances of the last decade. We know today what in previous wars was not even suspected, that typhus is transmitted only by the louse, which thrives in times of squalor, congestion, confusion and despair, and that cleanly habits, frequent bathing and changing of clothing and liberal use of insecticides will prevent its development and spread. Thanks to the work of Ricketts, Wilder, Anderson and Goldberger, this age-long scourge has lost its terrors. Only in those countries which are so hopelessly war-ridden as to make decent living impossible is there any excuse for the presence of this disease. When the present war is over, it will again disappear, only to reappear again, as it always has and always will so long as supposedly civilized nations resort to wholesale murder and destruction as a method of settling their difficulties.

DIABETES WITHOUT HYPERGLYCEMIA

Although no age is exempt from the incidence of diabetes, it is generally recognized that the disease runs a very rapid and almost invariably fatal course in young persons. The prognosis has usually been based, in the past, on a consideration of the period in life at which the symptoms first manifest themselves. During the youthful period a strict carbohydrate-free diet frequently fails to bring about a complete disappearance of sugar from the urine; and the ketonuria accompanying these severe types cannot always be made to disappear even when a liberal allowance of carbohydrate is permitted in the ration. The final characteristic death in coma is familiar to every practitioner.

Dr. E. Frank¹ of Minkowski's clinic in Breslau has called attention to a relatively innocuous type of diabetic disease found in younger persons and designated as renal diabetes or, if one prefers to avoid the implication of the pathogenic factor, as diabetes without hyperglycemia. The establishment of this clinical entity² is due to the modern investigations of the sugar content of the blood in health and disease.³ There is no longer any doubt that the renal excretion

of sugar in true diabetes mellitus is associated with an unduly high level of circulating sugar in the fluids of the body. The normal sugar content of the blood plasma fluctuates at about 0.1 per cent. glucose. It may temporarily rise to a considerable height, even to nearly 0.2 per cent., without leading promptly to glycosuria. On the other hand, if sugar is found in the urine under conditions which point to no hyperglycemia, and perhaps even show a normal level in the blood, the indication of a so-called renal diabetes is present. Before the advent of clinical blood-sugar estimations in man, the determination of this form of disease was based largely on the occurrence of sugar in the urine rather unvarying with the carbohydrate intake in the diet. In Klemperer's original suggestive case, a patient with chronic nephritis excreted 0.35 per cent. of glucose without any accompanying hyperglycemia; nor did the latter occur even after the patient was fed on bread and glucose. In fact, a hypoglycemia was noted. An involvement of the kidney with evidences of nephritis has been regarded as a further essential condition for renal diabetes in man.

That damage to the kidneys can lead to the elimination of sugar is abundantly testified by the modern studies on "kidney poisons," such as salts of uranium, chromium or mercury. In relation to the transitory glycosurias of pregnancy it is to be recalled that evidences of mild nephritic involvement are commonly present. Therefore, when one meets a mild glycosuria which exhibits sugar variations that bear no obvious quantitative relation to the diet, which rarely exceeds an output of 20 grams per day even with an abundant ingestion of carbohydrate, and which is present in an individual exhibiting symptoms of neurasthenia or mild albuminuria, the suspicion of a renal diabetes must be aroused. The examination of the blood plasma, particularly during a period of actual glycosuria, completes the data needed for a decision.

It will come as a surprise to many to learn from an experienced observer of diabetes that the renal type here described is not uncommon in the period of adolescence. The importance of recognizing it in a discriminating way is manifold. From the standpoint of treatment, restriction of carbohydrate is not called for. There is no tolerance to be established and no hyperglycemia to be overcome. The complications of true diabetes in older persons do not occur; for there is no excess of circulating sugar to induce the manifestation of pruritus, furunculosis, cataract, retinitis, etc. This is likewise true of the non-diabetic glycosuria that is seen in pregnancy. If renal diabetes is to be looked on as a relatively harmless anomaly, the question of its status in the hands of life insurance experts remains to be ascertained. Whether or not the significance of these glycosurias without hyperglycemia is as great as Frank would have us believe remains to be seen. We must always become alert when reasonable provocations are presented.

1. Frank, E.: Ueber harmlose Formen der Zuckerkrankheit bei jüngeren Menschen, *Therap. d. Gegenw.*, 1914, November, p. 439.

2. Two Theories of Diabetes, editorial, *THE JOURNAL A. M. A.*, March 28, 1914, p. 1023; Clinical Data of Human Renal Disease in Elucidation of Kidney Function, Jan. 23, 1915, p. 346.

3. The Variations in the Content of Sugar in the Blood, editorial, *THE JOURNAL A. M. A.*, Jan. 10, 1914, p. 131; Adrenal Glycosuria in Man, March 21, 1914, p. 938; Dietary Treatment and the Sugar Content of the Blood in Diabetes, Aug. 22, 1914, p. 688; Sugar Utilization by Diabetic Organs, *Current Comment*, Dec. 12, 1914, p. 2139.

NEW CHARGES AGAINST THE INSECTS

Inherited traditions and slowly acquired experience usually are factors of dominating importance in determining the point of view acquired by the average person. The physician, guided by the same impulses and converted to the slowly evolved theories of the transmission of infectious disease from place to place and man to man by the transport of a specific infectious micro-organism, seemed almost baffled at first when the rôle of insects as carriers of infection was suggested to him. The splendid investigations of recent years which have disclosed the relations of insects to malaria, yellow fever, bubonic plague and sleeping sickness have awakened the greatest admiration and at the same time have created the utmost surprise at what was earlier an unexpected and unsuspected mode of contagion. A trained entomologist, on the other hand, accustomed to see insects and study their habits, has expressed his surprise that it should have required so much investigation to establish a conviction regarding the function of such animal species as carriers of disease. When we stop to consider, he remarks, we have long been familiar with the fact that many insects regularly act as definite agents in the dissemination of living organisms much larger than disease germs, namely, the pollen grains of flowers.¹

The striking results already demonstrated in respect to the carrier activity of a few omnipresent animal forms, notably mosquitoes, fleas, bedbugs and house flies, inevitably raises the question as to the possible epidemiologic significance of other species of insects which may be less abundant but are, to quote Professor Wheeler, of much more generalized or more versatile behavior, and whose contact with man may be merely occasional or confined to restricted localities. In this group he includes cockroaches, ants and bees. Their rôle is as yet purely conjectural; but it is of no little interest to consider the possibilities as they present themselves to one trained to observe the versatile habits of insects and thus to recognize more readily the opportunities for infection to which the sanitarian must give heed.

That an insect which will devour any sufficiently soft substance, from human foods and the feces of other cockroaches to glue, grease and water colors, and live by preference in the cracks of the floors and walls of houses, bakeries, restaurants, sugar refineries and tanneries, where their bodies come into contact with the filth and refuse that necessarily accumulate in such places, should carry a host of germs about, on and in their bodies and be able to infect our foods, is certainly not surprising. Thus reads the warning which Wheeler¹ has expressed in respect to the omnivorous cockroach. As a matter of

fact, Longfellow² has already reported that it is easy to cultivate from the roach's feces with undiminished virulence such organisms as the diphtheria bacillus, the pneumococcus and the meningococcus. He asserts that roaches probably also feed on tuberculous sputum and disseminate the bacilli in the feces as readily as the house fly.

Ants, which are often abundant in houses and are readily disseminated by commerce, sometimes become a pest to the housewife, particularly when they get into the stores of food. They have not escaped suspicion as disseminators of pathogenic micro-organisms. In discussing some of the Panamanian ants, Dr. Darling³ has remarked: "It would seem as if there were not a point on the earth's crust within the Tropics that is not carefully inspected within the course of an hour by some industrious, persistent and inquisitive ant." The peculiar method by which ants feed is not generally understood. They live on liquid food only. When they ingest semisolid or minute solid particles, the fluid is pressed out of them and the residual little dry pellet subsequently spit out of the subpharyngeal pocket. Wheeler points out that it thus becomes possible for ants to spread disease in three different ways: first, simply by walking over or into human food, as has actually been demonstrated by Darling; second, by dropping into it infected hypopharyngeal pellets, and third, by contaminating it with their germ-laden feces. There also are species of ants which sting severely, one being known in the West Indies as the "fire ant."

Finally the bees, lauded for centuries by poet and prose writer alike, have not escaped the accusation of suspicion. Wheeler has observed the stingless bees of the genus *Trigona* visit collections of garbage and human excrement in the canal zone, presumably gathering foreign substances which they knead into the cerumen cells in which they store honey eagerly collected for food by the natives in many parts of tropical America. According to Wheeler, there are records of intestinal disorders or even death following the eating of such honey. The suggestion of possible contamination with pathogenic organisms collected by filthy insects is patent.

Future investigations will doubtless reveal more instances of "concatenation of organisms with interlocking activities" such as are now known in the sequences rat flea-plague bacillus-man, and mosquito-malarial plasmodium-man. Wheeler has accordingly defined the sanitarian as an economic biologist who applies in practice the results of a study of such interrelationships in which not only man, but also some parasitic or pathogenic organism is involved.

2. Longfellow: The Common House Roach as a Carrier of Disease, Am. Jour. Pub. Health, 1913, iii, 58.

3. Darling: The Part Played by Flies and Other Insects in the Spread of Infectious Diseases in the Tropics, with Special Reference to Ants and to the Transmission of Tr. Hippicum by Musca Domestica, Tr. XV Internat. Cong. Hyg. and Demography, Sec. V, Washington, 1913.

1. Wheeler, W. M.: Ants and Bees as Carriers of Pathogenic Micro-organisms, Am. Jour. Trop. Dis., 1914, ii, 160.

After all the direful accusations which are brought to bear upon our insect neighbors, it is refreshing to recur to the well-known lines of that élite physician, Oliver Wendell Holmes, in his poem "To an Insect":

I love to hear thine earnest voice,
Wherever thou art hid,
Thou testy little dogmatist,
Thou pretty Katydid!

Peace to the ever-murmuring race!
And when the latest one
Shall fold in death her feeble wings
Beneath the autumn sun,
Then shall she raise her fainting voice
And lift her drooping lid
And then the child of future years
Shall hear what Katy did.

Current Comment

ALCOHOL IN THE EUROPEAN ARMIES

The European War, subjecting millions of men to the irregularities and exposures of life in field and camp, has naturally revived interest in and furnished new material for the discussion of many old problems. Among these problems is that connected with the use of alcohol by the soldiers. The time has passed when alcoholic liquors are to be regarded as inseparable from warfare and essential for military activities. Efficiency is now the prime consideration. Since the last great war, scientific research has greatly increased our knowledge of the effects of alcohol on the human body. While the physiologist has not as yet spoken the last word on this subject, the overwhelming preponderance of scientific evidence is in favor of the proposition that the use of alcohol, in any amounts, large or small, tends to impair muscular coordination, to dull the special senses, to retard muscular and nervous reactions and mental processes, and to reduce efficiency in any work requiring rapid and accurate mental or physical effort. The question still open to discussion is whether, in times of unusual exposure, strain and exertion, the temporarily stimulating effects of alcohol are sufficiently valuable to compensate for its undesirable results. Evidently the military authorities of Europe think so, or are still influenced by custom or tradition, since in each army the regulation ration of alcohol is still provided. In the English Army, $2\frac{1}{2}$ ounces of rum are issued to each man twice a week. For men in the trenches, this allowance is increased to 3 ounces twice a week under ordinary weather conditions and to $2\frac{1}{2}$ ounces daily in very bad weather, making a minimum of 5 ounces a week and a maximum of $17\frac{1}{2}$ ounces. The regular ration of $2\frac{1}{2}$ ounces is estimated to contain 25.5 grams of alcohol. The French soldier receives daily 50 grams of rum containing 20 grams of alcohol. The German soldier is allowed 1,793 grams of beer and 20 grams of brandy

a day. The beer, which is of the ordinary lager variety, has a low alcohol content of only about 3.5 per cent., but this quantity would amount to a total of 70.7 grams of actual alcohol a day. Austrian soldiers receive each day 0.5 liter of wine, equivalent to 40 grams of alcohol. These figures are from the *British Medical Journal*. The physiologic effects of alcohol on military efficiency would probably not be so clearly apparent in the army as in the navy. The modern battleship, cruiser and submarine have become marvels of mechanical complexity and delicacy. The soldier in the trenches might take the maximum German ration of 70 grams of alcohol a day without impairing his ability to handle his rifle or manipulate a machine gun. Whether the members of the aviation corps, the artillerymen charged with handling the heavy guns, or the signal men, on whose quickness and accuracy of vision much might depend, could maintain the highest efficiency on a daily allowance of alcohol remains to be proved. Certainly, there is abundant testimony on the part of naval experts to show that alcohol diminishes the accuracy of the gun pointer on the battleship and so reduces the number of probable hits. "Dutch courage" has heretofore been regarded as an indispensable equipment of warfare, and alcohol has been looked on as the ally rather than the enemy of the fighting man; but the present war will reverse the opinions of the civilized world on a good many questions, and it is possible that the indispensability of alcohol in the army may be one of them.

HOW MANY DRUG ADDICTS ARE THERE?

Since the passage of the Harrison Narcotic Law, numerous statements have appeared in newspapers and medical journals regarding the number of drug addicts in the United States. Most of these statements are mere guesses, no accurate data existing on which to base any careful estimates. Certainly the maximum figures given by some writers are greatly exaggerated. In a recent issue of the *Scientific American*, Lucius P. Brown, food and drug commissioner of the state of Tennessee, furnishes data on which to base a more or less accurate estimate. From figures derived from the operation of the food and drug laws of Tennessee, Commissioner Brown estimates that there are approximately 5,000 drug addicts in that state. As Tennessee comprises about $2\frac{1}{3}$ per cent. of the entire population of the country, this would indicate that there are about 225,000 drug addicts in the United States. "But," says Mr. Brown, "Tennessee being an agricultural state and therefore decidedly more free from such addicts than those states where the pressure of modern life is harder, we should add 10 per cent. at least to this number on the assumption that the drug addicts throughout the country will average 10 per cent. higher than in Tennessee, giving in round numbers 247,000 drug victims for the entire country." On these figures, he concludes that 250,000 is a maximum estimate, and that the addicts annually use about \$6,500,000 worth of drugs unnecessarily. These figures, as Mr. Brown says, are bad enough, but they are very different from the two or two and one-half million drug addicts which

have been claimed by some sensational writers. This estimate is interesting, though, being based on figures from a single state, it must be regarded as only an approximation.

NEIGHBORHOOD EDUCATION IN NEW YORK

Public education is now recognized as an indispensable part of any health promotion program. Whether the organization be municipal, state or national, some method is necessary whereby the salient facts may be presented and the proposed work outlined to the public. Many of our state boards of health have developed elaborate and effective methods for educating the people of the state on disease and its prevention; only a few of our larger cities have undertaken to do so. A marked recognition of the growing demand for such work is the recent creation, by the Department of Health of New York City, of a Bureau of Public Health Education, in charge of an experienced whole-time man, carefully chosen after a civil service examination. One of the recent innovations inaugurated by this bureau is the publication of a series of neighborhood bulletins for use in different quarters of the city. It is a significant commentary on the growing complexity of our largest city that pamphlets which are of great value in one part of New York are practically useless in another. The recognition of this fact and the effort to meet it by preparation of special pamphlets for each section is an evidence of the careful study that is being given to the problem and the effort that is being made to adapt methods to needs and conditions. Physicians of the middle ages dreamed of a panacea, a single marvelous remedy which would cure all diseases. But they dreamed only. In the public health field, as well, we must learn that there is no single remedy. No one plan will apply everywhere, and in no single method does success lie. Careful study of each locality and its needs and the devising of educational methods which will be effective under actual rather than ideal conditions should be one of the most important duties of each health organization.

THE DEFERVESCE IN TYPHUS FEVER

Several subscribers have questioned a statement in a recent editorial on typhus¹ in which the statement was made that the fever terminates by lysis in a great proportion of cases, "contrary to the general belief." McCrae² says: "Toward the latter part of the second week, if the patient recovers, the fever disappears. Despite the usual description of the termination being by crisis, if the records are carefully examined it will be seen that in the majority the termination is by lysis and occupies about two days." On the other hand, such authorities as Osler, Strümpell, Dieulafoy and Doty believe that the termination of the disease occurs by a crisis on the twelfth or fourteenth day; that at this period, the temperature falls in from twelve to forty-eight hours, generally the latter time, down to

the normal level. The matter seems then to be one of definition. If we believe that the crisis is a sudden fall in the temperature occupying but a few hours, the defervescence in typhus fever cannot be said to be by this method. If, on the other hand, we believe that a crisis manifests itself by a defervescence occurring at a distinct period in the disease, even though the time required be several days, then typhus fever does fall by crisis.

THE AMERICAN MEDICAL ASSOCIATION AT SAN FRANCISCO

This issue of *THE JOURNAL* contains the announcements of the San Francisco session—the description of the city, the programs of the scientific assemblies, an outline of the features of the scientific and commercial exhibits. Even those who do not plan to attend the session will find in these announcements much that is suggestive and interesting. Those who are hesitating will be convinced, we are sure, that the San Francisco meeting offers many features that are unique and attractive.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

DISTRICT OF COLUMBIA

Keen Honored Guest.—Dr. William W. Keen, Philadelphia, who has been delivering a series of lectures at the Army Medical School, was entertained at lunch at the Cosmos Club, April 27.

Journal Reappears.—*Hospital News*, a monthly journal devoted to medicine and surgery, has reappeared under the coeditorship of Drs. Wilfred M. Barton and Walter A. Wells. The journal was formerly edited by Dr. Philip Newton who resigned to go to Europe as a Red Cross surgeon.

College Recognized in Michigan.—An official communication from the Michigan State Board of Registration in Medicine indicates that the Howard University School of Medicine, Washington, should have been shown as recognized in that state in Table D, published on page 1412 of *THE JOURNAL* of April 24, 1915.

Medical Examiners Appointed.—Four vacancies on the Board of Medical Examiners of the District were filled April 16 by the commissioners, by the appointment of Drs. Edgar Snowden, Edgar P. Copeland, Edward H. Reede and Harry Hyland Kerr, succeeding Drs. James F. Mitchell, Daniel S. Lamb, Frank Leech and John B. Nichols, terms expired.—Dr. George C. Ober, a member of the Board of Medical Examiners since 1896, and president of the board since 1905, resigned April 28.—Dr. Roy D. Adams has been appointed a member of the board of medical examiners of the District, vice Dr. George C. Ober, resigned.—Dr. Edgar P. Copeland has been chosen president of the regular board of medical examiners, Dr. Gregg C. Birdsall of the homeopathic board.

Personal.—Dr. Henry L. E. Johnson has been appointed a member of the board of directors of the Columbia Hospital, succeeding Brig. Gen. Daniel C. Kingman, resigned.—Dr. Clapham P. King of the American Red Cross unit in Serbia has returned to America, arriving in New York, May 2. Dr. King and the eight nurses who accompanied him, had been ill with typhus fever.—Dr. J. B. Gregg Custis and Benjamin F. Leighton have resigned as members of the Board of Medical Supervisors of the District.

1. Typhus in Serbia, editorial *THE JOURNAL* A. M. A., April 17, 1915, p. 1329.

2. McCrae: *Modern Medicine*, i, 927.

ILLINOIS

Rush Alumni to Meet.—Members of the Rush Alumni Association residing in Springfield are making efforts to secure a large reunion of the association at the Illinois State Medical Meeting, to be held at Springfield next week. Dr. F. F. Fletcher, '02, is the local secretary.

Leprosy.—Dr. George A. Zeller of the State Board of Administration went to Highland Park, May 5, to take charge of Angelo Lunardi, who will be taken to one of the state institutions for isolation and treatment.—Anna Jacobs, 62 years of age, a patient at Cook County Hospital, has been found to be afflicted with anesthetic leprosy.

State Society Meeting.—The sixty-fifth annual meeting of the Illinois State Medical Society will be held in Springfield, May 18-20, under the presidency of Dr. Albert L. Brittin, Athens. The oration in medicine will be delivered by President E. J. James of the University of Illinois, and the oration in surgery by Dr. Willard Bartlett, St. Louis. Thus far nine alumni banquets are scheduled for May 18 and 19.

Communicable Diseases.—The Tyler School near Plainfield has been ordered closed on account of scarlet fever.—The Mansfield School, which has been closed for a week on account of an outbreak of scarlet fever, was reopened April 26.—During April there were reported in the city of Rock Island 154 cases of measles. During the month seventeen quarantines were removed, twenty-five houses fumigated and forty cases of contagious diseases inspected.

State Hospital Officials Hold Meeting.—The annual meeting and election of officers of the Illinois State Hospital Medical Association was held at the Watertown State Hospital, April 29 and 30. Dr. Charles F. Reed of the Peoria State Hospital was elected president; Dr. Charles B. Caldwell of the Lincoln State Colony, vice-president, and Dr. Ralph R. McCarthy, Chicago State Hospital, secretary. Elgin was selected as the place for the next meeting and the time was set for September.

Chicago

Personal.—Dr. and Mrs. Alexander C. Wiener have returned from a visit to Useppa Island, Fla.—Dr. Evarts A. Graham has been appointed surgeon in chief of the Park Hospital, Mason City, Iowa.

Ricketts Prize Awarded.—The Howard Taylor Ricketts prize for research in the departments of pathology and bacteriology and hygiene at the University of Chicago, which is awarded annually on May 3, the anniversary of the death of Dr. Ricketts from typhus fever acquired while investigating that disease in Mexico City, has this year been awarded to Miss Maud Slye for her work on "The Influence of Inheritance on Spontaneous Cancer Formation in Mice."

New Medico-Military Organization.—Field Hospital No. 2, Ill. N. G., was mustered into the state service at Chicago, May 10, by the surgeon-general of the state, Lieut.-Col. Jacob Frank. The new field hospital is under the command of Major Gustavus M. Blech, with Lieut. James J. McKinley as executive officer and has enlisted a personnel of 41. Pending the securing of new quarters the organization will be housed in the armory of Field Hospital No. 1, Bush Temple, Chicago Avenue and North Clark Street.

Medical Reserve Corps Meeting.—The annual meeting of the Medical Reserve Corps, U. S. A., Illinois Division, was held at the Hotel Sherman, May 7, the president, Lieut. William L. Baum, in the chair. About fifty officers were present and the guests of honor were Major Harry E. Wilkins, Q. M. C., U. S. Army, and Capt. Will L. Pyles, M. C., U. S. Army. The following officers were elected: president, Lieut. William H. Wilder; vice-president, Lieut. Daniel A. K. Steele; secretary-treasurer, Lieut. John A. Hornsby (reelected), and councilors, Lieuts. Gustav A. Futterer and James Burry. The chief discussion of the evening was on the camp of instruction for officers of the Medical Reserve Corps, to be held at Sparta, Wis., in July.

INDIANA

Hospital News.—The cornerstone of the new hospital to be erected by the King's Daughters at Madison, was laid, May 6.—Marion County on May 6 appropriated \$12,000 to be used by the Board of County Commissioners to provide a proper building site and plans for the new tuberculosis hospital at Indianapolis for the construction of which \$80,000 will be required.

Wayne County Wants Health Expert.—The Wayne County Medical Society, the officials of Fort Wayne and Richmond, the Charities Bureau, woman's clubs and other organizations

of Wayne County, have combined to endorse the suggestion made by Assistant Surgeon-General Leland E. Cofer, U. S. P. H. S., Washington, to secure the services of a trained expert for the betterment of health conditions in the community.

Farm for Feeble-minded.—The Indiana State School for Feeble Minded, Fort Wayne, is filled to its capacity and has more than fifty on the waiting list who cannot be accommodated. Dr. George S. Bliss, Fort Wayne, the superintendent, recommends that the state purchase a new farm of one or two thousand acres, to be used in conjunction with the one at present in use. The new farm is needed especially for adult females.

Personal.—Dr. Thomas J. Beasley, Indianapolis, who was operated on recently for appendicitis, is making a satisfactory recovery.—Dr. Henry Jameson, Indianapolis, has been reelected president of the Indiana Park Board.—Dr. Harry C. Parker, Indianapolis, announces his intention of removing to Dubuque after taking a postgraduate course of study in the East.—Dr. James M. Dinnen, Fort Wayne, has been reappointed for the sixth time a member of the State Board of Medical Examination and Registration.

Communicable Diseases.—The epidemic of smallpox at Newcastle has induced the secretary of the State Board of Health, Dr. John N. Hurty, Indianapolis, to address an open letter to the people of that community in which he urges them to become vaccinated as the only means of preventing spread of the disease. He urges the city to provide vaccine and vaccinate free all persons not protected in this manner, and predicts "with certainty" that only those who have had the disease either in mild or severe form, or who have been properly vaccinated within the required period, will go free from the disease if at all exposed to the contagion.—A case of smallpox was discovered in the Clark County Jail, Jeffersonville, May 2. Ten other prisoners were vaccinated and are being held in quarantine.—The epidemic of smallpox in Alexandria has been checked, and the last of the quarantined families has been released.—An epidemic of mumps and measles prevails in Shelbyville.

MICHIGAN

Money Wanted for Tuberculosis.—Senator Murtha has introduced a bill in the upper house appropriating \$100,000 for work against tuberculosis. The bill is the outgrowth of the resentment against previous health bills in the legislature.

Hospital News.—Battle Creek Sanitarium has opened a new surgical ward building at a cost of \$90,000.—St. Francis' Hospital, Escanaba, was recently dedicated. The building is four stories in height, 160 by 55 feet and has 100 rooms.

Appropriation for Blind School.—The appropriation bill for the Michigan School for the Blind was passed by the house, April 14, without dissent. In addition to the appropriation for current expenses of \$57,000, a special appropriation was allowed of \$68,100, making a total of \$125,100 for work for this year.

Dinner to Dr. Vaughan.—On April 19 the Detroit branch of the American Pharmaceutical Association held a union meeting with the Detroit Retail Druggists' Association and the Wayne County Medical Society at which Dr. Victor C. Vaughan, Ann Arbor, delivered an address on "The Poisonous Group in the Proteid Molecule." A dinner in honor of Dr. Vaughan preceded the meeting.

Personal.—Dr. Henry S. Bartholomew, Lansing, has been appointed a member of the State Board of Health.—Dr. John C. Brown, Battle Creek, has been appointed a member of the State Board of Pardons, vice Dr. Karl B. Brucker, Lansing, resigned.—Dr. Victor C. Vaughan, Ann Arbor, has been elected a member of the National Academy of Sciences.—Dr. William M. Carling, Battle Creek, who has been ill for several weeks, has recovered and resumed practice.—Dr. Bernhardt Jacob, Detroit, superintendent of the House of Correction, was operated on for carbuncle of the neck in Grace Hospital, April 19.—Dr. Collins H. Johnston, Grand Rapids, has been elected chief of the medical staff of the Blodgett Home for Children, Grand Rapids, succeeding Dr. Joseph B. Griswold, deceased.—Dr. A. Verne Wenger, Grand Rapids, has been appointed a member of the staff of the Blodgett Home, Grand Rapids, vice Dr. Thomas M. Koon, deceased.—Dr. Harry A. Haze, Lansing, has resigned from the medical corps of the state.—Dr. John H. Kellogg, Battle Creek, is taking a trip to the Pacific.—Dr. Reuben Peterson, Ann Arbor, has been appointed a member of the State Board of Registration for Nurses.—Dr. Isaiah Sicotte has

been elected president of the newly organized Advancement Association of Michigamme.

Talent for College Clinic.—At the annual clinical meeting of the Detroit College of Medicine and Surgery which begins May 26, in addition to clinics held by fifty men of Detroit, additional clinics are to be given by eminent physicians and scientists of other cities. May 26, Dr. William B. Coley, New York City, will hold a clinic in Harper Hospital on "Differential Diagnosis of Sarcoma of the Long Bones"; on May 27, Dr. Edward C. Rosenow, Chicago, will speak on "Streptococcus Viridans" in St. Mary's Hospital; on May 28, Dr. Asa B. Davis, New York City, will hold an obstetrical clinic in Harper Hospital; on May 29, Dr. Arthur R. Elliott, Chicago, will hold a clinic on "Diseases of the Heart," and Dr. Samuel W. Kelley, Cleveland, a clinic on "The Cleft Palate and Hare Lip" in St. Mary's Hospital; on May 31, Dr. Charles Ogilvy, New York City, will speak on "Static Deformities with Special Emphasis on Early Diagnosis"; on June 1, Dr. William H. Robey, Jr., Boston, will deliver an address in St. Mary's Hospital on "The Reserve Force of the Heart, Arrhythmia and Significance of the Diastolic Murmur"; on June 2, Dr. Daniel N. Eisendrath, Chicago, will hold a clinic on "Diseases of the Kidney and Ureter" in Harper Hospital, and on June 3, the concluding day of the clinic, Dr. Florus F. Lawrence, Columbus, Ohio, will speak on "Abdominal Diagnosis."

MINNESOTA

Epidemic Disease.—An epidemic of measles is reported in St. Paul, where 165 cases were reported in April as compared with sixty-eight cases during March.—The State Board of Health has been asked to aid in fighting an epidemic of scarlet fever in Groton Township, Grant County.

Mayo Statue to be Unveiled.—On May 29 the Dr. William W. Mayo Memorial Statue will be unveiled at Mayo Park, Rochester. Hon. C. M. Start, St. Paul, and Bishop O'Gorman, Sioux Falls, S. Dak., both old-time friends of Dr. Mayo, will deliver addresses. Songs will be sung by children of the city schools and one of the children of Dr. Charles H. Mayo will unveil the statue.

Sanatorium News.—Senator F. A. Duxbury, Caledonia, chairman of the senate committee on civil administration, has reported the indefinite postponement of the bill to abolish the advisory commission of the Sanatorium for Consumptives and invest the State Board of Health with the duties of the commission.—Hartland County has decided against the proposition to build a four-county tuberculosis sanatorium.

Hospital Notes.—Work is to begin at once on the Indian Hospital in northeastern Minnesota, to be located on the government farm on the Fond du Lac reservation near Cloquet.—The commissioners of Kent County have advertised for bids on a site for a hospital.—Steps are being taken by the commissioners of Koochiching County toward the erection of a hospital at the poor farm.—Work on the new Physicians' and Surgeons' Hospital at Thief River Falls will start immediately.—A benefit reception and ball was given in Lake City, April 20, for the benefit of the local hospital.—Dr. Giles R. Pease and Thomas E. Flinn, Redwood Falls, have awarded a contract for the erection of a new hospital in that place.—It has been decided to organize a stock company with a capital stock of \$10,000 to secure the erection of a hospital for Spring Grove to accommodate ten patients.—An eight-room addition to the Northwestern Hospital, Princeton, is under construction.

Personal.—Dr. Louis S. B. Robinson, St. Paul, has taken a leave of absence for a year to do special work in tuberculosis and will fill the position of assistant superintendent at the Minnesota State Sanatorium for Consumptives in Cass County.—Dr. Charles Lyman Greene, St. Paul, resigned from the State Board of Health, April 29.—Dr. Arthur B. Ancker, St. Paul, has succeeded to the presidency of the American Hospital Association on account of the death of Dr. William O. Mann, Boston.—Dr. Charles W. More, Eveleth, has been reappointed a member of the State Board of Health.—Dr. Edward W. Fahey, Duluth, has succeeded Dr. Henry E. Webster, Duluth, as director of public health of Duluth.—Dr. James F. Hammond, St. Paul, has started for Montreal to enter the English Army Medical Service.—Dr. John J. Donovan, Litchfield, who was operated on in Minneapolis, recently, has returned and resumed practice.—Dr. Christian Johnson, Willmar, who has been seriously ill for two weeks, is reported to be convalescent.—Dr. James McAuliffe, deputy coroner of St. Louis County, Duluth, has been seriously ill with ptomaine poisoning.

MISSOURI

Southwestern Physicians Meet.—The spring meeting of the Southwestern Missouri Medical Society was held in Springfield, April 29 and 30, and the following officers were elected: president, Dr. Joseph W. Love, Springfield; vice-presidents, Drs. Murray C. Stone, Springfield, and James H. Elliott, West Plains; secretary, Dr. Herbert S. Hill, Springfield; assistant secretary, Dr. Edwin F. James, Springfield, and treasurer, Dr. Lee Cox, Springfield.

Personal.—Dr. George C. Mosher, Kansas City, who has been seriously ill, is convalescent and expects to resume practice about June 1.—Dr. Floyd A. Martin of the University of Missouri School of Medicine, Columbia, has resigned, to take effect at the end of the college year.—Dr. Bondurant Hughes, superintendent of the Missouri State Sanatorium for Incipient Tuberculosis, Mt. Vernon, has resigned and Dr. Carlos C. English, Mt. Vernon, has been placed in temporary charge of the institution.

St. Louis

Personal.—Dr. Henry Lloyd, assistant diagnostician to the board of health and formerly deputy coroner, was knocked down and severely injured by an automobile, April 23.—Dr. Allen W. Freeman, epidemiologist, U. S. P. H. S., has arrived in St. Louis to establish a bureau of rural sanitation.

Tribute to Dr. Lutz.—A bronze relief tablet 10 by 12 inches, of Dr. Frank J. Lutz, librarian of the St. Louis Medical Library, has been made at the orders of the St. Louis Medical Society as a tribute of the work Dr. Lutz has done and is doing for the library. The tablet bears the following inscription "Frank J. Lutz, whose integrity, foresight and devotion as librarian, made the St. Louis Medical Library. Erected by members of the St. Louis Medical Library."

Dedication of the New Washington University Medical School.—On April 29 and 30, the new buildings of the Washington University Medical School were dedicated with imposing ceremonies. On the first morning exercises were held in the assembly hall of the school at which the keys were formally presented to the acting chancellor of the university by the architect. The visiting delegates, thirty-eight in number, representing colleges, universities, medical schools, medical societies and the Medical Corps of the United States Army, were then presented to the chancellor and president of the corporation, after which Dean Eugene L. Opie of the medical school outlined the early history and reorganization of the school and the ideals which it represents. Dr. William H. Welch then spoke on "The Development of Clinical Teaching in American Medical Education." After luncheon addresses were made on the lawn of the medical school by President Lowell of Harvard, and by President Vincent of the University of Minnesota. After the addresses the guests were entertained at a garden party and in the evening a banquet was held at the St. Louis College, presided over by Mr. Robert S. Brookings, president of the Washington University Corporation, at which responses to toasts were made by President Hill of the University of Missouri, Ex-Governor David R. Francis of Missouri, Dr. Abraham Jacobi, New York City, and Dr. William H. Howell, Baltimore. The second day, April 30, was designated as alumni day and in the morning addresses were made by Dr. William T. Porter, on behalf of the alumni of St. Louis Medical College, and by Dr. Robert J. Terry, on behalf of the alumni of Missouri Medical College. These two institutions were united in 1899 to form the Washington University Medical School. Dr. Fred T. Murphy then spoke to the alumni on behalf of the faculty of the medical school. In the afternoon addresses were delivered by Dr. George Dock and Major-General William C. Gorgas, Surgeon-General, U. S. Army. In the evening academic exercises were held in the University chapel, followed by a reception in the building of the School of Fine Arts. At the exercises, the honorary degree of doctor of science was conferred on Drs. William T. Porter, O. E. Folin and Theodore Janeway, Baltimore. The degree of doctor of laws was conferred on Surgeon-General William C. Gorgas, presidents H. R. Hill of the University of Missouri, A. L. Lowell of Harvard University and George E. Vincent of the University of Minnesota, Prof. H. H. Chittenden and Drs. Franklin P. Mall, Baltimore; Abraham Jacobi, New York City; Simon Flexner, New York City; William H. Welch, Baltimore; Samuel J. Meltzer, New York City; William H. Howell, Baltimore, and Rudolph Matas, New Orleans; and the degree of doctor of laws *in absentia* was conferred on Prof. Nathaniel Wille of the University of Christiania, Norway. Opportunity was afforded for the inspection of the

laboratories of the medical school and the affiliated Barnes and St. Louis Children's hospitals. The laboratories were opened in September last and consist of two four-story and basement buildings, 209 by 56 feet. In the north building are located the administration offices, library, assembly hall, laboratories of preventive medicine and surgery and the department of anatomy. The south building is occupied by the departments of biologic chemistry, physiology and pharmacology. The group is completed by a third building, five stories in height and 232 by 60 feet and which is located directly across the street on the hospital lot. On the basement and first floor of this building the outpatient dispensaries of the hospital are housed; on the second floor the clinical laboratory of the department of medicine is located and the department of pathology occupies the third and fourth floors while animal quarters and runways are provided on the roofs of all three buildings. These buildings erected at a cost of \$1,200,000 bring the outlay for new buildings for the medical school to a total of more than \$3,000,000. During dedication week a number of manuscripts and papers of William Beaumont were presented to the Washington University Medical School by his granddaughter, Miss Irwin. Among these were the original manuscripts and notes of Dr. Beaumont's experiments on Alexis St. Martin and an agreement entered into by St. Martin to accompany Beaumont for a period of two years for the purpose of experimentation. A room known as the Beaumont Room has been set aside in the library of the medical school, for the care of these manuscripts and notes. Dr. Frank J. Lutz on the same occasion, spoke of "Beaumont as a Practitioner" and Dr. Joseph Erlanger on "Beaumont as an Investigator." On April 28, Dr. Simon Flexner, New York City, delivered a popular lecture before the Washington University Association on "The Control of Infective Diseases." In connection with the exercises of dedication week, a series of four lectures was delivered by Dr. Otto K. Folin.

NEW YORK

New Health Publication.—A new monthly magazine will be issued this month by the Rochester Public Health Association and the Children's Hospital of Rochester. It will be known as the "Health Survey" and will begin with a paid circulation of 3,000.

Physicians to be Paid for Birth and Death Certificates.—The governor has signed the Secly bill, providing that municipalities shall pay physicians 25 cents for each birth and each death certificate properly made out and filed. It is estimated that this law will cost New York City about \$50,000 a year.

Personal.—Dr. Otto von Huffman has resigned as secretary of the State Board of Medical Examiners to become secretary of the faculty and executive officer of Long Island College Hospital, Brooklyn, succeeding Dr. Joseph H. Raymond, deceased. The resignation was accepted by the State Board of Regents, to take effect September 1.

Alumni Reunion.—The fortieth annual reunion of the Alumni Association of the Medical Department of the University of Buffalo will be held June 1 to 4. Scientific sessions will be held on the first two days and the annual business meeting on June 3. On the evening of June 2, quinquennial class reunions will be held and the alumni banquet on June 3. The graduating exercises occur on the morning of June 4.

Societies Protest Antivaccination Bill.—Kings County Medical Society and the New York Medical Society are making efforts to induce Governor Whitman to veto the Tallet-Jones antivaccination bill which has passed both branches of the state legislature and which proposes to abolish vaccination in cities of less than 50,000 population. It is feared the passage of the bill will be followed by smallpox epidemics causing a loss of lives at present safeguarded.

Lunacy Bill Vetoed.—Governor Whitman has vetoed the Knight bill which aimed to do away with examinations of the insane convicts in penal institutions under control of the commissioner of correction in New York City by two examiners in lunacy, pending their removal to Matteawan, and substituting committal to the psychopathic ward at Bellevue for observation. The reasons for this veto were that such a bill would overcrowd Bellevue and react unfavorably on curable cases awaiting commitment to state hospitals.

Iola Sanatorium Opened.—The cornerstone of the Iola Tuberculosis Sanatorium, Rochester, was formally laid, May 1. The buildings are to be erected at a cost of \$150,000 and consist of a three-story and basement infirmary building with

wards for patients, amusement rooms and an apartment for the resident physician, a two-story service wing containing kitchen and dining room and a surgical wing. Dr. John F. W. Whitbeck, president of the board of managers, presided and addresses were made by Rev. Clarence H. Barbour, Bishop Hickey and others, all paying tribute to the work of Dr. Montgomery E. Leary as superintendent, who as one speaker said, was giving his life to the fulfilment of a dream of a tuberculosis sanatorium that is to be second to none in the United States.

New York City

Birthday Dinner to Dr. Jacobi.—On May 6 the eighty-fifth anniversary of his birth, Dr. Abraham Jacobi was entertained as the guest of honor at the Hotel Astor at a dinner given by the physicians and officers of the Bronx Hospital.

New Health Periodicals.—Under the direction of Dr. Charles F. Bolduan, director of the Bureau of Public Health Education, the department of health has issued the *Columbus Hill Chronicle*, the *Chelsea Chronicle* and *Everybody's Chronicle*, four-page monthly magazines each of which contains, in addition to life-saving suggestions, a column of local neighborhood news.

Two Typhus Cases thus Far.—Dr. Joseph H. O'Connell has denied the report that twenty cases of typhus fever have been brought to Swinburne Island this year. Only two cases have arrived since Jan. 1, 1915. The first was the third engineer of the Greek steamship *Christiphoros* which arrived May 1 and the second arrived on the *Carpathia* on May 5. The latter is the first case to arrive direct from the war zone.

Hospital for Drug Victims.—A group of public-spirited women have subscribed \$6,000 which has been turned over to Dr. Katherine B. Davis, commissioner of the department of correction, for the purpose of building a hospital for the care and treatment of sufferers from the drug habit. The hospital is to be built on Riker's Island where a farm has been laid out for work-house prisoners. The work of erecting the building will be begun at once.

Hygiene Station for "Graduate Babies."—"Graduate Babies" is a term that has been applied to children between the ages of 2 and 6 years and for whom special attention is to be provided by three of the stations of the New York Diet Kitchen Association. Conferences similar to those that are held for younger children will be given for the older ones. The mothers will be given the opportunity to consult with nurses and doctors concerning diet and home conditions for older children and when necessary hospital and dispensary treatment can be administered.

Columbia to Build Medical School.—Announcement was made May 3, that Columbia University is to build one of the largest medical teaching institutions in the world on a part of the site recently purchased by the Presbyterian Hospital which included the old American League Baseball grounds. The Columbia share in the project will be about \$7,500,000. The project includes a new medical school to replace the present College of Physicians and Surgeons, the removal of the Presbyterian Hospital from the east side to a new site and the establishment of an institution for research, all of which will be accomplished within five years.

Special Training for Tuberculosis Work.—Since the work in the tuberculosis clinics of the department of health differs considerably from that of general medical clinics, requiring not only efficiency in medical diagnosis, but also an intimate acquaintance with tuberculosis hospitals and sanatoria, social service and knowledge of departmental branch office work, a special clinic of instruction has been established in which all applicants for the volunteer service will be assigned for courses in physical diagnosis and for a careful study of branch-office and clinic routine. Special emphasis will be laid on the importance of thorough and efficient work and of the proper treatment or disposition of those patients considered to be tuberculous. This clinic will be under the direction of Dr. D. Clifford Martin. Later a similar clinic will be held in the Borough of Brooklyn. It is hoped that these courses may be so extended as to include the entire present volunteer service and in that way the physicians showing the greatest interest and efficiency may be selected for the permanent salaried positions.

Personal.—Dr. Louis M. Dusseldorf of Brooklyn was severely injured in an automobile accident, May 3, his arm being so badly crushed that amputation of the arm was necessary.—Dr. Otto Schobl, formerly of the Pathological Institute of Prague, and for the past five years in the Bureau of Science in Manila, arrived in this city on May 1, and has

been added to the bacteriologic staff of the health officer of the port. His appointment was made as an additional precaution against the possible visitation of cholera and typhus fever.—Dr. Alfred Hess has been appointed clinical professor of pediatrics in the University and Bellevue Hospital Medical College.—Prof. C. E. A. Winslow has been appointed to the Anna M. Lauder professorship of public health in the medical department of Yale University.—Dr. John C. Anderson is reported to be in a serious condition from an accidental gunshot wound.—Dr. Otto H. Schultze has been appointed medical assistant to the district attorney, a position created by the last state legislature. Dr. Schultze has been for many years a coroner's physician in New York County.

PENNSYLVANIA

Optometry Bill Vetoed.—The optometry bill in Pennsylvania passed both the house and senate, but was defeated by the governor's veto.

Diphtheria Again Closes School.—The prevalence of diphtheria in Spring City has necessitated the closing of the Franklin Street School building for the second time within two weeks.

Quarantine Lifted.—The latest quarantine order of the State Live Stock Board announces that parts of only ten counties are continued in the quarantine for foot and mouth disease. These include small portions of Allegheny, Butler, Chester, Erie, Jefferson, Lebanon, Philadelphia, Schuylkill, Warren and Westmoreland counties.

Entrance Requirements to Jefferson.—An authentic report has been received from the Jefferson Medical College stating that after Jan. 1, 1916, excepting for those students who take the premedical year in that college, two years of collegiate work, including courses in physics, chemistry, biology and French or German, will be required for admission.

Medical Missionary Meeting.—At the twenty-fifth annual meeting of the Pennsylvania Medical Missionary Society held in Overbrook, April 29, an address was made by Dr. W. F. Jeffries of St. John's College, Shanghai, China, and the secretary reported that the society had spent \$26,000 in educating medical missionaries and \$2,000 for other philanthropic purposes.

Personal.—Dr. D. E. Sable has been appointed chief police and fire surgeon of Pittsburgh.—Dr. James A. Singer, East Stroudsburg, has been elected chief of staff of the Stroudsburg Hospital.—Dr. Jacob G. Zern, Lehigh, who has been ill with rheumatism for several months, is reported to be convalescent.—Dr. Edgar W. Palmer, Greencastle, is convalescent after a serious attack of pneumonia.—Dr. Thomas C. Detwiler, Lancaster, was seriously injured by the overturning of his motor car near Stroudsburg, April 29.

Nearly a Century of Laidleys in Carmichaels.—The record of the Laidley family of physicians in Carmichaels is unique. It began with Dr. Thomas H. Laidley who started practice in Carmichaels in 1826; in 1856 his son, Dr. John B. Laidley, became associated with his father in practice and this arrangement was maintained to 1875. The son then continued practice alone until 1892 when he was joined by his son, Dr. Edmund W. Laidley, and in 1895 another son, Dr. John C. Laidley, became associated with him in practice. These three physicians are still practicing. The family record has thus been kept intact for eighty-nine years and it seems probable that more than 100 years of continual practice for the three generations, will be the record of this family.

Philadelphia

Honor to German Dentist.—Prof. Dr. Wilhelm Dieck, chief of the clinic of dentistry of the University of Berlin, has been given the honorary degree of Doctor of Science by the University of Pennsylvania.

Addition to Oncologic Hospital.—The first of a series of additions to the American Oncologic Hospital, erected at a cost of \$21,000, has just been opened. It is a two-story, fireproof structure to the east of the main building, and will have another story added later.

President to be Entertained.—The President-Elect of the American Medical Association, Dr. William L. Rodman, is to be the guest of honor, May 18, of the West Branch of the Philadelphia County Medical Society, at the Marlyn, Walnut and Fortieth streets. The reception will be followed by refreshments and an informal dance.

Civil Service Appointment.—The Civil Service Commission of the city of Philadelphia has the following medical position

on its present schedule; resident physician, the examination for which will be held on June 2 in the City Hall, Philadelphia. Applications must be executed and sent to the commission on the third day prior to the day of the examination. The examination is open only to citizens of the United States.

Rules for Conduct of Homes for Children.—The members of the Board of Health have drawn up twenty-two rules for conducting homes for children providing for the present care of the children as well as for their physical surroundings. The head of every licensed boarding house for infants must keep a record of each of the children admitted, the names of parents, etc., and the homes must be inspected every two weeks.

Clean-Up Week.—Last week was devoted to a general house cleaning of the city, and the records show that the "job" was more thoroughly performed this year than ever before, and the clean-up is greatly in excess of the celebrated house cleaning of 1914. The final report at the end of Thursday showed that 4,500 extra team loads of rubbish had been carried away, as compared with 3,600 extra team loads for the first three days of clean-up week in 1914.

GENERAL

Foot and Mouth Disease.—Figures compiled by the United States Department of Agriculture shows that 124,141 animals were slaughtered because of foot and mouth infection between October, 1914, and March 25, 1915.

Epidemic Diseases in Mexico.—A report has been made to the state department that there have been violent outbreaks of smallpox and typhoid fever in the City of Mexico. Supplies of vaccine virus have been hurried to the city.

Eye, Ear and Throat Specialists to Meet in Chicago.—The twentieth annual meeting of the American Academy of Ophthalmology and Oto-Laryngology will be held in Chicago, October 5 to 7, under the presidency of Dr. Joseph C. Beck, Chicago.

Proctologic Meeting.—The seventeenth annual meeting of the American Proctologic Society will be held in San Francisco, June 21 and 22, under the presidency of Dr. Louis J. Krouse, Cincinnati. The subject of the presidential address will be "Retrospect and Prospect."

Railway Surgeons Elect Officers.—At the annual meeting of the Association of Railway Chief Surgeons held in Chicago, May 3, the following officers were elected: president, Dr. John P. Kaster, Topeka, Kan.; vice-president, Dr. Joseph M. Burke, Petersburg, Va.; secretary-treasurer, Dr. Louis J. Mitchell, Chicago (reelected).

Personal.—Dr. Harry T. Summersgill, superintendent of the University of California Hospital, has succeeded the late Dr. W. O. Mann, Boston, as president of the American Hospital Association.—John Gabert Bowman, A.B., LL.D., has been appointed a director of the American College of Surgeons.—The passenger list of the *Lusitania* contains the names of the following physicians who are believed to have been rescued: Drs. Howard Fisher, Washington, D. C.; James T. Houghton, Saratoga Springs, N. Y.; Daniel V. Moore, Yankton, S. Dak., and F. Warren Pearl, New York City.

Gynecologists to Meet.—The fortieth annual meeting of the American Gynecological Society will be held at the Greenbrier Sulphur Springs, W. Va., May 18 to 20, under the presidency of Dr. Thomas J. Watkins, Chicago. The president's address is to be given on the morning of the second day and on the second evening, Dr. Walter P. Mantou, Detroit, will give a lecture with lantern demonstration on "Marriage Rites and Obstetrical Practices of the Ancient Romans," and on the third day the society will meet in joint session with the American Association of Genitourinary Surgeons.

Beriberi Facts.—Many cases of beriberi were reported on the German steamer *Kronprinz Wilhelm* which recently put in at an American port. An investigation still in progress by the U. S. Public Health Service has revealed the fact that in the dietary of the German seamen the bases of lime were distinctly absent, fresh meat, white flour bread and crackers, boiled potatoes, butter, lard and sugar having been the chief articles of diet. On the 255 days which make up the cruise of this war vessel, the men subsisted on food containing an excess of acid-forming elements and a deficiency of alkaline ash. The fact is also significant that forty-seven of the sailors suffering from beriberi were dismissed from the ship's hospital within eight days after a change to a diet rich in alkaline ash.

Bequests and Donations.—The following bequests and donations have recently been announced:

Home of the Merciful Saviour for Crippled Children, Philadelphia, \$2,000, and Hahnemann Hospital a contingent bequest of \$5,000 by the will of Charles R. Paul.

German Hospital, Philadelphia, and Hospital of the University of Pennsylvania, Philadelphia, each \$5,000 for the establishment of free beds, by the will of Elizabeth L. Roberts.

Massachusetts Homeopathic Hospital, \$200,000 for the erection of a building or for general uses; one-fourth of the residue of the estate after payment of bequests; dental department of the Harvard University, \$10,000, and \$20,000 for three perpetual beds to be added to the Collamore Ward, by the will of Mrs. Helen Collamore, Boston.

Hahnemann Hospital, Chicago, \$150,000, a donation by Robert Allerton, Chicago; \$100,000 for the building of a surgical ward of the new hospital, a donation by William Wrigley, Jr.

Presbyterian Hospital, Chicago, a donation of \$110,000, by Mrs. A. A. Sprague to pay the debt on the Nurses' Home, which is to be known as the Sprague Home for Nurses as a joint memorial to A. A. Sprague and a brother, O. A. S. Sprague.

Medical Department of the University of Cincinnati, a donation of \$1,000 for the running expenses, by Charles Boldt, Cincinnati, a commissioner of the institution.

Free Hospital for Consumptives of Philadelphia, Whitehaven, and St. Vincent's Home, each \$2,000 by the will of Josephine Borey.

St. Joseph's Hospital, Philadelphia, \$5,000; St. Vincent's Maternity Hospital, \$1,000; and St. Mary's and St. Agnes' hospitals, each \$500 by the will of William J. Power.

American Oncologic Society, Philadelphia, \$5,000 by Ada R. Kimball. Chestnut Hill Hospital, Philadelphia, \$52,000; St. Christopher's Hospital for Children, Germantown Hospital, Philadelphia Polyclinic Hospital, College for Graduates in Medicine, Pennsylvania Hospital, Episcopal Hospital, Philadelphia, each \$10,000, and Woman's Southern Hospital, Philadelphia, \$12,000 and any residue that may remain from the estate by Chauncey H. Brush.

St. Vincent's Home, Philadelphia, \$2,000, and St. Vincent's Maternity, \$500 by the will of F. A. Doyle.

Hygiene and Sanitation at the Exposition.—At the Panama-Pacific International Exposition a considerable area in the Palace of Education and Social Economy is occupied by exhibits on these subjects. The superintendent of this department—Dr. Hurley, an officer in the Public Health Service—has described them in Public Health Report, May 7, 1915, p. 1377.

The American Social Hygiene Association has an exhibit illustrating its work in dealing with the social hygiene movement. The International Health Commission of the Rockefeller Foundation shows hookworm disease in all its aspects, their exhibit including large numbers of photographs and several wax models. The International Mouth Hygiene Association has established a model up-to-date infirmary, and displays a marvelous collection of skulls of all races, arranged with the idea of showing the effect on teeth of the various foods of primitive man as contrasted with modern diet. The Woman's Christian Temperance Union has an exhibit on the subject of alcohol and other habit-forming drugs, the New York State Hospital Commission, an exhibition of its work on mental hygiene, psychiatry, and the care and treatment of the insane. Feeble-mindedness is similarly handled by the Massachusetts State Lunacy Board. The state of Pennsylvania has a model exhibit on school hygiene, showing the numerous advances in open-air schools. The National Race Betterment Association shows by statutes, photographs, models, engravings, and charts, the causes and evidences of race deterioration, and the possibilities of improvement.

Infant hygiene is exhibited by the United States Children's Bureau. This exhibition is extraordinarily complete, displaying by every method available in such an exhibit, the care and nutrition of the child. A children's health conference is held daily in connection, a free medical examination is given to any child and advice is furnished to parents.

The tuberculosis problem is treated from many points of view. One exhibit is offered by the California Society for the Study and Prevention of Tuberculosis; another by the Arequipa Sanatorium of California, the latter displaying particularly the work treatment—making of pottery—conducted in this sanatorium. The city of Baltimore has an exhibit showing its recently installed city water supply and filtration system, and the city sewage disposal system.

The Government of Japan demonstrates military hygiene with life-like wax models of its soldiers and nurses and their work; in another portion of this exhibit are models of perfected city water supply systems in Japan.

Tropical diseases are illustrated by the Philippine bureau of health, which shows the methods used under the American regimen, and the Republic of Cuba has an exhibit showing the diseases peculiar to that country. This exhibition includes a rare collection of tropical mosquitoes.

In this building also is located the exhibit of the American Medical Association. (See pages 1703, 1716.) Hurley says:

"The American Medical Association participates with an enlightening exhibit, showing their general educational work in personal hygiene, with special reference to the harmful and fraudulent character of patent medicines now on the market. The amount of alcohol and other ingredients, medicinal and inert, in some of the popular patent medicines is here strikingly shown, with the actual materials, properly labeled, giving the market price for same, as contrasted with the price paid when purchased in the patent medicine."

Other exhibits on health and hygiene are to be found in the Palace of Liberal Arts, where the United States Public Health Service has a complete demonstration of the mode and spread of infectious diseases, and models of the various types of stations operated by this service—quarantine stations, marine hospitals, laboratories, sanatoriums, etc. In

the Mines Building the Prudential Insurance Company has an exhibit occupying 4,500 square feet of space, demonstrating the relation of life insurance to the public welfare; and the Metropolitan Life Insurance Company demonstrates in a large area the various phases of its welfare work.

The aim of the exposition has been to keep these exhibits scientifically accurate, at the same time making them as graphic and interesting as possible, so as to be easily comprehended by the public. As medicine touches the ordinary activities of life at almost every point, there are innumerable exhibits besides those mentioned which are of particular interest to the physician.

FOREIGN

Physicians Needed for Mission Fields.—The American Board of Commissioners for Foreign Missions needs fifteen surgeons and physicians. Nine are wanted for China, four for Turkey, one for Africa and one at once for relief work in Serbia, with station at Monastir. For China, six men and three women are wanted to join hospitals already running which treat from 10,000 to 30,000 cases a year. The new men and women will be associated with surgeons in charge. In four hospitals in Turkey medical men are wanted in association with those already on the ground. In Durban, Natal Africa, a physician is urgently needed. The board lays down no sectarian test but does insist on earnest Christian consecration on the part of physicians whom it sends out. The candidates should be not over 35 years of age. In equipment the board requires a degree from a distinctly first-class institution and in addition an internship or its equivalent. Details as to service may be secured from Rev. C. H. Patton, 14 Beacon Street, Boston.

WAR NOTES

Donation to Red Cross.—An anonymous donation of \$10,000 has been made for use by the American Red Cross on the field of action in European war wherever the society may find the need most urgent and without regard to the nationality of those whom it may benefit.

A Johns Hopkins Unit.—Through the central office of the American Red Cross, Washington, an urgent call has been sent to Johns Hopkins Hospital, Baltimore, for 150 physicians, sanitary inspectors and senior medical students to go immediately to Serbia to fight typhus fever which is raging in that country. The party will sail May 17.

More Supplies for Berlin.—A heavy shipment of medical and surgical supplies, including a large part of hospital garments assigned to the German headquarters in Berlin, were shipped by the American Red Cross, May 9, on the steamer *Strathblane*. The shipment consisted of 587 cases valued at \$34,096. It is routed by Rotterdam, and will be forwarded from there through the American minister at The Hague.

Military Decorations.—Thousands of iron crosses have been awarded by the kaiser for special gallantry and devotion in the field, and other countries have been equally liberal. An unprecedentedly large proportion of them have been bestowed on members of the profession. The last *Wiener klinische Wochenschrift* lists for the week twenty-four physicians to whom the gold *Verdienst* cross had been awarded, in addition to a long list of other medical men receiving other decorations or special mention for gallantry in action.

Personal.—Major Ryerson, head of the Canadian Red Cross in the field, who had had one son killed in battle and a second dangerously wounded, now is suffering the loss of his wife and two daughters in the sinking of the *Lusitania*.—Dr. William E. MacLachlan of the house staff of the Norwegian Hospital, New York City, has resigned to take service with the expeditionary force at Kingston.—Mrs. Mary Borden Turner, New York City, has been placed in charge of the Mobile Hospital unit, consisting of ten portable houses, five of which will have twenty beds each.

More Hospital Units for Europe.—A college unit of thirty physicians and surgeons of Philadelphia, with the necessary nurses sufficient to care for a hospital of 1,000 beds, has been offered by William Potter, president of Jefferson Medical College, for service in France or Belgium.—Under the charge of Dr. J. William White of the University of Pennsylvania, a corps of physicians and nurses will sail from New York early next month, where they will form a unit in the American Ambulance Hospital, Paris. Dr. James P. Hutchinson will be in charge of the operating department of the hospital.

Emergency Aid for French Physicians Refugees from the War Zone.—The physicians driven out from their homes in

northeastern France by the invading armies have most of them sought refuge in Paris. As a rule, they have lost their all and are in great distress. The government plans to come to their aid when the war is over, but in the meantime an association has been formed to give emergency aid to the extent of its powers. The name of the association is the *Oeuvre parisienne de Secours immédiat et d'Assistance à la Famille médicale*. The fund for immediate relief during the war is in charge of Dr. J. Bongrand, 6 rue Villaret-de Joyeuse, Paris, 17, who appeals for subscriptions to carry on the work, especially what he calls collective subscriptions, namely, small donations from members of a group.

Distinctions Between Medical and Line Officers.—It is evident from our German exchanges and our Berlin correspondent's writings, that the German army authorities are brushing away all distinctions between the medical and line officers. One after another the differences in insignia have been dropped, until now there is little to distinguish a medical from a line officer of the same rank. The trend in France seems to be just the other way; new distinctions are being imposed, as our Paris correspondent has reported with evident disapproval (*THE JOURNAL*, May 1, p. 1514). Dr. F. Helme, in the hope of influencing the authorities, has called attention in the *Presse Médicale* to the opposite course being taken in the German army, citing in full our Berlin correspondent's account (February 13, p. 614) of the iron crosses conferred on physicians for gallantry in action, with nothing to suggest that they should be classed apart as noncombatants.

Aid for Belgian Physicians.—The report of the treasurer of the committee of American physicians for the aid of the Belgian profession for the week ending May 8, 1915, lists the following contributions:

The Med. Soc. of St. Lawrence County, Gouverneur, N. Y....	\$ 25.00
The Orange County Medical Association, Santa Ana, Cal.....	25.00
Dr. Parke W. Hewins, Wellesley Hills, Mass.....	25.00
Dr. Emma B. Culbertson, Boston, Mass.....	25.00
Dr. L. L. McArthur, Chicago, Ill.....	25.00
Dr. V. B. Jackson, Washington, D. C.....	10.00

Receipts for the week ending May 8.....	\$ 135.00
Previously reported receipts.....	6,585.50

Total receipts	\$6,720.50
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Previously reported disbursements:

1,625 standard boxes of food at \$2.20.....	\$3,575.00
1,309 standard boxes of food at 2.30.....	3,010.70

Total disbursements	\$6,585.70
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Balance	\$ 134.80
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F. F. SIMPSON, M.D., Treasurer,
5 Jenkins Arcade Bldg., Pittsburgh, Pa.

Hospital for Service with England.—The Director General of the Medical Department of the British Army has sent a cablegram to Dr. John B. Murphy accepting an offer to provide a hospital for service in England or with the British army abroad. The cablegram was turned over by Dr. Murphy to Dr. James M. Neff who is now busily engaged in organizing the personnel for the staff of this hospital. The staff will consist of thirty-two medical men, including three operating surgeons, one consulting physician, a radiographer, a clinical pathologist, an ophthalmic surgeon and a specialist on diseases of the ear, nose and throat, and seventy-five fully trained nurses. The British government suggests that it provide a senior officer of the Royal Army Medical Corps as administrator and also two quartermasters. It will also provide the subordinate male staff and all equipment, surgical material, etc. Surgeons may provide their own instruments, or they will be provided by the government. The pay of the entire medical and nursing staff will be at British army rates. Two of the medical staffs will receive pay and allowances of lieutenant-colonels, six of them will rank as majors and twenty-four of junior rank, with salary of 24 shillings, or \$6 a day. The nursing staff consists of one matron, twenty-six sisters and forty-eight staff nurses. The hospital will have accommodation for 1,040 patients. The medical and nursing staff will be given free transportation. It is suggested that the personnel be organized so that the staff may be ready to sail for England in time to arrive there about the middle of July. A number of applications have already been received by Dr. Neff and the work of enlisting the physicians and nurses is being carried on with enthusiasm. Dr. James M. Neff will be in command of the staff, Dr. Philip S. Chancellor will go as consulting physician and Drs. John Edward Kelley and John G. O'Malley have thus far been selected as members of the staff. Nurses or physicians who wish to participate in this work should apply to Dr. James M. Neff, 128 E. Thirty-Third Street, Chicago.

LONDON LETTER

LONDON, April 23, 1915.

The War

THE WORK OF THE RED CROSS

The work of the Army Medical Service is ably supplemented by the British Red Cross, and the result is such that the British soldier knows that, should he fall, there is behind him the most perfectly organized medical service the world has ever seen. He will be taken with all possible speed and comfort to a perfectly equipped hospital at the base. There he will receive every care and all that medical skill can do, including attention by the ablest specialists of the day and use of the latest scientific appliances to relieve his suffering and heal his wounds. In the earlier part of the war the British Red Cross not only met the urgent demand for doctors, nurses and orderlies for both military and voluntary hospitals, but also rendered the army medical authorities other services, such as the supply of ambulance transport for the base and the issue of vast quantities of medical and other stores. When, as stated in a previous letter to *THE JOURNAL*, Boulogne became the great base for the wounded and was converted into what might be described as a hospital town, the Red Cross undertook the whole of the work of clearing the trains and conveying the wounded to the hospitals. During the great battle of Ypres, the hospital trains arrived by day and night bringing thousands of wounded. The rapidity with which the work was done is illustrated by the following figures: A train of 123 wounded was cleared in nineteen minutes, and one of 264 wounded in fifty-three minutes. The total number of Red Cross cars now working for the British army in France is 401. There are also seventy-eight touring cars, thirty-two motor lorries, twenty-one motorcycles, eight traveling kitchens and five traveling workshops—a total of 545 cars. The drivers number 560, of whom 430 are paid and 130 are voluntary. The military authorities now supply the Red Cross Ambulance Department with petrol and tires and provide for the billeting of the men. Ninety cars are always in instant readiness for service day or night. After the battle of Neuve Chapelle as many as 4,000 wounded were transferred in one day from the trenches to the hospitals. During March the total number of wounded moved from the trains to the hospitals, and from the hospitals to the ships, was 33,941. The greater number were moved by Red Cross cars, giving an average of 981 per day. At the front, the Red Cross works in convoys which consist of fifty ambulances, four touring cars, seven motorcycles, and three lorries, seventy-five drivers and fifty orderlies. A convoy is divided into three sections, each under a section leader. It is the duty of a convoy, or a section of it, to proceed to the various field hospitals in its district to which cases have been brought during the previous night, generally by horse ambulance, from the first-aid posts at the firing line. At the field hospitals, the ambulances are loaded up with stretcher cases and sitting cases for conveyance to the nearest clearing hospital, which is usually situated at the town used by the convoy as a base. Here the wounded are again treated, and as soon as possible are moved in the ambulances to the railhead and placed in trains for transport to the hospital base. Six hours, or at the most eight hours later, they reach the central station at Boulogne. Most of the trains now are splendidly equipped hospitals on wheels, with a complete medical and nursing staff. In this convoy work there is a considerable element of danger particularly when, as sometimes happens in great pressure, the ambulances are sent to collect the wounded at the first-aid posts. Yet it is the ambition of every man serving at the base to go out with a convoy. The convoy is often working along a road which is daily under fire, and the hospitals have frequently to be evacuated while the shells are falling perilously near. Ambulances have been struck by shell splinter or bullet; but happily so far there has been no casualty among the men. The sections have at times to work at night where no lights are allowed, and great care and skill are required to avoid serious accidents.

In addition to the ambulances working for the British army in France, the British Red Cross has placed 121 ambulances at the disposal of the French military authorities, subject only to the condition that they shall be available for the British army when required. Early in October the American Volunteer Motor Ambulance Corps, organized by Mr. Richard Norton, offered to send out a convoy to work under the British Red Cross. This most generous offer was gladly accepted, and the convoy was placed under the command of Colonel Barry, and is attached to a division of the

French army. The inspector-general of the French army has written a report expressing most cordial thanks for the great services rendered by this American contingent, which consists of Americans and is entirely self-supported as regards finance. On one occasion, it successfully withdrew 400 wounded from a town which was in imminent danger of falling into the hands of the enemy.

OPEN-AIR TREATMENT OF TYPHUS FEVER

The prevalence of typhus fever in Serbia, to which several of the British and American physicians and nurses who have gone to the assistance of that country have succumbed, gives the disease a special interest just now. In a letter to the *Times*, Sir Clifford Allbutt has suggested open-air treatment. In the sixties of last century he was in charge of a fever hospital at Leeds during an outbreak of typhus of which the mortality was very heavy. In consequence of a remark of the late Professor Rolleston of Oxford concerning the "Irish fever," that "not a few of the patients carried out into the hedge bottoms as moribund, nevertheless recovered," he was led to test open-air treatment as a principle of cure. He had the staff warmly clad and all the windows taken out or screwed firmly open. The mortality of all cases fell promptly from between 16 and 17 per cent. to 6 or 7 per cent., and the infective activity was much reduced. He therefore strongly urges that in Serbia every typhus fever patient should be carried out into the open air, in wet weather with a waterproof coverlid for sufficient protection, and that every attendant should wear glazed cotton overalls and protect the neck and hair in like manner.

PARIS LETTER

PARIS, April 22, 1915.

The War

MEDICO-SURGICAL STATISTICS OF THE WAR

The minister of war has decided to draw up for the present war medico-surgical statistics analogous to those which were drawn up for the Crimean and Italian wars. The material will be obtained from statistical bulletins, of which each one will represent a patient discharged from the hospital for any cause whatsoever (death, removal to another hospital or to a convalescent station, etc.). So far as the wounded are concerned, the data to be noted on the statistical bulletin will comprise the place and date of the wound, the interval in hours between the moment of the wound and the first medical dressing, the detailed diagnosis, the nature of the agent producing the wound (ball, shell, shrapnel, sidearm, etc.) the region wounded, the tissue injured, the infection which has followed (gaseous gangrene, tetanus, etc.) the complications (secondary hemorrhage, abscess, etc.) the surgical procedures, the anatomic and functional consequences and the termination.

THE REEDUCATION OF CRIPPLES

A Société de rééducation des blessés et mutilés de la guerre has just been formed at Pau and has founded an institute of mechanotherapy. The society has assumed the responsibility for the purchase of apparatus and the provision of porters for the work. The institute will be administered under military authority. The purpose of the society comprises the gratuitous provision of apparatus for alleviating the infirmities resulting from mutilations; the reeducation of cripples by theoretical instruction and by practical work so that they may be able to practice a livelihood in accordance with their aptitudes; search for appropriate employment. The society will receive and maintain at Pau wounded and crippled men who wish to learn a trade which is easily mastered; food and lodging as well as mechanotherapy care will be given free.

The establishment of a similar school for the professional reeducation of cripples at Bordeaux is under consideration.

EXAMINATION OF THE CONSCRIPTS OF 1917

The ministerial decree with regard to the formation of the 1917 class reminds the councils of revision and the physician experts that the examination of the young men of the 1917 class should be made with the greatest care because of the age of these conscripts, many of whom have not attained their full physical development. A severe selection, therefore, should be made, and the physicians should seek with especial care for all signs of insufficient functional vigor of the organism. They should be especially keen to discover symptoms of tuberculosis or of predis-

position to that disease. They should always examine carefully the medical certificates presented by the men under examination.

CHARCOAL COTTON IN THE DRESSING OF WOUNDS

Recently, Professor Delorme, inspector-general of the military medical service, has recommended iodized charcoal as an application to a wound to insure disinfection and to dry up secretions. Dr. Maurice Champeaux has drawn attention in the *Journal des Praticiens* to the absorbent value of charcoal employed in another way. Why not increase the value of absorbent cotton by combining it with a substance having the same absorbent properties and possessing also a disinfectant and deodorizing property? Dr. Champeaux makes a dressing consisting of several layers of the absorbent cotton, alternating them with layers of powdered vegetable charcoal sprinkled on with an insufflator. This increases the absorbent properties of the dressing and tends to prevent soiling of the surface by the secretions issuing from the wounds.

Statistics of Population in 1914

The government has just published statistics, covering the first half of the year 1914, with regard to the population of France except the five departments invaded by the enemy, data on which are not available. These statistics indicate a deplorable state of affairs. The number of births has diminished during this period by 3,971. In 1914 there were 331,398 births in place of 335,369 in 1913. As the deaths increased by 20,845, it appears that the population of France during the first half of the past year—that is to say in time of peace—diminished by 24,816.

Cheap Dwellings in 1914

The activity of the Oeuvres de construction d'habitations à bon marché produced extremely interesting results in the department of the Seine before the declaration of war. During the first eight months of 1914, separate dwellings and apartment houses were constructed to a number almost equal to the total in 1913. A point which ought to be mentioned particularly is with regard to the "certificates of salubrity." Out of a hundred individual dwelling houses, about eighty obtained this certificate, while of a hundred apartment houses only half obtained it. Undoubtedly, it is much easier to insure hygienic conditions in a small house than in a barrack. Moreover, figures prove that the modest constructor (workman or employee) of the little individual house takes more care than the rich man to build his house healthfully and in conformity with the hygienic regulations of the committee of patronage of the Oeuvres de construction d'habitations à bon marché. These figures show also that the builder of apartment houses seeks too often to economize space at the expense of sanitation. Of course, the increase in the price of land, material and labor renders it more difficult to comply with the intent of the law. While recognizing the difficulty, the committee of patronage believes that it is always and everywhere possible to comply with the rules of hygiene and that the committee should therefore maintain its standards in the interests of the laboring population and the large families which are to be especially protected.

Marriages

EDWARD MILO VICTORINE, M.D., Cedar Rapids, Iowa, to Miss Fern R. Smith of Marble Rock, Iowa, at Iowa City, Iowa, April 15.

EARLE MONTGOMERY YOUNG, M.D., Plankinton, S. D., to Miss Laura Culbert of Sioux Rapids, S. D., April 14.

WILLIAM J. GILBERT, M.D., to Mrs. Rosa Wilken, both of New Orleans, at Gulfport, Miss., April 22.

RICHARD CLARENCE BEEBE, M.D., Lewes, Del., to Miss Edna Thompson of Paulsboro, N. J., April 28.

ARTHUR A. HUSSER, M.D., Hingham, Mont., to Mrs. Bertha M. McCrary of Havre, Mont., April 20.

JAMES SAMUEL SHAFFER, M.D., to Miss Mignon Warrick, both of Terre Haute, Ind., April 10.

CLAIR R. CANNON, M.D., Ellsworth, Wis., to Miss Annabel M. Barnett of St. Paul, April 19.

JOSEPH FRANCIS GEISINGER, M.D., to Miss Caroline Bragg, both of Richmond, Va., April 27.

Deaths

Gardner Caleb Hill, M.D. Castleton (Vt.) Medical College, 1856; a Fellow of the American Medical Association; and for nearly half a century a practitioner of Keene, N. H.; a member of the common council for three years and president of that body for two years; a member of the board of education for thirty-four years; city physician of Keene for seven years and physician of Cheshire County for five years; since 1897 president of the Keene Savings Bank; for many years an instructor in and president of the staff of the Eliot City Hospital, Keene; died at his home recently, aged 86.

Sherman Voorhees, M.D. College of Physicians and Surgeons, Baltimore, 1893; formerly a Fellow of the American Medical Association and of the American Academy of Ophthalmology and Oto-Laryngology; and a specialist on diseases of the eye, ear, nose and throat; of Elmira, N. Y.; surgeon to the Arnot Ogden Hospital and local ophthalmologist for the Pennsylvania System; who was seriously injured in July, 1914, in an automobile accident; died from his injuries at the home of his sister in Brooklyn, May 1, aged 48.

Josiah E. Bauman, M.D. Bellevue Hospital Medical College, 1867; for more than forty years a practitioner of Telford, Pa.; local surgeon for the Philadelphia and Reading Railroad; a member of the board of censors of the Medico-Chirurgical College of Philadelphia; aged 69; died in St. Agnes' Hospital, Philadelphia, April 30, from injuries sustained a few hours before when he was struck by a train near the Souderton, Pa., station.

Jacob Waller Phillips, M.D. Western Pennsylvania Medical College, Pittsburgh, 1890; a Fellow of the American Medical Association; for several years a city physician of Pittsburgh and a member of the central board of education; suffered a fracture of the skull by the overturning of an automobile in which he was riding, April 29, and died while being taken to the West Penn Hospital, aged 55.

Charles Joseph Fagan, M.D. University of Dublin, Ireland, 1883; of Victoria, B. C.; secretary of the Provincial Board of Health and secretary-registrar of the Council of the College of Physicians and Surgeons of British Columbia; formerly medical superintendent of St. Mary's Hospital, New Westminster, B. C.; a pioneer in antituberculosis work; died at his home in Victoria, February 10, aged 57.

DeWitt Clinton Newman, M.D. Starling Medical College, Columbus, Ohio, 1882; Cooper Medical College, San Francisco, 1883; for twenty-five years a practitioner of Spokane, Wash.; formerly a member of the State Board of Health; coroner of Spokane County and a member of the Spokane Board of Health; died at his home in that city, April 30, from cerebral hemorrhage, aged 57.

Charles A. Walsh, M.D. Hahnemann Medical College, Chicago, 1882; a founder, formerly a member of the staff and trustee of Grace Hospital, Detroit; at one time a member of the common council of Bay City, Mich.; a veteran of the Civil War; died at his home in Bay City, April 22, aged 71.

Sanders L. Swygert, M.D. Jefferson Medical College, 1885; of Greenwood, S. C.; a member of the South Carolina Medical Association; while making an address before the House of Delegates of the Association, Greenwood, April 20, died suddenly from heart disease, aged 54.

Fred Milton Smith, M.D. Medical School of Maine, Brunswick, 1905; a member of the Maine Medical Association; was taken ill in a taxicab, April 24, while making a professional call and died soon after, at his home in Portland, Maine, aged 35.

Darius Hefling, M.D. Philadelphia University of Medicine and Surgery, 1860; Botanic Medical College, Memphis, Tenn., 1862; from 1898 to 1902 sheriff of Tuscarawas County, Ohio; died at his home in New Philadelphia, Ohio, April 24, aged 78.

Amos C. Davis, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1867; surgeon of Volunteers during the Civil War; for nearly twenty-five years a practitioner of Topeka, Kan.; died at the home of his son in that city, April 24, aged 79.

William Phillips, M.D. Eclectic Medical Institute, Cincinnati, 1877; formerly a member of the Ohio State Medical Association; a member of the city council of Jackson, Ohio; died at his home in Parkview Heights, Jackson, March 8, aged 67.

Edward P. Cooke, M.D. Medical College of Ohio, Cincinnati, 1878; assistant superintendent of the Athens (Ohio) State Hospital from 1878 to 1884 and from 1892 to 1897; died at his home in Barlow, Ohio, April 24, from arteriosclerosis, aged 58.

Franklin Chase Clark, M.D. College of Physicians and Surgeons in the City of New York, 1872; a practitioner of Providence, R. I., for more than forty years; died at his home in that city, April 26, from cerebral hemorrhage, aged 67.

William Fred Hutchinson, M.D. Indiana College of Medicine and Midwifery, Indianapolis, 1885; for several years a chemist in the service of the British and United States governments; died at his home in Minneapolis, April 24, aged 73.

Horatio Gilbert, M.D. Albany (N. Y.) Medical College, 1867; hospital steward of the One Hundred and Fifty-Seventh New York Volunteer Infantry during the Civil War; died in the Soldiers' Home Hospital, Bath, N. Y., April 25, aged 75.

John V. E. Winnie, M.D. Albany (N. Y.) Medical College, 1867; a member of the Medical Society of the State of New York and health officer of the village of Sidney, N. Y., for fifteen years; died at his home, April 26, aged 71.

Joseph William Osher, M.D. University and Bellevue Hospital Medical College, 1913; of Brooklyn; house physician at St. Catherine's Hospital, Brooklyn, N. Y.; died in that institution, April 23, from pneumonia, aged 24.

Thomas B. Drew, M.D. College of Physicians and Surgeons, Chicago, 1897; of Oswego, Ill.; a Fellow of the American Medical Association; died in Augustana Hospital, Chicago, April 28, from intestinal obstruction, aged 40.

Edward Lincoln Kerns, M.D. State University of Iowa, Iowa City, 1889; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society; died at his home in Moline, Ill., May 1, aged 49.

Jacob W. Clark, M.D. University of Louisville, 1870; of Washington, Ind.; formerly a member of the Indiana State Medical Association; died at the home of his sister in Portland, Ore., April 24, from tuberculosis, aged 73.

George Jerrald Potts, M.D. Victoria College, Coburg, Ont., 1867; surgeon of volunteers during the Civil War; several years editor of the *Toronto Leader*; died at the home of his son in Clinton, Ont., April 22, aged 83.

Arthur Frederick Bissell, M.D. College of Physicians and Surgeons in the City of New York, 1847; for many years a practitioner of New York City; died at the home of his daughter in Baltimore, April 28, aged 88.

William W. McAfee, M.D. Georgia College of Eclectic Medicine and Surgery, Atlanta, 1905; a druggist and practitioner of Atlanta, Ga.; died suddenly in that city, April 24, from cerebral hemorrhage, aged 49.

Henry B. Brusstar, M.D. Jefferson Medical College, 1873; quarantine officer of the port of Philadelphia during the administration of Governor Beaver; died at his home in Philadelphia, April 25, aged 64.

Frank Peck Satterlee, M.D. College of Physicians and Surgeons, San Francisco, 1900; formerly of Hayward, Calif., but recently a resident of Shasta County; died in San Francisco, January 14, aged 55.

William John Sheehan, M.D. Albany (N. Y.) Medical College, 1897; of Port Chester, N. Y.; a member of the Medical Society of the State New York; died in New York City, January 14, aged 43.

William B. Rice, M.D. New York Homeopathic Medical College, New York City, 1863; for many years a practitioner of Niagara Falls, N. Y.; died at the home of his daughter in Buffalo, May 2, aged 88.

Emory Lincoln White, M.D. Harvard Medical School, 1872; a member of the board of health of Somerville, Mass.; died suddenly at his home in Somerville, April 29, from heart disease, aged 66.

Leslie Howard Evans, M.D. University of Vermont, Burlington, 1912; assistant physician to, and pathologist at, the Maine State Sanatorium, Hebron; died in Lewiston, Maine, January 17, aged 35.

Ethelbert H. Black, M.D. Curtis Physio-Medical Institute, Marion, Ind., 1883; formerly a member of the Ohio State Medical Association; died at his home in Rossburg, Ohio, February 9, aged 55.

Robert Henry Stetson, M.D. Bennett Medical College, Chicago, 1878; died suddenly at his home in Roswell, N. M., April 21, from heart disease, aged 72.

John B. Berry, M.D. Kentucky School of Medicine, Louisville, 1887; of Detroit, Texas; is said to have committed suicide in that city, March 10, while despondent on account of ill health, aged 50.

Ira R. Wetherill, M.D. College of Physicians and Surgeons, Baltimore, 1881; a practitioner of Bluffton, Ind., for twenty-five years; died in a sanatorium in Marion, Ind., April 21, aged 61.

Andrew H. Shaeffer, M.D. Starling Medical College, Columbus, Ohio, 1849; a practitioner of Circleville, Ohio, since 1870; died at his home in that place, April 21, from nephritis, aged 93.

Isaac Welsh Brown, M.D. University of Pennsylvania, Philadelphia, 1907; a member of the Medical Society of the State of Pennsylvania; died at his home in Philadelphia, April 29, aged 32.

Daniel N. Fisher, M.D. University of Arkansas, Little Rock, 1896; an honorary member of the Saline County (Ark.) Medical Society; died at his home in Benton, Ark., February 25, aged 69.

Byron D. Brown, M.D. Castleton (Vt.) Medical College; a practitioner of Coffeyville, Kan., for more than thirty years; died at his home in that city, March 14, from senile debility, aged 79.

Robert Hoffman, M.D. University of Wurzburg, Bavaria, 1884; a Fellow of the American Medical Association; died at his home in Baltimore, April 25, from heart disease aged 55.

Wellington Johnson, M.D. Bellevue Hospital Medical College, 1887; a Fellow of the American Medical Association; died at his home in Augusta, Maine, February 18, aged 59.

Alfred David, M.D. Queen's University, Kingston, Ont., 1873; for nineteen years a practitioner of Calumet, Mich.; died at his home in Prince Albert, Sask., February 11, aged 72.

Arthur Ernest Gale, M.D. University of Michigan, Ann Arbor, 1898; died at his home in Chestnut Hill, Brookline, Mass., April 27, following a nervous breakdown, aged 46.

William F. Smith, M.D. Eclectic Medical Institute, Cincinnati, 1886; of Vincennes, Ind.; died in the Southern Indiana State Hospital, Evansville, February 19, aged 61.

William A. Brock, M.D. Medical College of Ohio, Cincinnati, 1883; formerly of Lexington, Ky.; died at his home near Jacksonville, Ky., April 27, aged 78.

George Hoyle Sample, M.D. St. Louis College of Physicians and Surgeons, 1888; died at his home in Pocahontas, Mo., February 1, from nephritis, aged 64.

Abner Monroe Anderson, M.D. Barnes Medical College, St. Louis, 1900; of Throckmorton, Texas; died at his old home in Olney, Texas, April 27, aged 44.

John Littell Tarlton, M.D. Tulane University, New Orleans, 1908; of Grand Coteau, La.; died in New Orleans, March 18, from tuberculosis, aged 28.

William St. John Downey, M.D. Rush Medical College, 1894; of Salt Lake City; died suddenly, April 20, while making a professional call, aged 43.

Daniel Augustus Fuller, M.D. Long Island College Hospital, Brooklyn, 1886; a dentist and practitioner of Brooklyn; died at his home, May 2, aged 55.

Mason G. Elzey, M.D. Medical College of Virginia, Richmond, 1861; formerly of Cumberland, Md.; died in Richmond, Va., March 18, aged 76.

John James Kingston, M.D. University of Victoria College, Coburg, Ont., 1869; died at his home in Aylmer West, Ontario, March 12, aged 69.

Harley A. Stroud, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1889; died at his home in Douglas, Mich., April 23, aged 66.

George Davidson Carl, M.D. Pennsylvania Medical College, Philadelphia, 1855; died at his home in Greencastle, Pa., March 5, aged 84.

Henry B. Miller, M.D. Jefferson Medical College, 1885; died at his home in West Lafayette, Ohio, April 21, from heart disease, aged 61.

George Williams, M.B., C.M. Queen's University, Kingston, Ont., 1913; of Toronto; died in the Toronto General Hospital, March 2, aged 26.

J. T. Kasey (license, Missouri) died at the home of his daughter in Albuquerque, N. Mex., March 11, from senile debility, aged 81.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

BURNHAM'S SOLUBLE IODINE

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report on Burnham's Soluble Iodine.

W. A. PUCKNER, Secretary.

Burnham's Soluble Iodine is offered to the medical profession by the Burnham Soluble Iodine Company, Auburndale, Mass., under the claim that by

" . . . a new process hitherto unknown to chemistry, . . . Iodine is converted into a soluble article—soluble in water and soluble in gastric secretions and in the tissues."

Beyond this no statement as to the qualitative or quantitative chemical identity of Burnham's Soluble Iodine is furnished; this secrecy, of course, has given the preparation a certain mysterious prestige among unthinking physicians.

Burnham's Soluble Iodine was examined in the Chemical Laboratory of the American Medical Association some six years ago¹ and was found to be an alcoholic solution of free iodine (approximately 3 gm. per hundred c.c.) and combined iodine in the form of iodide (equivalent to about 2 gm. of potassium iodide per hundred c.c.). Thus the total iodine content was somewhat less than half of that of the official Tincture of Iodine (*Tr. Iodi.*), which contains 7 gm. of free iodine and 5 gm. of potassium iodide to each 100 c.c. The official tincture, diluted one-half, therefore, would be essentially equivalent to the Burnham preparation, both being miscible with water. The Burnham Soluble Iodine Company objected to the conclusions drawn from this analysis, but admitted the correctness of the analysis itself.

Any one who gathered his first knowledge of the subject from the Burnham advertising might readily infer that no soluble iodine had been known prior to Burnham's Soluble Iodine. This, of course, is not the case; the method of producing a solution of iodine by the use of an iodide has long been known.

The following statement is not only obviously untrue but also nonsensical:

"In all the history of iodine medication, covering a period of laboratory research of many years duration, every effort to produce a free iodine, prior to the evolution of Burnham's Soluble Iodine, was attended by failure."

The company lays stress on the assumed superiority over the iodides of a preparation containing free iodine. This assumption is based on a fallacy. Those who regard free iodine as superior to combined iodine forget that free iodine taken by the mouth is converted in the intestines, by the action of the alkaline intestinal secretions, into an iodide with a small amount of iodate, while administered intravenously (a procedure that, while advocated by the Burnham concern, is therapeutically indefensible) it enters into combination with the alkaline salts and proteins of the blood. The free iodine in Burnham's Soluble Iodine must act in the system as an iodide, and the whole iodine content, to furnish a correct estimate of the value of the preparation, should be reckoned as an iodide.

Bearing this in mind, then, it is evident that the doses of Burnham's Soluble Iodine recommended by the manufacturers are extremely small. They range from 20 minims (equivalent to 1 grain of potassium iodide) to ½ minim (equivalent to ¼ grain of potassium iodide). From 5 to 20 minims (equivalent to about ¼ to 1 grain of potassium iodide) is the dosage recommended for syphilis; from "1 to 3 minims [equivalent to from ½ to ¾ grain of potassium iodide] three to six times daily" for typhoid and other intestinal diseases.

1. For report see THE JOURNAL, March 28, 1908, p. 1055.

No wonder the exploiters can say that this nostrum does not irritate the intestines, that it is "non-irritating to the weakest stomach" and that there is an "entire absence of toxic action from maximum doses"! Its alleged freedom from the irritating and untoward effects of ordinary iodids is due, not to any inherent superiority of the preparation, but to the insignificant amount of iodid present.

The preparation is advertised for use in an extremely wide range of diseases, in some of which iodid therapy is recognized as of value, while in others it is generally regarded as either worthless or harmful. Given orally or intravenously (the recklessness of the latter method should again be emphasized) Burnham's Soluble Iodine is claimed to be of:

"... great utility as an internal antiseptic in tubercular affections . . ."

Since, as previously explained, free iodine, when introduced into the body, enters into chemical combination before it has a chance to permeate the tissues, and since the alkali iodids possess very slight (in fact, for this purpose, negligible) antiseptic powers, it is evident that this claim is unfounded. So, for the same reason, is the claim that "as an intestinal antiseptic," Burnham's Soluble Iodine is:

"... efficient in Typhoid Fever, Enteritis and other intestinal diseases."

It is recommended in exophthalmic goiter, notwithstanding that this condition is generally recognized as contraindicating the administration of iodids, which excite the action of the thyroid gland, and which therefore must be used with great circumspection. An especially indefensible recommendation is that $\frac{1}{2}$ minim of Burnham's Soluble Iodine (equivalent to $\frac{1}{40}$ grain of potassium iodid) be administered every five minutes in "membranous croup"—diphtheria—until relief from dyspnea is obtained. But, of all the extravagant claims made for this preparation, perhaps the following is the most reprehensible:

"In the treatment of Phthisis, in its various forms, clinical evidence clearly indicates that the use of SOLUBLE IODINE affords the most potent method of treatment available. Dose—2 minims, increasing to 5 minims in four ounces water before meals."

Remove the mystery and tell physicians that a dose of $\frac{1}{10}$ or $\frac{1}{4}$ of a grain of potassium iodid is "the most potent method of treatment available" in tuberculosis and the absurdity becomes self-evident. Nor is this the worst feature of the advice here offered. Iodin, by combining with the fatty acids of tuberculous tissues, promotes their autolysis and consequently their softening and breaking down. The products of this autolysis are carried by the lymphatics to healthy tissues and thus may spread the infection. Therefore the use of iodids in tuberculosis, even in small dosage, should not be undertaken lightly.

It is recommended that Burnham's Soluble Iodine, a semisecret preparation, exploited by means of extravagant and dangerous therapeutic claims, be held ineligible for admission to New and Nonofficial Remedies, and that this report be published.

LYDIA PINKHAM'S VEGETABLE COMPOUND

In his Great American Fraud series, Mr. Samuel Hopkins Adams discussed the Lydia Pinkham concern in *Collier's*, Feb. 17, 1906, as follows:

"No little stress is laid on 'personal advice' by the patent-medicine companies. This may be, according to the statements of the firm, from their physician or from some special expert. As a matter of fact, it is almost invariably furnished by a \$10-a-week typewriter, following out one of a number of 'form' letters prepared in bulk for the 'personal-inquiry' dupes. Such is the Lydia E. Pinkham method. The Pinkham Company writes me that it is entirely innocent of any intent to deceive people into believing that Lydia E. Pinkham is still alive, and that it has published in several cases statements regarding her demise. It is true that a number of years ago a newspaper forced the Pinkham concern into a defensive admission of Lydia E. Pinkham's death, but since then the main purpose of the Pinkham advertising has been to befool the feminine public into believing that their letters go to a woman—who died nearly twenty years ago of one of the diseases, it is said, which her remedy claims to cure.

"True, the newspaper appeal is always 'Write to Mrs. Pinkham,' and this is technically a saving clause, as there is a Mrs. Pinkham, widow of the son of Lydia E. Pinkham. What sense of shame she might be supposed

to suffer in the perpetration of an obvious and public fraud is presumably salved by the large profits of the business. The great majority of the gulls who 'write to Mrs. Pinkham' suppose themselves to be addressing Lydia E. Pinkham, and their letters are not even answered by the present proprietor of the name, but by a corps of hurried clerks and typewriters."

Earlier in the series, Mr. Adams had said: "Lydia Pinkham's variety of drink depends for its popularity chiefly on its alcohol."

Before the Food and Drug Act Lydia Pinkham's Vegetable Compound was labeled "A Sure Cure for Falling of the Womb and all Female Weakness." After the passage of the act the "sure cure" claim was eliminated and the enlightening information appeared, "Contains 18 per cent. of alcohol."

A year or two ago the chemists of the British Medical Association analyzed this nostrum and reported:

"Analysis showed it to contain 19.3 per cent. by volume of alcohol, and only 0.6 per cent. of solid substances; the ash was 0.06 per cent., and consisted of the constituents usual in vegetable preparations; traces of tannin and ammonia were present, and a small quantity of reducing sugar; no alkaloid was present, and no evidence was obtained of any active principle except a trace of a bitter substance soluble in ether; the remainder (0.3 or 0.4 per cent.) was vegetable extractive, possessing no distinctive characters."

As, from this analysis, it appeared that Lydia Pinkham's Vegetable Compound might properly have come within the

CONFIDENTIAL DAILY EAGLE NEW YORK FRIDAY, NOVEMBER 6, 1903

Confide in a Woman

How Women Act While Consulting a Male Physician.

A woman is sick, some disease peculiar to her sex is fast developing in her system. She goes to her family physician and tells him a story, but not the whole story. She holds something back, loves her head, becomes agitated, forgets what she wants to say, and finally conceals what she ought to have told, and thus completely mystifies the doctor. Is it any wonder, therefore, that the doctor fails to cure the disease?—Dull, we cannot blame the woman, for it is very embarrassing to detail some of the symptoms of her suffering, even to her family physician. It was for this reason that years ago Mrs. Lydia E. Pinkham determined to step in and help her sex. Having had considerable experience in treating female ailments with her Vegetable Compound, she encouraged the women of America to write to her for advice in regard to their complaints, and, being a woman, it was easy for her to tell them to pour into her ears every detail of their suffering. In this way

Mrs. Pinkham, in Lynn, Mass.

was able to do for them what the physicians were unable to do, simply because she had the proper information to work upon, and from the little group of women who sought her advice years ago, a great army of her fellow beings are today constantly applying for advice and relief, and during the last year many, many thousands every month have written and received valuable advice and help.

Nowhere, except at Lydia E. Pinkham's laboratory in Lynn is there such an amount of information at hand to assist in the treatment of all kinds of female ailments, from the simplest local irritation, to the most complicated diseases of the female organs. The records of all the many hundreds of thousands of cases as to which advice has been asked are there kept on file by Mrs. Pinkham, and from this vast experience she is able to do more than the family physician for plain women—any woman, therefore, is responsible for her own suffering who will not take the trouble to write to Mrs. Pinkham for advice. The testimonials which have been constantly published from grateful women establish beyond a doubt the power of LYDIA E. PINKHAM'S VEGETABLE COMPOUND to conquer female diseases.



Lydia E. Pinkham died in 1883. For years after her death, the concern's advertisements gave the impression that she was still answering all letters written to her. Here is a typical advertisement of this sort; it appeared in 1903, twenty years after Lydia E. Pinkham's death.

BACKACHE A SYMPTOM

Of More Serious Illness Approaching. Mrs. Bender's Case.

Backache is a symptom of organic weakness or derangement. If you have backache don't neglect it. To get permanent relief you must reach the root of the trouble. Read about Mrs. Bender's experience.

St. James, Mo.—"About a year ago I was irregular, had cramps every month, headache and constant backache. I took Lydia E. Pinkham's Vegetable Compound and used the Sanative Wash and I am relieved of all my troubles and am in perfect health. I shall recommend your medicine to all my friends, and you may publish this testimonial for the benefit of other suffering women."—Miss Anna Bender, St. James, Missouri.

Another Case.
Dixon, Iowa—"I have been taking Lydia E. Pinkham's Vegetable Compound for some time and it has done me much good. My back troubled me very much. It seemed weak. I had much pain and I was not as regular as I should have been. The Compound has cured these troubles and I recommend it to all my friends."—Mrs. Bertha Dierksen, Box 102, Dixon, Iowa.

If you have the slightest doubt that Lydia E. Pinkham's Vegetable Compound will help you, write to Lydia E. Pinkham Medicine Co. (confidential), Lynn, Mass., for advice. Your letter will be opened, read and answered by a woman, and held in strict confidence.

In this more recent advertisement, it will be seen that women are no longer told to write to "Mrs. Pinkham" but to the "Lydia E. Pinkham Medicine Co."

list of those alcoholic medicinal preparations for the sale of which a special tax is required, the attention of the Internal Revenue Department was called to the fact. The Commissioner of Internal Revenue replied that the preparation would be analyzed in the Bureau's laboratory and the matter reported on. This was late in 1913. Nothing further was heard from the Commissioner of Internal Revenue and in June, 1914, the office of the Commissioner was again written to. In reply the Internal Revenue officials stated that it had had Lydia Pinkham's Vegetable Compound under consideration and "as such preparation is *now* [Italics ours.—Ed.] compounded and placed on the market, it measures up to the standard adopted by this office. . . ." This letter was written June 9, 1914. Packages of Lydia Pinkham's Vegetable Compound purchased soon thereafter bore a special label on the bottle and the carton bore a small sticker with the words, "NEW FORM ADOPTED June 12, 1914." The special label on the bottle bore in part the following significant statements:

"It may be found that this medicine has a *different taste and appearance* from the Compound as formerly prepared. This is because it is now improved by *certain additions*.

"Understand that it contains precisely the same medicinal ingredients as formerly and in the same proportions, and consequently retains all its old virtues. The change made with the aid of forty years' experience is simply that *the medicine is stronger and contains some new herbs* possessing valuable medicinal properties. . . ." [Italics ours.—Ed.]

As it is a most unusual thing for nostrum manufacturers to admit changes in their formula—unless there are very urgent reasons for doing so—the assumption is justified that a hint from the Internal Revenue Department caused the Pinkham concern to add more drugs to its alcoholic nostrum. The proprietor of a large pharmaceutical jobbing house in Chicago reports that since the formula has been changed a number of complaints have come in from retail druggists to the effect that the nostrum does not "keep" but is "blowing up" on their shelves.

Ten Commandments for Clean-Up Week.—Dr. Carol Aronovici, secretary of the Suburban Planning Association of Philadelphia has formulated ten commandments which relate particularly to the open lot as a problem of city cleanliness:

- I. Love your neighbor's lot as you do your own; but be sure to love your own.
- II. Don't plant tomato cans and rubbish on unused land; their fruits are withered civic pride.
- III. Don't allow yourself or your city to create dumps. Waste can be made to pay for its own destruction at a profit.
- IV. Don't allow tumbled-down buildings to stand on valuable land; they are financially wasteful, they create filth, invite vice and are a menace to life.
- V. A fence that has ceased to be a fence and has become an offense should be repaired or destroyed.
- VI. Unregulated advertising on unused land pays for the maintenance of a public nuisance.
- VII. Two gardens may grow where one dump has bloomed before.
- VIII. School gardens are valuable adjuncts to education and recreation. They can be cultivated on an open lot.
- IX. Let the children play on the unused land, so they may become strong and keep out of the hands of the law.
- X. Let not an inch of land be kept in idleness. It has a divine right to bear fruits and flowers, and ever serve the highest interests of man.

Correspondence

The Superstition of Flat Foot

To the Editor:—In his paper on this subject (THE JOURNAL, April 10, 1915, p. 1208), Dr. Lovett emphasizes the fact that the painful symptoms, in the majority of cases, are due to strain, primarily of the muscles, and have no relation whatever to the depth of the arch. In this we agree, or perhaps I might say, he agrees with me, since I called attention to it more than twenty-five years ago. I am rather surprised, therefore, that I am classed by him as one who uses "a metal brace to force the arch of the foot back into place." I note further that throughout his paper, stress is laid on the arch, to the practical exclusion of the mechanism of the foot, and to the effect of disordered function as a predisposing cause of disability or "strain" in the class of cases with which his paper is chiefly concerned, namely, "the flat foot which is not flat foot."

To illustrate: Under normal conditions, when in active

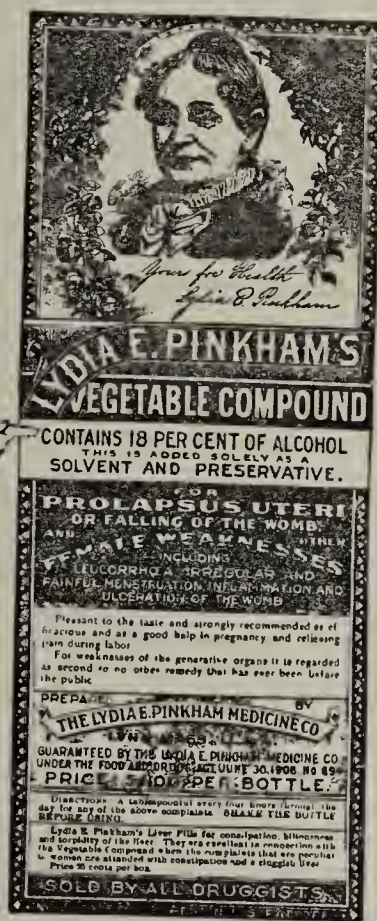
use, the power represented by the calf muscle is in line with the fore-foot, or fulcrum. This, owing to the greater length of the first as compared to the fifth metatarsal bone, has a somewhat diagonal contour, so that when the limb is advanced in the line of progression, the weight is lifted over it, and is directed toward the outer, or strong side of the foot.

In the attitude of rest, or weight bearing, the arch sways inward, and as a consequence, the fulcrum is displaced outward in its relation to the power. This attitude, with the accompanying outward rotation of the limbs, is fairly characteristic of the walk of shoe-wearing people. The spring of muscular control, and the normal alternation of strain are replaced by an inelastic gait in which there is almost unrelieved strain on the inner, or weaker side of the foot.

All weak, painful and disabled feet of the type under consideration have this common characteristic—the habitual use of the passive attitude of abduction (prona-

tion), in which the forefoot is turned away from the power, and in which the weight is directed toward the inner border of the foot, and in which the arch, although not primarily lowered as far as the imprint is concerned, bulges inward. The machinery is out of gear, the deformity tends to increase, and is eventually accompanied by accommodative and degenerative changes in the structure of the foot.

From this point of view, pain and deformity may be prevented by cultivation of the normal attitudes, and the disability may be permanently cured by the restoration of the normal conditions. My treatment has always been directed to this end, even to the exclusion, as far as may be, of the predisposing postures and attitudes, on the well-established principle of overcorrection. To assure this, temporary support is essential in a large proportion of the cases, and for this purpose I have always used, as an integral part of the treatment, a brace that by lateral restraint checks deformity at its source, by preventing the inward bulging, thus holding the power in its normal relation to the fulcrum. It even prevents



Labels before and after the passage of the Food and Drugs Act. The "SURE CURE" disappears and the enlightening information "CONTAINS 18 PER CENT OF ALCOHOL," takes its place; "All Female Weaknesses" becomes "other Female Weaknesses"; the statement, "for all diseases of the KIDNEYS it is the *Greatest Remedy in the World*," also disappeared when falsifying on the label became risky.

outward rotation of the limb, so that walking becomes the most important of the curative exercises.

It may be noted that the arch is restored by placing the foot in its proper relation to the leg. It is not forced into place, as Dr. Lovett thinks, but is relieved from pressure by balancing the weight toward the outer border of the foot.

Dr. Lovett, on the contrary, "attaches little importance to whether or not the foot is pronated" (out of gear), but relieves the strain by the use of a sole plate of indifferent shape, which, in so far as it restrains deformity, does it by direct pressure on the sole.

Apparently because "feet vary in shape as much as do our faces," he does not recognize a standard of symmetry as influenced by posture, or its relation to functional efficiency, or the importance of the two as safeguards against strain and disability. Neither does the esthetic appeal to him, although he must admit that the habitually abducted, or as he terms it, pronated foot, or the flat foot, even if efficient, is certainly unlovely in appearance, and often a source of mortification to its possessor.

Dr. Lovett thinks that painless flat foot should be left alone, and as far as the adult is concerned, the opportunity for treatment, even if desirable, is rarely offered. There is, however, a very important class of this type of deformity that should not be let alone, namely, that of children. Pain at this period of life is rather unusual, but weakness and awkwardness are the inevitable consequences of the distortion. I am convinced, therefore, that the energetic treatment of such cases, with the aim of restoring symmetry, and as it were, remolding the foot, is of very great importance, not only for its immediate utility, but as a preventive of future disability.

That improper use and deformity do not necessarily entail disability, and that treatment may relieve symptoms without restoring functional effectiveness are matters of common knowledge, as true of feet as all other forms of bodily weakness.

With most of Dr. Lovett's "heresies" which he has summarized at the end of his paper I am practically in accord. Nor do I question the accuracy of his observations or the success of his treatment.

Our vital difference is on an important principle—whether unfavorable mechanical conditions do not predispose to disabling strain and deformity under favoring circumstances, as is believed by those who examine candidates for military service, for example, and whether treatment designed to restore mechanical efficiency is not likely to be of more permanent value than one which aims merely at relief of symptoms.

ROYAL WHITMAN, M.D., New York.

The Hunan-Yale Medical School and Hospital at Changsha

To the Editor:—May I state briefly something of the situation in medical education in China. The Medical Commission of the Rockefeller Foundation has recommended support by the foundation of four centers for medical education in China. One of these four is the Hunan-Yale Medical College and Hospital at Changsha, the capital of Hunan Province. This institution represents a joint agreement between Yale-in-China and a society of Chinese representing the Hunan government, for the development of a first-class school of medicine, nursing schools for men and women, respectively, a modern teaching hospital, and a diagnostic and research center for central China. The hospital, medical preparatory school, and nurses' schools are now in operation. The standards are the highest possible. The aim is quality and not quantity of work.

The support of the Rockefeller Foundation and the rapid growth in Changsha make a large increase in the medical and nursing staff necessary within the next two years. Both laboratory and clinical branches require trained men. Dr. Hume, the head of the Yale-in-China medical staff, will be in the United States until August 1, and will welcome inquiry from qualified applicants, or from men now graduating in medicine or in hospital positions, who wish to investigate

these great opportunities in the orient. Address Dr. E. H. Hume, 5 White Hall, Yale University, New Haven, Conn. The scope of the Hunan-Yale institution is not limited to Yale men.

ALFRED C. REED, Changsha, China.

Alcohol and the Harrison Narcotic Law

To the Editor:—Why cannot The American Medical Association father and support an amendment to the Harrison Narcotic Law placing alcohol and its by-products under its provisions? Alcohol is a narcotic and is doing more to degrade the American people than either opium or cocain. Such an amendment would require only a majority vote of Congress to pass. It would not trespass on the doctrine of states' rights. It would be constitutional. It could be easily administered and enforced as a revenue measure, as a part of the Harrison law now in force. It would put an end to the liquor business. JOHN G. WILSON, M.D., Montrose, Pa.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

INQUIRY ON THE HARRISON LAW

To the Editor:—I enclose a note received from the Treasury Department in answer to an inquiry whether the Harrison law applied to novocain, orthoform, aesthesin and alypin.

The object of the law, of course, is to prevent people obtaining cocain for use for its intoxicating effects.

Can you tell me whether any or either of the four preparations mentioned above have been so employed and what are the constitutional symptoms?

E. HOCHHEIMER, M.D., New York.

The following is the Treasury Department decision:

(T. D. 2194, NARCOTIC LAW)

Persons using or having in possession, cocaine, alpha or beta eucaine or any of their salts or any synthetic substitute for them, required to register, pay the special tax and comply with all the provisions and regulations issued under the authority thereof, of the act of Dec. 17, 1914, known as the Harrison Narcotic Law.

TREASURY DEPARTMENT

Office of the Commissioner of Internal Revenue

WASHINGTON, D. C., April 26, 1915.

Synthetic substitutes. In exempting from its provisions certain preparations and remedies, the act (Sec. 6) expressly excludes from such exemptions "preparations which contain cocaine or any of its salts or alpha or beta eucaine or any of their salts or any synthetic substitute for them." To effect the obvious purpose of this provision of the act, the words "synthetic substitutes" are held to apply to any artificial substance or preparation which is or may be substituted for cocaine, alpha or beta eucaine, or any of their salts as ordinarily prescribed or used, and not necessarily to a purely synthetic substitute which, chemically, is identically the same as the drug for which it may be so substituted.

Further, both the title and Sec. 1 of this law include "opium or coca leaves or any compound, manufacture, salt, derivative, or preparation thereof," and under a liberal interpretation of the word "derivative" from a chemical point of view, the several cocaine substitutes would also be clearly included.

Manufacturers of, dealers in, and physicians prescribing any such substitutes, as above defined, should therefore register and otherwise conform to the requirements of this law and the regulations issued thereunder.

W. H. OSBORN, Commissioner.

Approved: William P. Malburn, Acting Secretary of the Treasury.

ANSWER.—The intent of the ruling is to define the words "synthetic substitutes" as they appear in Section 6 of the Harrison law. They are here held to apply to "any artificial substance or preparation which is or may be substituted for cocaine, alpha or beta eucaine or any of their salts as ordinarily prescribed or used, and not necessarily to a purely synthetic substance which chemically is identically the same as the drug for which it may be so substituted." In a word, the Treasury Department makes the distinction turn on therapeutic rather than on chemical characteristics. Anything is a substitute for cocain which can be used in place of cocain (that is, to secure the same effects), regardless of chemical identity or resemblance. But this ruling is clearly only a transitory one. What are the "synthetic substitutes" that may be used in place of cocain and that must con-

sequently, under the ruling, be reported? The ruling practically leaves it to the physician. What the physician (and our correspondent, for example) wants to know is, "What drugs must I report?" This ruling is plainly an extension of the scope of the law. In order to be effective, it must be supplemented by a list of synthetic substitutes which must be reported.

The synthetic substitutes for cocain as given in the last edition of New and Nonofficial Remedies are:

Anesthesin	Non-toxic
Propaesin	Practically non-toxic
Cycloform	Soluble with difficulty; practically non-toxic
Orthoform-new	Practically non-toxic
Stovaine	From one-third to one-half as toxic as cocain
Alypin	One-half as toxic as cocain
Novocaine	Less toxic than stovain or alypin
Beta-eucaine hydrochloride	Much less poisonous than cocain
Beta-eucaine lactate	
Tropacocain hydrochloride	One-half as toxic as cocain

Whether these will all be included in the ruling of the Treasury Department it is impossible to say. How widely they are used by general practitioners is unknown. Under the ruling quoted, it would be advisable for physicians to record all cases in which any of these drugs are dispensed.

Meanwhile, THE JOURNAL can only repeat its earlier advice to physicians to use the prescribed form of prescription blank for all prescriptions and to record *all* habit-forming drugs dispensed for the time being, and in case of doubt, to give the benefit of the doubt to the law.

DID PRESCOTT DESCRIBE VERRUGA PERUVIANA?

To the Editor:—In Prescott's "Conquest of Peru" the following passage occurs on page 323 of Volume I:

"To add to their distress, a strange epidemic broke out in the little army. It took the form of ulcers or rather hideous warts of great size which covered the body, and when lanced, as was the case with some, discharged such a quantity of blood as proved fatal to the sufferer. Several died of this frightful disorder, which was so sudden in its attack and attended with such prostration of strength that those who lay down at night were unable to lift their hands to their heads in the morning."

Can you explain what disease was present?

A. W. PATTERSON, M.D., Fonda, Iowa.

ANSWER.—It seems possible that the condition mentioned was the disease prevailing in Peru known as Carrion's disease or verruga peruviana. It is marked by an initial fever, sometimes of short duration, with marked anemia and great prostration, which are followed by an eruption of warts. The latter are apt to bleed profusely when abraded or incised. This disease was mentioned as early as 1543 by Carate in his "History of Peru." Verruga has been the subject of much investigation in recent years, among the latest publications being the report of an expedition conducted by the Department of Tropical Medicine of Harvard University (THE JOURNAL, Nov. 8, 1913, p. 1713).

THE LANDAU TEST

To the Editor:—It would seem that THE JOURNAL has been led into error in stating the technic of the Landau test. More recent literature seems to indicate that the quantity of the reagent used by Landau in his second technic should be 0.1 rather than .01 c.c.

A. W. STILLIANS, M.D., Chicago.

ANSWER.—The Italian journal—*Revista Ospedaliera*, Rome, July 15, 1914—from which THE JOURNAL copied the Landau technic, stated that 0.01 c.c. of a 1 per cent. solution of iodine in carbon tetrachloride should be used in making this test. Additional foreign literature—*Presse médicale*, May 2, 1914, p. 335, and others—state that the correct quantity is 0.10 c.c.

THE GHEEL COLONY FOR THE INSANE

To the Editor:—If known will you kindly mention through THE JOURNAL what, if anything, has befallen the famous colony for the family care of the insane at Gheel, Belgium, since the clash of arms began in that distracted country?

This inquiry has been made, but vainly, in many directions.

GEORGE HOMAN, M.D., St. Louis, Mo.

ANSWER.—Perhaps some of our readers can furnish this information.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

- DELAWARE: Dover and Wilmington, June 15-17. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.
- FLORIDA: Jacksonville, June 15-16. Sec., Dr. E. W. Warren, 102 Front St., Palatka.
- GEORGIA: Atlanta and Augusta, June 2-4. Sec., Dr. C. T. Nolan, Marietta.
- ILLINOIS: Chicago, June 24-26. Sec., Dr. C. St. Clair Drake, Springfield.
- IOWA: Iowa City, June 10-12. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.
- KANSAS: Kansas City, June 8-10. Sec., Dr. H. A. Dykes, Lebanon.
- KENTUCKY: Louisville, June 8-10. Sec., Dr. A. T. McCormack, Bowling Green.
- LOUISIANA: New Orleans, June 3-5. Sec., Dr. E. L. Leckert, 716 Machea Bldg., New Orleans.
- MARYLAND: Baltimore, June 21. Sec., Dr. J. McP. Scott, Hagerstown.
- MARYLAND: Homeopathic, Baltimore, June 15-16. Sec., Dr. O. N. Duvall, 1817 N. Fulton Ave., Baltimore.
- MICHIGAN: Detroit, May 27-29; Ann Arbor, June 8-10. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.
- MINNESOTA: Minneapolis, June 1-4. Sec., Dr. Thomas McDavitt, Lowry Bldg., St. Paul.
- MISSISSIPPI: Jackson, June 15-16. Sec., Dr. E. H. Galloway, Jackson.
- MISSOURI: St. Louis, June 21-23. Sec., Dr. J. A. B. Adcock, State House, Jefferson City.
- NEBRASKA: Lincoln, June 10-11. Sec., Dr. H. B. Cuminins, Seward.
- NEW JERSEY: Trenton, June 22-23. Sec., Dr. H. G. Norton, 429 E. State St., Trenton.
- NEW YORK: Albany, Buffalo, New York and Syracuse, May 25-28. Mr. Harlan H. Horner, Chief, Examination Division, State Education Bldg., Albany.
- NORTH CAROLINA: Greensboro, June 8. Sec., Dr. H. A. Royster, Raleigh.
- OHIO: Columbus, June 8-11. Sec., Dr. George H. Matson, Columbus.
- PENNSYLVANIA: Philadelphia and Pittsburgh, June 1-3. Sec., Dr. Nathan C. Schaeffer, Harrisburg.
- SOUTH CAROLINA: Columbia, June 8. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.
- TEXAS: Austin, June 22-24. Sec., Dr. M. P. McElhannon, Belton.
- VIRGINIA: Richmond, June 22-25. Sec., Dr. J. N. Barney, Fredericksburg.

New Mexico January Report

Dr. W. E. Kaser, secretary of the New Mexico Board of Health and Medical Examiners, reports the written examination held at Santa Fé, Jan. 11-12, 1915. The total number of subjects examined in was 13; total number of questions asked, 100; percentage required to pass, 75. One candidate was examined and passed. Fourteen candidates were licensed on satisfactory credentials. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Southwestern University	(1911)	90
College	LICENSED ON CREDENTIALS	Year Grad.	Total No. Licensed
Arkansas Industrial University	(1888)	1
University of Colorado	(1913)	1
Medical College of Indiana	(1903)	1
University of Kansas	(1911)	1
Kentucky School of Medicine	(1888) (1898)	2
College of Phys. and Surgs., Baltimore	(1903)	1
Tufts College Medical School	(1908)	1
St. Louis College of Phys. and Surgs.	(1903)	1
College of Phys. and Surgs. in the City of N. Y.	(1889)	1
Starling Medical College	(1901)	1
Jefferson Medical College	(1891)	1
University of Pennsylvania	(1900)	1
University of Edinburgh	(1912)	1

Oregon January Report

Dr. L. H. Hamilton, secretary of the Oregon State Board of Medical Examiners, reports the practical and written examination held at Portland, Jan. 7-9, 1915. The total number of subjects examined in was 15; total number of questions asked, 108; percentage required to pass, 75. The total number of candidates examined was 42, of whom 25 passed, including 1 nongraduate and 17 failed, including 3 osteopaths and 5 nongraduates. The following colleges were represented:

College	PASSED	Year Grad.	Total No. Examined
California Eclectic Medical College	(1914)	1
College of Phys. and Surgs., San Francisco	(1910) (1914)	2

Hahnemann Medical College of the Pacific.....	(1913)	1
Bennett Medical College.....	(1914)	1
Rush Medical College.....	(1903) (1914)	2
Louisville and Hospital Medical College.....	(1908)	1
University of Minnesota.....	(1894)	1
Barnes Medical College.....	(1905)	1
St. Louis University.....	(1906)	1
University Medical College, Kansas City.....	(1904)	1
Bellevue Hospital Medical College.....	(1871)	1
Coll. of Phys. and Surgs., in the City of New York..	(1885)	1
University of Oregon.....	(1907) (1914,2)	3
Jefferson Medical College.....	(1913) (1914)	2
University of Pennsylvania.....	(1897)	1
Meharry Medical College.....	(1913)	1
University of Virginia.....	(1907)	1
McGill University	(1907)	1
Nippon Medical College, Tokyo.....	(1909)	1
Nongraduates		1

FAILED		
Chicago College of Medicine and Surgery.....	(1914)	1
University of Louisville.....	(1913)	1
Baltimore Medical College.....	(1901)	1
Univ. of Michigan, Homeopathic Medical College.....	(1913)	1
University of Minnesota.....	(1891)	1
St. Louis University.....	(1908)	1
University of Oregon.....	(1910)	1
Willamette University	(1905)	1
Milwaukee Medical College.....	(1912)	1
Nongraduates		5

Washington January Report

Dr. Conrad N. Suttner, secretary of the Washington State Board of Medical Examiners, reports the written examination held at Walla Walla, Jan. 5-8, 1915. The total number of subjects examined in was 11; total number of questions asked, 132; percentage required to pass, 60. The total number of candidates examined was 45, of whom 42 passed, including 7 osteopaths, and 3 failed. The following colleges were represented:

College	PASSED	Year Grad.	Total No. Licensed
California Eclectic Medical College.....		(1914)	1
Hahnemann Medical College of the Pacific.....		(1913)	1
University of California.....		(1898)	1
Georgetown University		(1914)	1
American Med. Missionary College, Chicago.....		(1906)	1
College of Phys. and Surgs., Chicago.....		(1909)	1
Northwestern University		(1894)	1
Rush Medical College.....		(1887) (1912) (1914)	3
University of Illinois		(1914)	1
Indiana University		(1910)	1
Kansas Medical College.....		(1896)	1
University of Louisville.....		(1912)	1
Baltimore Medical College.....		(1912)	1
Johns Hopkins University.....		(1910) (1913)	2
University of Mich., Dept. of Med. and Surg.....		(1883)	1
Missouri Medical College.....		(1883)	1
St. Louis College of Phys. and Surgs.....		(1893)	1
St. Louis University.....		(1913)	1
Dartmouth Medical School.....		(1898)	1
Starling-Ohio Medical College.....		(1912) (1914)	2
Hahnemann Med. Coll. and Hosp., Philadelphia.....		(1899) (1909)	2
Jefferson Medical College.....		(1900) (1910) (1912) (1913)	4
University of Pennsylvania.....		(1913)	1
University of Vermont.....		(1906)	1
University of Toronto.....		(1908)	1
Fukuoka Medical College, Japan.....		(1910)	1
Imperial University, Tokyo.....		(1889)	1
FAILED			
Kentucky School of Medicine.....		(1881)	1
University Medical College, Kansas City.....		(1903)	1
Vanderbilt University		(1887)	1

Rhode Island April Report

Dr. Gardner T. Swarts, secretary of the Rhode Island State Board of Health, reports the practical and written examination held at Providence, April 1-2, 1915. The total number of subjects examined in was 7; total number of questions asked, 8; percentage required to pass, 80. The total number of candidates examined was 6, of whom 4 passed and 2 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Georgetown University		(1914)	92.5
Medical School of Maine.....		(1908)	88.5
College of Phys. and Surgs., Baltimore.....		(1914)	80.2
Harvard University		(1889)	80
FAILED			
University of Georgia.....		(1913)	78.6
Tufts College Medical School.....		(1908)	71.6

Book Notices

DISEASES OF THE STOMACH AND THEIR RELATION TO OTHER DISEASES.
By Charles G. Stockton, M.D., Professor of Medicine, Medical Department University of Buffalo. Cloth. Price, \$6. Pp. 774, with 92 illustrations. New York: D. Appleton & Co., 1914.

In an introduction of about ten pages, Dr. Stockton gives his reasons for writing this book. The principles enunciated in this introduction are important and should be carefully read by any one who is interested in the subject. Although an internist of wide and extensive clinical experience, Stockton has for many years given much thought and close study to diseases of the alimentary tract. He approaches the subject of diseases of the stomach not only from a thorough investigation of primary diseases of the stomach, but also from the outside point of view gained by a thorough knowledge of general pathology. He recognizes the existence of many disturbances of the gastro-intestinal tract as due to systemic conditions. His treatment of the subject of functional diseases of the stomach is admirable. Carcinoma of the stomach is viewed broadly and judicially. Ulcer of the stomach, one of the most important subjects related to diseases of that organ, is very fully covered. He discusses the various theories as to etiology of ulcer. His attention has not been called to the significant work done by E. C. Rosenow of Chicago on the causation of ulcer. At the same time he recognizes focal infection about the dental alveoli and tonsils as sources of hematogenous focal infection of the stomach wall as a cause of ulcer. This will probably prove the primary cause of ulcer of the stomach and duodenum. He recognizes, as all others must, that the primary step in ulcer formation of the stomach is due to devitalization of a small area of the stomach mucosa, and this may occur from several causes. The chief one we believe to be focal infection. A local devitalized tissue may be attacked by the digestive juices of the stomach and an ulcer result. Continued corrosive action of the gastric juice is the chief cause of the continuation of the ulcer, as proved by B. W. Sippy of Chicago. In the treatment of ulcer, Stockton is rational in the recognition of the necessity of reducing the hyperacidity of the gastric juice and the use of a bland nonirritating diet. He could go further in the principles of treatment by directing that the diminution of the acid should be carried to the degree of the entire removal of free hydrochloric acid, to prevent absolutely further corrosion. His discussion of the superiority of medical management over the surgical treatment of ulcer of the stomach and the recognition of the necessity of surgical treatment in certain states is very wise. There are chapters on ptosis of the abdominal organs, gastritis, vomiting, cardiospasm and stricture of the esophagus, and lastly, an excellent short article on alimentation. The author is to be congratulated on the production of a book which will be an excellent guide to the practitioner and to the medical student.

TRANSACTIONS OF THE FIFTH ANNUAL MEETING OF THE AMERICAN ASSOCIATION FOR STUDY AND PREVENTION OF INFANT MORTALITY. Paper. Price, \$3. Pp. 391. Baltimore: 1211 Cathedral Street.

The report of the Boston meeting (1914) of the American Association for the Study and Prevention of Infant Mortality is an index of the growth of the association since its founding in 1910. With this growth, the association has broadened in its scope. In the beginning, the conservation of infant life was sought chiefly through better feeding and the creation of a purer milk supply. It was soon found, however, that intelligent motherhood was one of the prime essentials, and much of the more recent effort has been directed toward the education of mothers in personal and baby hygiene, and in prenatal care. The securing of proper registration of vital and morbidity statistics as affording a basis for intelligent effort at infant conservation, nursing and social work in general has likewise become prominent in the work. Many of the papers in the report, including that of the president, Dr. J. Whitridge Williams, deal with

prenatal care in its various aspects and in the care of institutional babies, almost to the exclusion of other subjects. Most of the authors emphasize the difficulties and the rather unsatisfactory results of caring for babies in institutions and the desirability of placing them in homes, and Chapin even advocates the abolishment of institutions for babies altogether. There are many papers on nursing and social work, on obstetrics and related subjects, besides reports and discussions on various aspects of infant conservation and welfare.

LEGAL PRINCIPLES OF PUBLIC HEALTH ADMINISTRATION. By Henry Bixby Hemenway, A.M., M.D. Introduction by John Henry Wigmore, LL.D., Dean Northwestern University Law School. Cloth. Price, \$7.50. Pp. 859. Chicago: T. H. Flood & Co., 1914.

Dean Wigmore says in his introduction, "This book is a sign and a product of the times." It is an attempt to set forth the principles of the law as applied to community health as a public function. It endeavors to answer several important questions, among these being whether the law as it has been handed down to us can meet the necessities of applied science, that is, whether the old and settled principles of law will serve our modern knowledge of sanitation; whether present-day questions of public health call merely for a new application of old principles or for their destruction and the creation of new ones, and whether the attempt to legislate for the benefit of the public health is but a changed phase of the conflict between individual liberty and the general welfare. The book further attempts to make law and science better acquainted and to make judges, lawyers and health officers familiar with each others' everyday principles and assumptions. The task of setting forth the law and exhibiting its lines of contact with the demands of science, as well as pointing out the necessary adjustment of medical methods to the fundamental restrictions of the law, is a difficult and delicate one. It must be admitted that some of the passages in the book are platitudinous and that others are open to argument. The task of welding together the two bodies of learning is one which, even at the hands of a person uniting rarely the requisite accomplishments of learning in both sciences, can hardly be done so as to satisfy in every detail the professions of law and medicine.

Dr. Hemenway has divided his book into two parts, which in turn are subdivided into twenty chapters. The first part deals with the general principles and the second part with special subjects. In Part I he takes up chapter by chapter the relationship of public health to the body politic and the scientific basis of public health efforts; the underlying principles of government, the common law, constitutions, institutions and statutes; the triple system of government and the relation of each branch to public health administration; the executive organization; the judiciary; the police power, its nature and methods; due process of law; nuisances; public health powers and their limitations, national, state and municipal; officers; liabilities; legal remedies, and vital statistics. In Part II there are considered quarantine and allied subjects; licenses; water supplies, drains and garbage disposal; pure food and drug regulation; industrial regulation; school inspection, and eugenics. The author has failed in some instances to develop the true value of the cases dealing on public health questions; for instance, the case of *Health Department v. Trinity Church*, 145 N. Y. 32 is a key case, developing as it does the fundamental principles of the law as they apply to public health problems. Apparently, the author has cited this case in but two places, on pages 198 and 235. In neither place does it appear that he has appreciated its full value. On the other hand, he handles with great ability, although possibly too briefly, the law of nuisances. He dismisses this subject leaving the idea in the mind of the reader that this phase of the law is yet in a formulative state, which is probably true. He brings out the fact that many of the early cases which passed on the question of nuisances in regard to the public health were tried before modern ideas of science were developed. This may be correct, but it does not render those cases worthless,

as it might appear that the principles which applied to the facts as then developed still apply to the facts as we know them today. The value which should be attached to the book is to be measured by the weight which is to be attached to the author's opinions and to the extent to which he adheres to the law as found in the precise language of the cases and law writers. The industry and energy of the author is deserving of high commendation. The book will doubtless help to bring about a clearer knowledge of the legal aspects of public health work.

MEDICAL ELECTRICITY, RÖNTGEN RAYS AND RADIUM. With a Practical Chapter on Phototherapy. By Sinclair Tousey, A.M., M.D., Consulting Surgeon to St. Bartholomew's Clinic, New York City. Second Edition. Cloth. Price, \$7.50. Pp. 1219, with 798 illustrations. Philadelphia: W. B. Saunders Company, 1915.

The first edition of this work was reviewed in *THE JOURNAL*, Aug. 20, 1910, when mention was made of the great mass of facts collected by the author and the difficulty which the reader would experience in getting systematic instruction from the material presented. The comprehensive and detailed character of the work enhances the difficulty of bringing it fully up to date. The author has endeavored, however, to keep his book in touch with the widening field of electrotherapy and its allied subjects, which include the comparatively new ones of phototherapy and the application of radium. In the latter field he is conservative and, while giving a fairly full account of the uses of radium in surgery, says practically nothing of its use in internal diseases. Intravenous injections are mentioned and the dosage given, but the author does not seem to be enthusiastic over them. The book is well illustrated and will prove useful to those who wish a comprehensive work on these subjects.

HOUSES FOR MINING TOWNS. By Joseph H. White. Paper. Price, 15 cents. Pp. 58, with illustrations. Department of the Interior, Bureau of Mines, Bulletin No. 87. Washington: Superintendent of Documents, 1914.

This bulletin contains suggestions for the improvement of housing in mining towns, and the planning of such towns to secure the best return in health and efficiency for the workers as well as for the mine operators. Although the actual loss which is occasioned by insanitary and uncomfortable environment may not be readily measurable, it is nevertheless real, and justifies the department in its investigations looking to improvement in this respect. Among the subjects touched on are the town site and arrangement, advantages of establishing the town near the plant as well as away from the plant, and such details as width of streets, construction of sidewalks and gutters, situation and size of houses and lots, types of houses of different materials and the advantages of each. Plans and illustrations, arrangement of houses and details of lighting and heating, and many other features of comfort, artistic arrangement and surroundings are discussed. Water supplies, gardening, disposal of wastes, the keeping of animals, etc., are also described. The sociologic aspects of housing are not touched on to any extent. The pamphlet is valuable for its suggestions as to the way for improving living conditions in mining villages and towns.

CYSTOSCOPY AND URETHROSCOPY FOR GENERAL PRACTITIONERS. By Bransford Lewis, B.S., M.D., F.A.C.S., Professor of Genito-Urinary Surgery, Medical Department of St. Louis University, and Ernest G. Mark, A.B., M.D., F.A.C.S., Professor of Genito-Urinary and Venereal Diseases in the University Medical College, Kansas City, Mo. With a Chapter by William F. Braasch, Attending Physician to the Mayo Clinic, Rochester, Minn. Cloth. Price, \$4.50 net. Pp. 238, with 113 illustrations. Philadelphia: P. Blakiston's Son & Co., 1915.

The authors cover the subject of modern cystoscopy and urethroscopy completely, giving first an interesting and impressive review of the developmental stage of this phase of genito-urinary surgery. Stress is laid on the authors' own instruments, which are creditable. The subjects of renal functional tests and fulguration are concretely discussed. To the text is added a chapter on pyelography by Braasch, including his splendid illustrations.

Medicolegal

Damages for Injury to Spinal Cord

(*Padrick vs. Great Northern Railway Co. (Minn.)*, 150 N. W. R. 807)

The Supreme Court of Minnesota holds that a verdict of \$35,000 was excessive, and should be reduced to \$30,000, in this personal injury case, in which the evidence showed an injury to the spinal cord which permanently crippled the plaintiff, virtually destroyed all earning capacity, and so paralyzed him that he was unable to attend to his wants without assistance. The court says that it realizes that it would not take more than about one-third of the amount of the verdict in this case to compensate the plaintiff for his lost earning capacity, and about an equal amount, perhaps, to procure the needed personal attendance. Did the balance more than compensate him for his sufferings, discomforts, humiliation, and deprivation of all those enjoyments and anticipations of life ordinarily experienced by persons in possession of the usual physical powers and capabilities? Since no money compensation can ever be adequate for permanent personal injuries of such serious character as the ones here involved, it is apparent that courts or legislatures must fix some limit, arbitrary though it be, on the amount of recovery. Otherwise, there will be a tendency to paralyze human endeavor, for these deplorable accidents do happen, and, if there be no limit to a recovery, few enterprises will be strong enough financially to survive a verdict of a jury in personal injury actions of serious consequences. The record showed that the plaintiff had the appearance of being well nourished, he was not bedridden, he could move about to a limited extent, his mind was unimpaired, and one physician was of the opinion that he might be able to do some easy clerical work. On a consideration of the whole case, the court is of the opinion that the verdict should be reduced to \$30,000.

Statute Construed as Permitting Waiver of Privilege in One Way Only

(*Arizona & New Mexico Railway Co. vs. Clark (U. S.)*, 35 Sup. Ct. R. 210)

The Supreme Court of the United States, in affirming a judgment in favor of plaintiff Clark, for personal injuries, holds that, under the Arizona statute, there was no error in excluding the evidence of two physicians called by the defendant for the purpose of testifying to the results of a personal examination of the plaintiff shortly after he received his injuries, although the plaintiff had testified personally in regard to his injuries and called as a witness a nurse who had attended him after the accident, who testified as to the condition of the eye that had been injured. The court says that, under the Arizona statute, without the consent of the patient, the physician's testimony is excluded with respect to two subjects: (a) any communication made by the patient with reference to any physical or supposed physical disease, and (b) any knowledge obtained by personal examination of such patient. And this privilege is waived, according to the terms of the proviso, only in the event that the patient offers himself as a witness and voluntarily testifies "with reference to such communications." The court would have to ignore the plain meaning of the words in order to hold, as it was asked to do, that the testimony of other witnesses offered by the patient, or the testimony of the patient himself with reference to other matters than communications to the physician, or any averments contained in the pleadings, but not in the testimony, amount to a waiver of the privilege. The enactment contemplates that the physician receives in confidence what his patient tells him, and also what the physician learns by a personal examination of the patient. It contemplates that the patient may testify with reference to what was communicated by him to the physician, and in that event only it permits the physician to testify without the patient's consent. The court cannot, without encroaching on

the domain of legislation, declare that there is no substantial ground for a distinction between the information the physician gains from verbal communications made by the patient and the far wider knowledge that he derives from his personal examination of the patient. Certainly it cannot be said that when the patient afterwards has occasion to make averments and adduce evidence respecting the nature of the ailment or injury, he thereby necessarily publishes to the world the facts as disclosed to the physician through the physical examination. The framer of the act was careful to choose language that recognizes the distinction between (a) communications made by the patient and (b) knowledge obtained by the physician through a personal examination of the patient. The New York statute, which, so far as this court has observed, was the first to establish a privilege with respect to the knowledge gained by a physician while attending a patient in a professional capacity, recognizes no such distinction. Nor does it define with precision what conduct on the part of the patient shall constitute a waiver of the privilege. Hence the courts of that state deemed themselves at liberty to determine this question on general principles, derived from the supposed policy of the law. Not only, therefore, are the decisions of the courts of that state, and of other states having statutes formed on the same model, valueless as guides to the meaning of the statute here in question, but the very fact that the legislature of Arizona departed from the form of the New York statute indicates that it did so because it had a different purpose to express. This court is unable to see anything that would justify it in refusing judicial recognition thus laid hold of by the lawmaking body in defining the extent and conditions of the privilege.

A Disease Common to Both Sexes

(*Russell vs. Fraternities Health & Accident Association (Me.)* 92 Atl. R. 820)

The Supreme Judicial Court of Maine overrules a motion for a new trial, after a verdict for the plaintiff, who sued on a health and accident insurance policy. The court says that the policy contained the provision that "benefits shall not be allowed for sickness or disease not common to both sexes." The plaintiff was afflicted with a cystic tumor on one of her ovaries. The only question was whether such tumor was a sickness or disease not common to both sexes. Three medical witnesses testified that it was common to both sexes. The medical director of the defendant testified that it was not common to both sexes, but admitted that the male sex did have cystic tumors. The jury found, as they were authorized to do from the evidence, that the disease was one common to both sexes.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, SAN FRANCISCO, JUNE 21-25.

American Academy of Medicine, San Francisco, June 25-28.
Am. Assn. Gen.-Urin. Surgs., White Sulphur Springs, W. Va., May 18-20.
American Climatological and Clin. Association, San Francisco, June 18-19.
Amer. Gynecological Society, White Sulphur Springs, W. Va., May 18-20.
American Laryngological Association, Niagara Falls, June 1-3.
American Otolological Society, Niagara Falls, June 3-4.
American Pediatric Society, Lakewood, N. J., May 25-27.
American Society of Tropical Medicine, San Francisco, June 14-16.
American Surgical Association, Rochester, Minn., June 9-11.
Arizona Medical Association, Prescott, June 17-18.
Connecticut State Medical Society, Hartford, May 19-20.
Illinois State Medical Society, Springfield, May 19-20.
Maine Medical Association, Poland Springs, June 9-10.
Massachusetts Medical Society, Boston, June 8-9.
Nat'l Assn. for the Study and Prev. of Tuberculosis, Seattle, June 14-16.
Nebraska State Medical Association, Hastings, May 18-20.
Nevada State Medical Association, Reno, June 17-19.
New Hampshire Medical Society, Concord, May 19.
New Jersey Medical Society, Spring Lake, June 22-24.
North Carolina State Medical Society, Greensboro, June 16.
Rhode Island Medical Society, Providence, June 3.
South Dakota State Medical Association, Sioux Falls, May 18-20.

Miscellany

A Local Study of Ventilation Problems

The Chicago Ventilation Commission, appointed about five years ago, has made numerous studies and observations of the ventilation question, and now has issued its first report. This commission is a delegated voluntary organization composed of representation from the following organizations: Department of Health of the City of Chicago, Illinois Chapter of the American Society of Heating and Ventilating Engineers, Public Schools of Chicago, Illinois Society of Architects, Illinois Chapter of the American Institute of Architects, and Western Society of Engineers. The summary is made at this time in order that the organizations having membership in the commission may have a detailed record of its work, and also because numerous inquiries have been received, prompted by a recent increased interest in the ventilation problem and changing views concerning it. The commission reports on tests conducted on the ventilation of passenger cars, picture theaters, an experimental school-room, an office and an experimental cabinet. It has endeavored to study ventilation under actual everyday conditions. Among the opinions (rather than conclusions) expressed, a few may be summarized as follows: Carbon dioxide as encountered in working practice is not the harmful agent of major importance; a temperature of 68 degrees with a proper relative humidity is the correct temperature for artificially lighted living rooms; it is at present impossible to designate all harmful factors in or associated with expired air; the principle of ventilation by currents is preferable to the principle of ventilation by dilution, and smaller volumes of air are sufficient when introduced by currents; convection in the production of currents is effective and economical; upward ventilating currents in crowded rooms are desirable, provided the sources of air supply are free of contamination; the delivery of a certain volume of air per unit of time, per occupant, into a given space does not necessarily constitute ventilation; air introduced into an occupied room in such a way that it strikes the occupants should not be lower in temperature than 60 degrees; heating and ventilation are two distinct problems, and the installation of heating and ventilating systems, whether separate or combined, should be such that neither system interferes with the efficiency of the other; from the standpoint of health, relative humidity is one of the important factors in ventilation; air cleaning devices are desirable; the bacterial content of air is an important factor in ventilation, and bears a direct relation to the source and quantity of air supply. Equally interesting opinions are given concerning the ventilation of street cars, moving picture theaters, schoolrooms, etc. The report gives details of the tests, descriptions and illustrations of the apparatus, etc. Such work represents a practical study of a live, every-day problem.

Early Phenomena in Mouth and Throat During Prodrome of Smallpox

K. Walko, professor of internal medicine in Prague, is in charge of the contagious disease hospital at Ujvidek in the eastern zone of war. He has been making a special study of the behavior of the mucous membrane in the mouth and throat to ascertain whether something analogous to Koplik's spots in measles might not be discovered. In three cases which he describes in detail, during the period of incubation or the prodrome, there were pronounced findings on the mucosa, beginning as a diffuse redness and swelling, and then brighter red spots developed at various points. This red spotting persisted during the whole of the disease or developed into actual superficial ulcers. The participation of the buccal and throat mucosa in the active disease process is not only an aid in diagnosis but it also suggests that droplet infection may occur even during the incubation or prodromal period. One physician contracted smallpox from a patient who coughed while he was

being examined. The physician had not touched him or any article in the room, but eight days after this visit the symptoms of the disease became manifest. Walko's communication appears in the *Prager medizinische Wochenschrift*, March 25, 1915.

The Feeble-minded in Ohio

The Ohio Board of Administration, in a recent publication (Publications, March, 1915), discusses the problem of the feeble-minded in Ohio. It has been estimated that at least 0.3 per cent. of our population—from 300,000 to 400,000 persons—is feeble-minded. Only about 20,000 of these are cared for in institutions for the feeble-minded, and a somewhat larger number in infirmaries and other institutions. Not over one-third of the feeble-minded in the United States are under custodial care. In Ohio, the report states, it is estimated that there are from 10,000 to 15,000 feeble-minded children. The institutions for the feeble-minded of that state can take care of only about 2,000, less than 20 per cent. Some of the remainder are in infirmaries, reformatories and penitentiaries, and others swell the number of juvenile delinquents in the industrial schools. Those not in institutions or under proper guidance are left free to perpetuate the defective stock. The mental examination of the delinquents in the Girls' and Boys' Industrial School and Home reveals startling results. Of 100 girls examined, 59 were feeble-minded, 14 borderline cases, 13 mentally retarded, and only 14 of normal mentality. Of the 100 boys examined, 46 were feeble-minded, 26 borderline cases, 11 mentally retarded, and only 17 of normal mentality. Investigations among adults have shown that over 50 per cent. of prostitutes, 25 per cent. of reformatory and penitentiary inmates, and probably 75 per cent. of infirmary inmates are feeble-minded. The results of investigations in Ohio coincide with the findings elsewhere that from 60 to 80 per cent. of the feeble-mindedness in Ohio is due to bad heredity. The institutions have attempted to discipline and train delinquents before returning them to society. This, it appears, is the proper course to pursue in the case of normal children, who through bad surroundings or other accidental circumstances are committed to these institutions, but defective children cannot be reclaimed in this way. Institution training and discipline may serve to cover their defects, but can never bring them up to normal. To give them such training and then turn them loose on the community is a moral and economic blunder. The frequent appearance of these defectives in the reformatories and penitentiaries proves that the present system of handling this unfortunate class does not meet the requirements of the situation. The report of the Ohio board is suggestive and is an interesting addition to the considerable volume of information now accumulating concerning the problems of the feeble-minded.

The Value of Preliminary Education

It is often of interest to note how simple truths of great importance today were recognized generations ago. In a personal letter Oliver Goldsmith, distinguished English author, humorist, poet, and in his youth, physician, wrote the following comment on the value of preliminary education for the study of medicine:

"Give me leave to say that the circle of science which I have run through, before I undertook the study of physic, is not only useful, but absolutely necessary to making a skilful physician. Such sciences enlarge our understanding, and sharpen our sagacity; and what is a practitioner without both but an empiric, for never yet was a disorder found entirely the same in two patients. A quack, unable to distinguish the particularities in each disease, prescribes at a venture; if he finds such a disorder may be called by the general name of fever, for instance, he has a set of remedies which he applies to cure it, nor does he desist till his medicines are run out, or his patient has lost his life. But the skilful physician distinguishes the symptoms, manures the sterility of nature, or prunes her luxuriance; nor does he depend so much on the efficacy or medicines as on their proper application."

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

May, IX, No. 5, pp. 353-460

- 1 *Mode of Infection and Etiology of Epidemic Poliomyelitis. S. Flexner, New York.
- 2 *Leukocyte Counts During Digestion in Bottle-Fed Infants. A. G. Mitchell, Philadelphia.
- 3 *Influence of Menstruation on Breast Milk. C. G. Grulee and F. C. Caldwell, Chicago.
- 4 An Effective Breast Pump. (Mouth Suction Vacuum.) F. C. Caldwell, Chicago.
- 5 *Experiences with High Caloric Diet in Typhoid of Infants and Young Children. L. E. La Fétra and L. C. Schroeder, New York.
- 6 *Roentgen Ray in Diagnosis of Pulmonary Conditions in Children. W. M. Hartshorn, New York.
- 7 *Cases of Epidemic Cerebrospinal Meningitis Treated Successfully with Flexner's Antimeningitis Serum. W. A. Smith, Webster Groves, Mo.
- 8 *Study of One Hundred and Five Cases of Tuberculous Meningitis. A. E. Meyers, San Francisco.
- 9 Acrocephalosyndactylism. B. F. Davis, Chicago.
- 10 *Congenital Intestinal Obstruction. V. C. Rowland, Cleveland.

1. **Etiology of Poliomyelitis.**—A summary is given by Flexner of his views on the etiology of poliomyelitis. He says that the microbic agent of epidemic poliomyelitis is present in the nasal and buccal secretions and is carried by persons, not insects, and communicated by them in such manner as to gain access to the upper respiratory mucous membranes of other persons, among whom a portion, being susceptible to the injurious action of the virus, acquire the infection and develop the disease. The clinical variety or form of the disease which they develop may be the frankly paralytic, the meningitic, or the abortive and ambulatory in which no severe symptoms whatever appear. But however the persons may be affected, they become potential agents of dissemination of the virus of poliomyelitis, as do a number of healthy persons who have been in intimate contact with those who are ill, and another group of persons who have recovered from an acute attack of poliomyelitis. These several classes of infected or contaminated persons constitute the active means through which the virus is spread and to the control of which sanitary measures designed to prevent epidemics must be directed. Finally, the virus or microbic agent of epidemic poliomyelitis appears now to have been cultivated and to consist of minute globular bodies, capable of being distinctly viewed under the high powers of the microscope.

2. **Leukocyte Counts.**—Mitchell's report is based on a study of fifty children, on whom over 700 blood counts were made. The method of study pursued was to take a leukocyte count immediately before feeding, immediately after feeding, fifteen minutes after feeding, one-half hour after, one hour after, one and a half hours after, and so on every half-hour until the next feeding. The infants on whom this study was made were all bottle-fed, and, while not exactly normal children, were of the type usually seen in a hospital ready for discharge. The results of the analysis of these cases are interesting, in that physiologic leukocytosis after feeding was not found in most instances, and the opposite condition of leukopenia prevailed. Of the fifty children, only six, or 12 per cent., constantly showed an increase in the white blood cells during digestion, although sixteen, or 32 per cent., showed at times an increase, and at others a decrease. Contrasted with this, twenty-eight, or 56 per cent., constantly showed a decrease in leukocytes during digestion; 28.3 per cent. showed leukocytosis and 68.3 per cent. leukopenia. The remaining 3.3 per cent. were so irregular as to be undeterminable.

As to why some children show leukocytosis and others leukopenia after food, and why the same child may show at times an increase and at times a decrease after food—Mitchell offers no explanation. Careful study of the cases as regards age, gain or loss in weight, character of stools, nature of

food, temperature, and time of day did not show any definite relation. Six children were studied through a four-hour period, beginning at 9 a. m., and received no food then or for several hours before. These all showed a gradually decreasing leukocyte count. A theory offered by Mitchell is that ingestion of food, and beginning of the activities of the gastro-intestinal tract, both glandular secretion and muscular movement thus causing increased blood supply to the splanchnic area, may attract leukocytes away from the superficial blood, and result in a diminished number of cells when counted by the ordinary methods.

Mitchell concludes his article as follows: Bottle-fed babies do not constantly show digestive leukocytosis; in fact, the majority show a smaller number of leukocytes in the superficial blood after taking food than before. This decrease is greatest at from one to two and a half hours after food, and tends to rise before the next feeding. When a rise does occur, it is most frequently soon after feeding, and begins to decline in a half hour. Crying, struggling and chilling of the part from which the blood is extracted increases the count. Mitchell suggests that comparative counts be made at the same time of day, and at the same time in relation to food.

3. **Influence of Menstruation on Breast Milk.**—The subject of the study by Grulee and Caldwell was a baby born with a harelip and cleft palate, nursed for nine months by means of a specially devised breast pump. The mother's menstrual period began six weeks after birth and continued throughout the nursing. The quantity of milk was carefully measured, especially during the last four months of lactation, and there was shown a distinct relation between the quantity of breast milk and the occurrence of the menstrual period. This consisted in a period of increase of breast milk beginning with the first day of menstruation and lasting from ten days to two weeks thereafter. There then occurred a diminution in the quantity which reached its lowest point four to seven days previous to menstruation after which there was a gradual increase. The only constant effect of the menstrual period on the baby was that he did not gain so much in weight during the ten days preceding the period as he did the ten days following the period. Sometimes he cried a little more than usual or was a little fretful before the period began, and sometimes during the same time he had a few extra bowel movements with a slight greenish color, but these changes were inconstant.

5. **Diet in Typhoid.**—The children studied by La Fétra and Schroeder were fed at three-hour intervals, beginning at 6 a. m. and continuing until 9 p. m., six feedings in the twenty-four hours. The articles given were such as would be prescribed for a child in health, with the exception that the only meat used was creamed chicken. In order to increase the caloric value of the liquid food, which was practically always milk, lactose and cocoa and usually cream were added. In no case was an exclusive milk diet used; every patient took cereals in some form. Eggs and toast were offered from the beginning. No attempt was made to have either an upper or a lower limit of protein, but the general rule was adhered to, to have the protein calories not less than 7 nor more than 15 per cent. of the total number of calories given. The number of calories that were actually taken after the first few days, and that seemed from a clinical point of view to have been satisfactorily utilized, varied from 100 to 300 calories per kilogram. As regards utilization of the food the urine in these cases very seldom showed any more than a slight trace of indican. The authors found that this high caloric diet, besides preventing the emaciation usual in this disease, greatly increases the comfort of the patient, prevents the severe nervous symptoms and lessens the dangers of the disease and of its complications.

6. **Roentgen Ray in Pulmonary Diagnosis.**—The Roentgen ray is regarded by Hartshorn as being of distinct value in the diagnosis of diseases of the respiratory tract. In pneumonia a shadow may appear over the suspected area several days before the development of definite physical signs. It is of value in determining the progress of lung involvement.

Roentgenograms may be taken on successive days as long as there are signs of active advancement of the process. The Roentgen ray offers material assistance in differential diagnosis, tuberculosis, abscess of the lung, lobar and bronchopneumonia. Through the obliteration of the costal-phrenic angle, the Roentgen ray indicates the presence of an exudate.

7. Cerebrospinal Meningitis Treated with Flexner's Antimeningitis Serum.—The cases cited by Smith emphasize the fact that in any case of meningococcus meningitis, no matter of what duration, provided viable meningococci are present, Flexner's antimeningitis serum should be used repeatedly, and that even in apparently unfavorable cases, complete recovery may occur.

8. Tuberculous Meningitis.—Of the 105 patients studied by Meyers, measles was mentioned in the past history of twenty-seven cases, or 26 per cent.; whooping cough in 22 per cent.; pneumonia, 11 per cent.; chickenpox, 8 per cent.; bronchitis, 6 per cent.; diphtheria, 6 per cent.; mumps, 4 per cent.; otitis media, 4 per cent. Some of the patients had had only one disease, while others had had four or five. Thirty-eight per cent. had had no previous mentioned disease.

Lumbar puncture was done at least once in all the cases, but as often as seven times in 2 cases. Many of the patients seemed to brighten up after the withdrawal of spinal fluid, and in not a few cases there followed a remission of pulse and temperature. In no case was there any record of any harm having been done owing to the withdrawal of too much spinal fluid. Tubercle bacilli were found in 21.5 per cent. of the cases. Seventeen per cent. of the cases were verified by necropsy, no organisms having been found. The spinal fluid was under pressure in 80 per cent. of the cases; in 11 per cent. the pressure was normal; in 9 per cent. it was not recorded.

The average cell count was 198 cells to the cubic millimeter. There was no relation between the cell count and the age, sex or amount of spinal fluid. The cell count seemed to bear some slight relation to the white blood count for the average white count for all cases with cell counts over 350 cells, was 22,700, while the average white count for all cases with cell counts under 100 cells, was 17,000. The prevailing type of cell in the spinal fluid was the small mononuclear, ranging from 90 to 100 per cent. in 67 per cent. of the cases, and from 80 to 90 per cent. in 20 per cent. of the cases. A definite fibrin clot was present in 70 per cent. of the cases, absent in 8 per cent., and not mentioned in 22 per cent. The time of appearance of the clot varied from one to forty-eight hours.

Noguchi or butyric acid test for globulin: A positive test for globulin was obtained in 50 per cent. of the cases; in 7 per cent. it was negative, and was not recorded in 43 per cent. The lowest white blood count was 8,500, the highest, 48,000. The largest percentage (26.2) showed a leukocyte count between 10,000 and 15,000. There was no relation between the white blood count and the age or stage of the disease. Of the cases which showed a perfectly definite positive von Pirquet reaction, 66 per cent. had an average white count of 13,000. In twenty cases in which the eosinophils were practically absent, the patients died, bearing out the contention that the disappearance of the eosinophils from the circulating blood may be regarded as an unfavorable prognostic sign. Of the cases in which a von Pirquet test was done, 63 per cent. gave a positive reaction, 25 per cent. a negative reaction, and 2 per cent. are recorded as suggestive. There was a definite history of a direct exposure to tuberculosis in 25 per cent. of the cases, no known exposure in 73 per cent., and not recorded in 2 per cent. Of the patients directly exposed, 46 per cent. had had no previous illness, 23 per cent. had had measles, 15 per cent. had had pneumonia and 15 per cent. had had chickenpox. In 30 per cent. of the cases there were sufficient signs in the lungs to show that they were involved in the tuberculous process. In 70 per cent. the lungs were negative. In two cases d'Espine's sign was recorded as present. In no case was there any record of any palpable mesenteric lymph nodes. There was a slight

general lymph nodular enlargement in many of the cases but it was not constant. A slight cough was present in 30 per cent. of the cases, absent in 57 per cent. and not recorded in 13 per cent. In over 30 per cent. of the cases the patellar reflexes were equal and active; in 21 per cent. they were absent; in 5 per cent. they were equal and sluggish; in 6 per cent. they were irregular; in 6 per cent. they were not mentioned; in 32 per cent. they were equal and normal.

There was a positive Babinski sign in 21 per cent. of the cases, negative in 55 per cent. and not mentioned in 24 per cent. The Oppenheim sign was obtained in 50 per cent. of the cases in which it was tried. Ankle clonus was almost never present as an admitting symptom, though it was rarely reported as being positive. The Gordon sign was not mentioned in any of the admitting examinations, but in the last six cases of the series it was present late in the disease. Abdominal and epigastric reflexes were positive in 14 per cent., negative in 17 per cent. and not mentioned in 69 per cent. Brudzinski's neck sign was positive in 40 per cent. of the cases, negative in 35 per cent., and not mentioned in 25 per cent. Brudzinski's contralateral sign was positive in 8 cases, negative in 11 and not mentioned in 86 cases. The Kernig sign was present in 27 per cent. of the cases, negative in 71 per cent. and not mentioned in 2 per cent. Thirty-nine per cent. of the series had had convulsions before entrance. Forty-five per cent. of the patients were unconscious on admittance. In practically every history drowsiness, apathy, dulness mentally, languor, irritability and sleepiness were mentioned. In over 85 per cent. vomiting was recorded as an initial symptom. In 10 per cent. there was no vomiting. Pain was a comparatively frequent symptom. In no case was there any recovery or remission from the disease.

10. Congenital Intestinal Obstruction.—The condition present in Rowland's case was a complete twist of the mesentery of the small intestine with complete obstruction approximately at the middle of the small intestine.

Arkansas Medical Society Journal, Little Rock

April, XI, No. 11, pp. 255-278

- 11 Case of Typhoid Intestinal Perforation; Operation with Recovery. E. F. Ellis, Fayetteville.
- 12 Arteriosclerosis and Its Results. H. T. Smith, McGehee.

Boston Medical and Surgical Journal

April 29, CLXXII, No. 17, pp. 613-656

- 13 Dispensaries; Growing Factor in Curative and Preventive Medicine. S. S. Goldwater, New York.
- 14 Care of Prospective Mothers. A. B. Emmons, 2d, Boston.
- 15 *Perforation of Stomach and Intestine by Foreign Bodies that Have Been Swallowed. F. S. Watson, Boston.
- 16 Varieties of Gold Sol Test (Lange) in Several Loci of Cerebrospinal Fluid System; Study of Twenty-Eight Autopsied Cases. H. C. Solomon and E. S. Welles, Boston.
- 17 Leprosy; With Especial Reference to Pulse and Temperature. (To be continued.) J. A. Honeij, Boston.

15. Perforation of Stomach and Intestine.—The perforating bodies in Watson's series of six cases were as follows: 1. A wooden toothpick. 2. A needle such as is used in sewing canvas. 3. A fish bone. 4. A bristle. 5. A flat, thin bit of bone with sharp edges. 6. A body of unknown nature, having the shape of a bit of lead pencil and about 1½ inches in length. The sites of the perforations were located in three of the cases. They were: In the upper part of the jejunum, in the small intestine near the ileocecal valve, in the transverse colon midway in its course. In two of the remaining three they were presumably high up in the intestinal tract or in the stomach, and in one of them in the small intestine near the ileocecal valve. In all but one of the cases the pathologic conditions discovered were those that are seen in circumscribed peritoneal infection and inflammation. In three of them intra-abdominal abscesses had been formed. In one of these the abscess had approached the surface of the abdomen, and would doubtless have been spontaneously evacuated there had not the operation been done.

In the second example of intra-abdominal abscess, that in which the jejunum was perforated, the conditions were of a more acute and severe grade of local peritoneal infection. The perforation in the bowel was large enough to admit the

tip of the little finger, and fecal extravasation was taking place from it into the cavity of the abscess. The process was but five days old in this instance. In the two cases in which the perforations were in the small intestine near the ileocecal valve, the areas around the sites of the perforations were well walled off from the peritoneal cavity by adhesive processes. In the transverse colon perforation there was a tumor about the size of the palm of the hand, projecting above the surface of the abdomen somewhat, at the level of the umbilicus and extending downward toward the upper margin of the symphysis pubis in less conspicuous form.

This tumor represented an enormously thickened portion of the left rectus abdominis muscle which at its thickest part measured 2 inches in depth. Immediately beneath this was a mass formed by the thickened omentum which was intimately attached to the parietal peritoneum overlying it, and which extended upward and downward. Beneath and below this mass was a second one, the lower border of which reached the level of the brim of the pelvis and extended toward the spine posteriorly. This mass was an intra-abdominal abscess containing about 12 ounces of pus and the foreign body. The three parts were welded into one mass which gave the impression of a large intra-abdominal solid tumor. The perforation was not seen at the time of the operation, but was revealed by the necropsy, at which it was found to be in the transverse colon. Fecal extravasation had been prevented by the firm glueing down, above and around it, of the omentum. In the bristle case the condition was seen in the form of a tumor on the external surface of the left upper quadrant of the abdomen, having the size of a closed fist and composed of chronic inflammatory tissue. The base was intimately united with the left rectus abdominis muscle.

Bulletin of Johns Hopkins Hospital, Baltimore

April, XXVI, No. 290, pp. 93-124

- 18 *Kidney Cancer Associated with Kidney Stone. J. R. Coryell, Rochester, Minn.
- 19 *Experimental Study of Lavage in Acute Phenol Poisoning. D. I. Macht, Baltimore.
- 20 Beginnings of Medicine in Middle West. O. Juettner, Cincinnati.
- 21 *Case of Acnitis with Study of Point of Origin of Pathologic Process. L. W. Ketron, Baltimore.

18. **Kidney Cancer Associated with Renal Stone.**—The macroscopic and microscopic findings in kidneys, the seat of both stone and cancer are recorded by Coryell. In the Mayo Clinic, since April 5, 1905, there have been removed 140 kidneys containing stones, and of these, 9, or about 6.5 per cent., also contained cancer. During the same period, 6 nephrectomies were done for cancer of the kidney, one of which was metastatic. The proportion, therefore, is 9 cancers of the kidneys associated with stones to 5 cancers without stones, or 64 + per cent. for the former and 35 + per cent. for the latter. This is about the same as in gastric cancer developing on a gastric ulcer and of other cancers developing at the site of chronic irritation. Tuberculosis was found in only one of the 140 kidneys containing stones. Amyloid degeneration was found in four cases. Polycystic kidney was found in one case. Irritation is regarded by Coryell as being a strong etiologic factor in the development of renal cancer.

In all specimens studied, the kidney in some portion showed an inflammatory reaction. The destruction of the renal substance varied in degree and was brought about by interstitial or parenchymatous changes or both; and suppuration was of frequent occurrence. After having seen the gradual changes from normal tissue to inflammatory, from inflammatory to hyperplastic, and from hyperplastic to neoplastic, it appears probable to Coryell that the irritation brought on by the stones was the direct cause of the cancer. In all the cases of renal cancer associated with renal stone, a large, light, fat-containing cell was found, sometimes singly, sometimes arranged in groups and sometimes in definite columns. It has its origin in the tubules of the kidney.

19. **Study of Lavage in Phenol Poisoning.**—The efficiency of lavage in phenol poisoning Macht found depends on the

quantity of poison taken, on the time after poisoning that the lavage is begun, and on the solution used for washing the stomach. A strong solution of sodium sulphate appears to be the most useful for the purpose; next in efficiency comes plain water. The influence of alcohol in phenol poisoning depends on the time of its administration. An animal that is previously intoxicated with alcohol can withstand better the effects of phenol. On the other hand, alcohol administered to an animal after poisoning with phenol will aggravate the symptoms and hasten death. The use of alcohol in phenol poisoning is therefore strongly discouraged by Macht.

21. **Case of Acnitis.**—Although the results in obtaining positive bacteriologic evidence of tuberculosis in the individual lesions were unfruitful, other evidence, namely, the tuberculous character of the nodules and the fact that the patient gave a positive tuberculin test, as well as showing signs of an old tuberculosis of the lungs, Ketron believes is very suggestive that the disease is a form of tuberculosis.

The condition seemed to have reached its height at the time of his first visit. Several small nodules were marked, but no definite increase in size was noticed. The patient was observed four weeks without treatment. He was then given an erythema Roentgen-ray dose on one side of the face and sulphur ointment on the other. The side treated with Roentgen ray showed, in two weeks a definite decrease in the size of the nodules. The portion of the face previously treated with sulphur ointment was now Roentgen rayed, and after the slight erythema had subsided, he was given the sulphur ointment for the entire face. After an absence of about two months, a very decided improvement was noticed. About two thirds of the lesions had entirely disappeared, leaving, in some cases, especially on the hairy portion of the face, small irregular, rather deep, scars. On the temples and forehead the scars were more shallow, velvety and slightly pigmented. At the present time, ten months since the patient was first seen, the disease has in general subsided, but a few small freshly developed lesions are to be seen on the cheeks and eyelids.

Colorado Medicine, Denver

April, XII, No. 4, pp. 101-134

- 22 Disease of Small Blood Vessels as Studied with Ophthalmoscope. E. Jackson, Denver.
- 23 Nasal Treatment of Dysmenorrhea. L. B. Lockard, Denver.
- 24 Modern Pseudomedical Cults. Chiropractic. C. Powell, Denver.
- 25 Abdominal Roentgen Ray Before Operation for Chronic Appendicitis. C. Epler, Pueblo.
- 26 Paraoperative Pathologic Diagnosis. C. F. Hegner, Denver.
- 27 Apparatus for Artificial Pneumothorax. A. W. Stahl, Denver.

Florida Medical Association Journal, Jacksonville

April, I, No. 10, pp. 289-320

- 28 Bone Transplantation. W. C. Payne, Pensacola.
- 29 Aseptic Nursing. L. J. Harris, Jacksonville.
- 30 Spinal Epilepsy; Report of Case. W. P. Spratling, Welaka.
- 31 Hepato-Intestinal Toxemia. J. H. Bickerstaff, Pensacola.

Georgia Medical Association Journal, Augusta

April, IV, No. 12, pp. 338-362

- 32 Syphilis. M. L. Boyd, Atlanta.
- 33 Cholera Infantum. S. A. V. Christophine, Attapulgus.
- 34 Pros and Cons of Duodenal Alimentation. G. M. Niles, Atlanta.
- 35 Case of Large Inguinal Aneurysm Cured by Transperitoneal Ligation of External Iliac. E. R. Corson, Savannah.

Indiana State Medical Association Journal, Fort Wayne

April, VIII, No. 4, pp. 163-224

- 36 Treatment of General Peritonitis. D. N. Eisendrath, Chicago.
- 37 Management of Feeding Cases in Infancy. J. H. Taylor, Indianapolis.
- 38 *Diagnosis and Treatment of Simple Glaucoma. A. E. Bulson, Jr., Fort Wayne.

38. Abstracted in THE JOURNAL, Oct. 31, 1914, p. 1602.

Journal of Cutaneous Diseases, New York

April, XXXIII, No. 4, pp. 249-342

- 39 *Case of Generalized Congenital Keratoderma. F. S. Burns, Boston.
- 40 Alopecia of Hypothyreosis. D. W. Montgomery, San Francisco.
- 41 *Lupus Erythematosus Diffusus Unfortunately Treated with Tuberculin. A. Ravogli, Cincinnati.

- 42 Bullous Dermatitis Caused by Colon Bacillus; Vaccine Therapy. A. Potter, Brooklyn.
43 Paronychia. H. Morrow and A. W. Lee, San Francisco.
44 Purpura Annularis Telangiectodes. G. M. MacKee, New York.
45 Dermatitis of Pellagra. T. Frazer, Asheville, N. C.

39 and 41. Abstracted in THE JOURNAL, June 20, 1914, pp. 1988 and 1989.

Journal-Lancet, Minneapolis

April 15, XXXV, No. 8, pp. 193-221

- 46 Treatment of Diabetes. J. S. Gilfillan, St. Paul.
47 Common Errors in Gall-Tract Surgery. C. E. Ruth, Des Moines, Ia.
48 Plea for More Careful Case History and Examination of Cases. B. A. Bobb, Mitchell, S. Dak.

Journal of Sociologic Medicine, Easton, Pa.

April, XVI, No. 2, pp. 65-132

- 49 Need of Far East for Surgical and Medical Aid. O. Reed, New York.
50 Medical Education in China. R. T. Shields, Nanking, China.
51 Women's Medical Education in India. E. M. Brown, Lodiana, North India.
52 Work of Medical Missionary Association of China. E. M. Merrins, Shanghai, China.
53 Medical College for Canton, China's Tropical Port. Paak-Tong Lau, Philadelphia.
54 Medical Mission Work in Siam. L. C. Bulkley, Tap Tieng, China.
55 Medical Inspection of Industries—National, State, Municipal or Private. R. L. Wilbur, San Francisco.
56 Medical Supervision in Dangerous Trades. G. M. Price, New York.
57 Prevention of Industrial Accidents and Sickness by Systematic Inspection of Plant and Employees. H. W. Jordan, Syracuse, N. Y.

Lancet-Clinic, Cincinnati

April 24, CXIII, No. 17, pp. 452-480

- 58 Sympathetic Syndrome (Undescribed) of Sphenopalatine or Nasal Ganglion Neurosis, Together with Consideration of Previously Described Symptoms and Treatment. G. Sluder, St. Louis.
59 Epithelioma of Lip Cured by Single Roentgen Ray Treatment. S. Lange, Cincinnati.
60 Neuroses and Psychoses Related to Syphilis. D. I. Wolfstein, Cincinnati.
61 Influence of Heredity on Life Insurance Risks. W. F. Milroy, Omaha, Neb.
62 Intestinal Intoxication; Headaches and Epilepsy. W. K. McCoy, Gum Springs, Va.

Laryngoscope, St. Louis

March, XXV, No. 3, pp. 129-192

- 63 Case of Suppurative Labyrinthitis: Meningismus: Irritation of Gasserian Ganglion. C. E. Ide, Los Angeles.
64 Improved Glatzel Mirror. G. H. Cocks, New York.
65 Lipoma of Maxillary Antrum. M. A. Goldstein, St. Louis.
66 Prolapse of Ventricle of Larynx. G. B. New, Rochester, Minn.
67 Isolation and Cultivation of Tubercle Bacillus from Discharging Ear in Cases of Chronic Purulent Otitis Media. G. H. Cocks and J. G. Dwyer, New York.
68 Roentgenographic Diagnosis in Otosclerosis. J. C. Beck, Chicago.
69 Angioneurotic Edema of Esophagus. H. Arrowsmith, Brooklyn.
70 Case of Hypophyseal Growth Operated Through Nose and Sphenoid. O. J. Stein, Chicago.
71 Cases of Atypical Sinus Thrombosis. S. J. Kopetzky, New York.

Maine Medical Association Journal, Portland

April, V, No. 9, pp. 323-362

- 72 Visceral Ptosis. R. F. Chase, Portland.
73 Intrinsic Value of Tobacco. C. M. Pillsbury, Saco.

New Mexico Medical Journal, Las Cruces

April, XIV, No. 1, pp. 1-29

- 74 Two Cases of Eye Involvement Caused by Focal Infection of Teeth. H. H. Stark, El Paso, Tex.
75 Head Injuries. J. W. Elder, Albuquerque.
76 Human Waste and Children of Needy. C. E. Lukens, Albuquerque.
77 Plea for Preservation and Restoration of Perineum. W. Howe, E. Las Vegas.

Northwest Medicine, Seattle, Wash.

April, VII, No. 4, pp. 103-136

- 78 Cardiospasm; Report of Case. O. F. Lamson, Seattle.
79 Some Modern Conceptions of Heart Disease. E. H. Smith, Ogden, Utah.
80 Prodromal Symptoms of Cholelithiasis. R. H. Fowler, Brooklyn.
81 When to Drain and When to Remove Gall Bladder. A. C. Smith, Portland, Ore.
82 Constitutional Factor in Surgery. C. P. Noble, Boise, Ida.
83 Insanity from Standpoint of General Practitioner. W. J. Howells, Spokane.
84 Clean Milk in Small Town. R. W. Ashley, Salt Lake City.
85 Study of Pilocarpin. R. J. Smith, Bancroft, Ida.

Old Dominion Journal of Medicine and Surgery, Richmond, Va.

March, XX, No. 3, pp. 115-193

- 86 Acute Appendicitis—End Results of One Hundred Consecutive Cases Operated On. G. P. LaRoque, Richmond.
87 Biologic Classification of Pneumococci and Serum Treatment of Lobar Pneumonia. F. M. Hanes, Richmond.
88 Study of Joint-Bodies from Within Present Inarticulations Otherwise Apparently Normal. A. P. Heineck, Chicago.
89 Lobar Pneumonia and Mesenteric Tuberculosis. M. P. Rucker, Richmond.

April, No. 4, pp. 195-252

- 90 Tabes Dorsalis Simulating Acute Abdominal Disease. J. M. Hutcheson, Richmond.
91 Statistical Study in Serology. R. S. Preston, Richmond.
92 Eiweissmilch in Enterocolitis. C. C. Haskell, Richmond.
93 Purpura Pneumatica. J. M. Tompkins, Richmond.

South Carolina Medical Association Journal, Anderson

April, XI, No. 4, pp. 103-136

- 94 Syphilitic Multiple Sclerosis—Diagnosed Clinically in Spite of Negative Laboratory Tests. T. A. Williams, Washington, D. C.
95 Relation of Patient to Physician and Physician to Patient. R. M. Reid, Gastonia, N. C.

Southern Medical Journal, Mobile

April, VIII, No. 4, pp. 259-338

- 96 Work of Council on Pharmacy and Chemistry: Its Effect on Medical Progress. G. H. Simmons, Chicago.
97 Heart in Common Types of Liver Diseases. A. G. Brown, Richmond, Va.
98 Some Reasons Why Our Southern Pediatricists Should Organize. C. A. Rhodes, Atlanta, Ga.
99 Symptomatology, Etiology, Pathology and Treatment of Pellagra. (To be concluded.) J. C. Johnson, Atlanta, Ga.
100 Duties and Status of Health Officer. M. M. Carrick, Dallas, Tex.
101 Acute Surgical Abdomen. F. W. McRae, Atlanta, Ga.
102 Technic of Intestinal Suturing. J. S. Horsley, Richmond, Va.
103 Importance of Sigmoid Adhesion. H. A. Royster, Raleigh, N. C.
104 Choice of Operation in Intestinal Obstruction. J. Graham, Durham, N. C.
105 Railway Sanitation. C. H. Vaught, Richmond, Ky.
106 Fractures: How Best To Get Union. S. Harnsberger, Catlett, Va.
107 *Some Recent Surgery of Cranial Nerves for Relief of Headache and Other Neuroses. H. H. Martin, Savannah, Ga.

107. Abstracted in THE JOURNAL, Dec. 12, 1914, p. 2158.

Wisconsin Medical Journal, Milwaukee

April, XIII, No. 11, pp. 421-462

- 108 General Principles Involved in Treatment of Fractures. C. H. Lemon, Milwaukee.
109 Fractures of Skull. C. A. Evans, Milwaukee.
110 Morphin and Cocain Addiction. H. W. Powers, Wauwatosa.
111 Intrameningeal Treatment of Syphilis of Nervous System. L. M. Warfield, Milwaukee.
112 Sinusitis. J. A. L. Bradfield, La Crosse.
113 Nasal Accessory Sinus Infection in Relation to General Disease. W. E. Grove, Milwaukee.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

April, XII, No. 136, pp. 97-128

- 1 *Oculocardiac Reflex. E. B. Gunson.
2 *Case of Cerebellar Abscess in Child, Not Arising from Ear Trouble. H. T. Ashby.
3 Case of Liver Abscess in 5 Week Old Infant. C. V. Turner.
4 Retrospect of Otolology, 1914. M. Yearsley.

1. Oculocardiac Reflex.—According to Gunson the oculocardiac reflex is a reflex change in the rate of the heart, associated in some cases with a change in rhythm, following ocular compression. The path of the reflex is considered to be along the fifth cranial nerve, the medulla and the vagus or sympathetic. The reflex affords a simple means, under certain conditions of acting on the nervous mechanism of the heart in such a way as to produce all the changes in rate, rhythm and conduction which follow vagus pressure in the neck. Under other conditions results analogous to those induced by stimulation of the sympathetic are obtained. The reflex is positive when slowing of the pulse occurs and negative

when either no slowing or actual quickening results. Persons exhibiting the former state are described as vagotonics, those exhibiting the latter as sympathicotronics.

The reflex is positive in normal persons. It is positive in about 92 per cent. of children convalescent from diphtheria and scarlet fever. In about 8 per cent. the reflex is negative; these children are of a naturally nervous disposition. In some of the patients the reflex was negative during pyrexia. In cases of so-called "cardiac paralysis" the reflex was negative and remained so till death, in fatal cases. In cases which recovered the reflex became positive when the heart returned to the normal state. In cases of diphtheria and scarlet fever in which the reflex was positive the following results were obtained: (a) Slowing of the whole pulse, with stoppage of the heart in some cases for as long as four seconds. (b) Production of premature contractions in cases in which they were previously absent and an increase in the incidence of the premature contractions when they were previously present. (c) Reduction of the *a* minus *c* interval. (d) Production of *c* plus *a* beats, due in some cases possibly to escape of the ventricle, in other cases presumably to the inception of atrioventricular rhythm. (e) (In diphtheria patients only). Complete dissociation of auricles ventricles.

The claim that the oculocardiac reflex is of diagnostic value in differentiating cardiac failure due to myocardial lesions from that due to nervous lesions presumes the independence of the muscular and nervous functions of the heart and cannot be upheld. The oculocardiac reflex is of slight diagnostic value in confirming the nervous origin of the great majority of the post febrile bradycardias and in differentiating them from cases of auriculoventricular heart block. As sinus arrhythmia, however, is present in nearly all cases of bradycardia due to the former cause, such confirmation is rarely necessary.

2. Cerebellar Abscess in Child Not Arising from Ear Trouble.—The interest of Ashby's case lies in the diagnosis, which was most difficult in the absence of any ear discharge or disease. The diagnosis of tuberculous meningitis became more doubtful as the case progressed, and it became more like a cerebral tumor of some kind, but the presence of an abscess, which might possibly have been drained, was never thought of. The brain was of normal consistence, the ventricles were not distended, and there was a large abscess in the substance of the right cerebellum. The ears were normal, as was the rest of the body. The pus from the abscess was creamy and contained pneumococci. The question is, what was the origin of the abscess, for there was no ear disease, which is by far the commonest cause of cerebral abscess. The patients had a transient bronchitis on admission, and in the absence of any other cause this may have been the starting point. There had been a slight vaginal discharge, but the pus from this was not examined, and it is not likely that the discharge contained pneumococci. There were but few localizing signs during life, except the continual tendency to lie on the right side, and the almost right-sided convulsion. There was no nystagmus or tendency to fall to one side more than the other.

British Journal of Tuberculosis, London

April, IX, No. 2, pp. 51-110

- 5 Antituberculosis Campaign in Bombay, India. J. A. Turner.
- 6 Tuberculosis Problem in New York. J. A. Miller and G. J. Drolet.
- 7 Surgical Tuberculosis and Its Treatment by Heliotherapy. G. Hinsdale.
- 8 Tuberculosis and War. R. M. Leslie.
- 9 Misuse of Sanatorium Benefit. A. E. Carver.

British Medical Journal, London

April 17, I, No. 2833, pp. 665-704

- 10 Wound Infections; New Methods in Treatment. (To be continued.) A. E. Wright.
- 11 *Blood Pressure Estimation in Children. G. S. Melvin and J. R. Murray.
- 12 *Idioglossia; Report of Case. W. B. Drummond.
- 13 Two Cases of Lupus in Children. H. W. Barber.
- 14 Effects of Military Training on Lead Workers. F. Shufflebotham.
- 15 Typhus Fever. E. C. Hort.

- 16 Epidemic Cerebrospinal Fever. (Pleomorphism of Responsible Micro-Organism.) E. A. Shaw.
- 17 Acute Inversion of Uterus Following Labor on Two Occasions. N. S. Carruthers.

11. Blood Pressure Estimation in Children.—The auditory method according to Melvin and Murray is simple and determinate. By experiment and investigation it has been established as accurate. In many cases as those in adults; in fact, the clearest impression of the sounds yet obtained was obtained in the case of a child. The apparatus required for the application of the method in children consists of: 1. A mercury manometer (preferably an ordinary one). The slight advantage in portability of the compressed air type of manometer is depreciated by the necessity in its use for frequent calibration to ensure accuracy. 2. An armlet of suitable size, much narrower than the ordinary one for adults; an armlet 8 cm. broad does very well; for example, that supplied with the Pachon oscillometer. 3. Some form of filler, either of the "ball" type or of the "screw compressor" type. The latter, greatly superior for finer adjustments of pressure, suffers in having a fixed capacity. This difficulty can, however, be easily overcome. 4. An Oliver tambour with strap attachment, which secures it in a fixed position on the arm. Such an arrangement leaves the observer with both hands free—an important point. 5. Rubber tubing and connections.

Estimated by the auditory method, the average systolic pressure is seen to be 108.1, the average diastolic pressure to be 72.4, and the average pulse pressure 35.7 mm. mercury. The cardiac output is small in children, and in association with this the capillary system to be filled, is very limited as compared with the adult. Yet the systolic pressure is only slightly lower in children than in adults. The average diastolic level, on the other hand, is decidedly higher in children than in adults; this is the main cause of the considerably smaller pulse pressure in children—35.7 mm.—as compared with 46 mm. in adults. By the tactile method the average systolic pressure was 105.7 in children as compared with 108.7 in adults, while the range was 125-84 in the former and 132-92 in the latter. By the auditory method the range of systolic pressure was 130-90 in children and 135-92 in adults, while the range of diastolic pressure was 90-50 in the former as compared with 82-50 in the latter. In children the relation of pulse pressure to systolic pressure was 1:3 and to diastolic pressure 1:2, while in adults this relation was 1:2.7 and 1:1.6, respectively.

12. Idioglossia.—Idioglossia is a defective condition of speech of such a nature that the affected person is unintelligible, except perhaps to his own relations; yet what he speaks is really English, very grossly mispronounced. In Drummond's case rapid improvement took place under treatment. The symptoms in this case support the view that in idioglossia the peculiar speech is neither a persistence of baby language nor a new tongue invented by the patient. The child's speech really represents a very defective attempt to speak his own mother tongue. The defect does not arise from any impediment in the articulatory mechanism; nor from want of intelligence; nor from lack of visual memory; nor from inattention, though these may be noticed in some cases; nor is it due to deafness in the ordinary sense. But the symptoms are explicable on the theory that there is defective audition in the sense of some affection or imperfect development of the auditory word center. Idioglossia would thus come under the same class of cases as congenital word blindness.

The defect in the audition center does not interfere with the child's hearing nor with his capacity to understand what he hears, but it does incapacitate him from reproducing by ear, as normal children do, the sounds transmitted to his ear. It may even incapacitate him from learning how to reproduce such sounds by ear, just as the word blind is incapacitated from recognizing, or even in some cases from learning to recognize, word symbols by sight. But in order to teach a child with idioglossia to speak it is not necessary

to provide him with a complete audition center. There are several ways of speaking, and if the child with a defective audition center cannot learn to speak correctly by ear he may learn to speak by the intelligent utilization of visual or kinesthetic memories.

Dublin Journal of Medical Science

April, III, No. 520, pp. 241-320

- 18 Toxic Possibilities of Tobacco Smoke. G. H. Culverwell.
- 19 Roentgen Ray Treatment of Ringworm. E. J. Watson.
- 20 Treatment by Suggestion. C. P. Smyly.
- 21 Account of Irish Medical Periodicals. T. P. C. Kirkpatrick.

Journal of Laryngology, Rhinology and Otology, London

April, XXX, No. 4, pp. 145-176

- 22 Aspergillosis of Nasal Accessory Sinuses. H. Tilley.
- 23 Reports for Year 1914 from Ear and Throat Department of Royal Infirmary, Edinburgh. T. R. Rodger.

Lancet, London

April 17, I, No. 4781, pp. 787-842

- 24 Wound Infections; New Methods in Treatment. (To be continued.) A. E. Wright.
- 25 Penetrating Power of Roentgen Rays from Coolidge Tube. S. Russ.
- 26 *New Theories and Investigations Concerning Pellagra. A. Cencelli.
- 27 Differential Diagnosis Between Acute Abdominal and Certain Acute Intrathoracic Diseases. C. MacKenzie.
- 28 *Observations on Three Hundred and Seventy-Six Cases of Frost-Bite. C. Miller.
- 29 Frost-Bite. F. McG. Loughnane.

26. **New Theories Concerning Pellagra.**—The cause of the disease according to Cencelli appears to be a chronic poisoning brought about by the silica in colloidal solution in waters of determined composition; in other words, pellagra seems attributable to mineral colloids. The clay is the first cause of the evil, for the rain water present, either in the superficial or the deep strata of the ground, reacts on the clay which is a silicate of alumina, producing a hydrolysis that brings about the formation of silicic acid and hydrate of alumina. Both these compounds, from the condition under which the hydrolysis takes place, can pass into the water in the colloidal form. Since, as is well known, there exists an incompatibility between colloidal silica and colloidal alumina, there only remains in the water the amount of silica in excess of that required for the precipitation of the alumina. The colloidal silica-alumina compound, which must on no account be confused with silicate of alumina, goes to form the deposit. Part of it, however, remains in suspension as a very finely divided colloid, and is the cause of the persistent opalescence often observed in the water drunk by sufferers from pellagra. The poisoning by silica would thus resolve itself into a mineral acidosis on which would depend all the anatomic, pathologic and metabolic alterations which are met with in pellagra patients. Hence arose the other conclusion regarding pellagra, namely, that it is a disease due to the enforced retention of mineral salts followed by a liberation of acids which is excessive in comparison with the amount regarded as normal in the case of any given organism.

It having been proved that the question is one of mineral acidosis, Scala and Alessandrini believed that the toxic effects could be modified by the injection of an alkaline substance such as trisodium citrate. They also considered that the pellagra inducing water could be corrected and freed from injurious substances by placing small pieces of lime in the pipes and reservoirs. The curative treatment was only applied to animals in which the disease had been induced, but also to human beings who had been suffering from pellagra for longer or shorter periods of time. The results were in the highest degree satisfactory; persons who had been ill for a long time improved and were cured in a relatively short space of time without any change having been made in their mode of life, surroundings, or diet.

28. **Frost-Bite.**—The chief objects of treatment. Miller says, were to relieve the pain and to secure sleep. Various drugs have been tried. But were found uncertain in their action,

and the most severe cases were given a hypodermic injection of morphin. Many of these patients felt thoroughly ill from the effects of exhaustion and exposure and required good nursing, good food and plenty of sleep. They seem particularly open to attack by the organisms of influenza and enteric fever. Warmth was useful in a few cases only. If the feet are anesthetic warmth apparently does good, and again when the feet are nearly well. Bed socks, cotton-wool covers, or hot bottles will supply sufficient warmth. Radiant heat from electric lamps was tried with good results in a few cases.

Cold is necessary in the majority of cases. The usual plan was to leave the feet uncovered and guarded by a bed cradle. A sheet could be placed over the cradle to cut off draughts. The feet were more comfortable if raised on pillows, and by this means any edema would be made to disappear. Massage was beneficial in the majority of cases. At first it has to be very light, but later more vigorous massage with passive movements was tried. The massage can be dry or with some lubricant. Various oils were tried with equally good results, namely, eucalyptus oil, methyl salicylate oil and a mixture of castor oil, glycerin and atropin. In the cases of blisters and ulceration, dry dressing was employed, some powder such as boric acid or one of the bismuth compounds being used. The results have been good.

Practitioner, London

April, XCIV, No. 4, pp. 487-630

- 30 Testicular Tuberculosis. J. S. McArdle.
- 31 Uses of Paraffin in General Practice. E. Pritchard.
- 32 Non-Suppurative Forms of Middle-Ear Deafness. W. Stuart-Low.
- 33 Retrospect of Otology, 1914. M. Yearsley.
- 34 Some Principles of Roentgen Ray Localization. W. Cotton.
- 35 Artificial Pneumothorax. F. C. Coley.
- 36 Some Types of Paroxysmal Tachycardia, with Special Reference to that of Auricular Fibrillation. B. Parsons-Smith.
- 37 Hyperpiesis and Arteriosclerosis. A. Graham-Stewart.
- 38 *Value of Drugs as Blood Pressure Elevators. A. Watson.
- 39 Administration of "Nauheim" Treatment in England. L. T. Thorne.
- 40 Recent Work on Diseases of Heart. C. W. Chapman.
- 41 *Relationship of Pulmonary Tuberculosis in Childhood (Hilum Phthisis) to Phthisis of Adult Life, with Comparison of Their Symptoms and Signs. J. P. Cullen.
- 42 General Practitioner and New British Pharmacopeia. D. M. MacDonald.

38. **Value of Drugs as Blood Pressure Elevators.**—Experiments made by Watson on an adult male showed that atropin, camphor, cotarnin, digitoxin, ergotoxin and strychnin appear to be of no value as blood pressure elevators. Epinephrin appears to be a dangerous drug, which should always be used with caution and never as a general blood pressure elevator. Physostigmin is an effective blood pressure elevator, but, on account of the distressing nausea, vomiting and faintness it produces, its use in cases of hypotension does not seem advisable. Pituitary extract was found to have no pressor effect in his experiments. Watson has suggested that its effect in cases of marked hypotension may be different, but he considers it of doubtful value. Tyramin appears to be a safe and effective blood pressure elevator.

41. **Pulmonary Tuberculosis.**—Adult and infantile phthisis are regarded by Cullen as being one and the same disease, the difference in their symptoms and signs being explicable on anatomic peculiarities. The affection in childhood may remain limited to the lymphatic paths, and in this case the prognosis is good, provided the disease is recognized early and treated by cod liver oil and fresh air. Wrongly diagnosed, or diagnosed too late, the parenchyma of the lung is affected, and the case, perhaps comparatively in life, passes into the adult variety, with far gloomier prospects of recovery. In the adult type, the local symptoms, namely, cough, expectoration, hemoptysis are those for which the patient usually seeks advice. General symptoms make their appearance later on. Physical signs, owing to the situation of the lesion, are sufficiently well marked to enable an early diagnosis to be made by the usual methods of inspection, palpitation, percussion and auscultation.

In childhood, local symptoms are indefinite. There may be reflex cough and perhaps vomiting, attributed in some cases to irritation of the vagus. General symptoms are more marked. The patient is languid, anemic, perhaps suffers from night sweats, or slight evening pyrexia and growth and nutrition are interfered with. Physical signs, owing to the depth of the lesions from the surface, are by no means obvious; enlargement of the oval interspinous area of dullness, with prominent venules over the region of the first to the fifth dorsal spines, crepitations in the nipple region, and harsh or cogwheel sounds at the apices are the signs which suggest examination, which is usually by means of the Roentgen ray when the morbid appearance above mentioned may be disclosed. Pressure signs and symptoms occupy many pages in text-books; in practice, they may safely be disregarded.

Bulletin de l'Académie de Médecine, Paris

March 30, LXXIII, No. 13, pp. 385-416

- 43 *Habit of Swallowing Sputum as a Factor in Anal Fistula. P. Reynier.
- 44 Disturbances in Vision and Hearing Consecutive to Gunshot Wounds of the Head. E. Delorme.
- 45 Latent Injury of Arteries in Wounds of the Upper Arm. O. Laurent.
- 46 How and When to Extract the Bullet or Scrap of Shell. (Quand et comment faut-il extraire les projectiles de guerre?) L. Bérard and Wullyamoz.
- 47 *Tetanus; Sixty-One Cases. G. Nivière.
- 48 Cord and Weight Device for Universal Simple Mechanotherapy for the Wounded. J. Privat.

April 6, No. 14, pp. 417-439

- 49 *Meningococcus Arthritis. P. Sainton and J. Maille.
- 50 *Typhoidal States in Soldiers. (Etats typhoides pendant la campagne 1914-1915.) A. Sartory, L. Spillmann and P. Lasseur.
- 51 Requirement as to Visual Acuity in Recruits. (L'aptitude visuelle au service militaire.) E. Ginestous.

43. **Fistula Ani.**—Reynier's communication was summarized in the Paris Letter, May 1, p. 1515.

47. **Tetanus.**—None of the sixty-one men developing tetanus had received a preventive injection of antitetanus serum.

49. **Meningococcus Arthritis.**—The knee is the joint usually affected, according to Sainton, who has encountered 3 cases in the course of well-defined cerebrospinal meningitis and knows of 7 other cases in a total of 63 cases of the disease. The proportion was thus 15.8 per cent. of 63 cases. In addition to the above he reports 2 cases of arthritis in which the knee trouble was the first sign of the meningococcus infection to attract attention. In both there was first an infectious sore throat, then headache and insomnia and finally the characteristic arthritis with meningococci in the purulent puncture fluid. They were found also in the cerebrospinal fluid. Any arthritis in the course of an epidemic of meningitis should at once arouse suspicion. The meningococcus is capable thus of generating an actual acute infectious pseudorheumatism.

50. **Typhoid States.**—Sartory and his coworkers have examined bacteriologically 800 cases of apparent typhoid but the findings classified them in nine groups. Besides true typhoid and paratyphoid A and B cases, there were groups with paratyphoid plus true typhoid bacilli; or paratyphoid plus colon bacilli, or plus streptococci, or plus staphylococci, or plus a special diplococcus. The latter was found alone or with other germs in the blood in 15 per cent. of these typhoidal states.

Presse Médicale, Paris

April 8, XXIII, No. 15, pp. 113-120

- 52 *Adhesion of Heart to Lung or Chest Wall. (La symphyse cardiothoracique extra-péricardique.) P. Delbet.
- 53 Internal Hemorrhage from Air Shock of Explosion of Shell. (Hémorragies internes produites par le choc vibratoire de l'explosif.) P. Ravaut.
- 54 Hysteria, Hystero-traumatism, and Simulation among the Soldiers. (Quelques troubles nerveux psychiques observés à l'occasion de la guerre.) G. Roussy.
- 55 Technic for Antityphoid Vaccination. P. Ameuille and Brulé.

52. **Adherent Pericardium.**—Delbet comments on the extreme movability of the heart in animals, especially in the dog. There is nothing to hinder its movements; in man the

erect position has entailed a number of changes which tend to limit the movements of the heart and thus invite adhesion. When the pericardium has become adherent to the chest wall, resection of the supports of the wall over the spot renders the wall flexible so that it can yield with each tug of the heart. He describes a case of this kind in which the patient was immensely relieved by resection of the second, third and fourth costal cartilages and part of the corresponding ribs. When the heart has expelled its blood and sinks in, lung tissue is forced into the space thus left vacant. The moment the pressure at any point grows less, air and blood rush in to fill the vacant space. In order that this may proceed normally the lung tissue must be exceedingly elastic. The points subjected to much strain in this way finally lose their elasticity. The anterior margin of the lungs is emphysematous in nearly everybody after 45, and the heart thus becomes to a certain extent solid with the lung tissue or chest wall, the normal play of lung tissue between no longer occurring. After 50 the deeper breathing during exertion causes the adherent lung tissue to drag on the heart, thus causing panting and finally entailing dilatation of the heart. Even without adherence of the pericardium to the chest wall, the cardiothoracic solidarity may become such that there is an actual extrapericardial functional symphysis. Chondrectomy relieves in such cases and in emphysema, not because it relieves the lung, as Freund teaches, but because it relieves the right heart. Even without emphysema, Delbet adds, the extrapericardial functional symphysis from sclerosis of the anterior margin of the lung is relieved and may be clinically cured by chondrectomy on the right side.

Archiv für Verdauungs-Krankheiten, Berlin

April, XXI, No. 2, pp. 89-178

- 56 *Hour-Glass Stomach. (Klinisches und Kritisches über den Sanduhrmagen.) H. Strauss.
- 57 *Occult Hemorrhage with Gastric Ulcer and Cancer. (Zur Kenntnis der okkulten Blutungen bei Ulcus ventriculi und Magenkarzinom.) I. Boas.
- 58 Dilatation of Stomach from Constitutional Atony. (Klinischer Beitrag zur Frage der atonischen Stauungsinsuffizienz des Magens.) P. Cohnheim.
- 59 *Chemistry of the Stomach with Cholelithiasis. (Zur Frage des Magenchemismus bei Gallenblasenerkrankungen, Aetiologie und Therapie.) A. Ohly.

56. **Hour-Glass Stomach.**—Strauss discusses on the basis of eighteen cases of hour-glass stomach the spastic and the organic forms, the cancerous, and the hour-glass deformity with a boring ulcer. The only reliable way to distinguish between the spastic and the organic is by repeated examinations. Drug tests are unreliable. Even without organic stricture, local contracture over a long period may occur with or without irritation from an ulcer. Coexisting motor insufficiency tends to tip the scale in favor of the organic character of the stenosis. A tube shape or x shape also speaks more for an organic than a spastic origin; the spastic type is more or less of a B shape, such as we are accustomed to see with an hour-glass stomach consecutive to a simple or boring ulcer. An organic cause is suggested particularly by the combination of motor insufficiency and the pylorus and cardia being drawn closer together. This combination is generally the result of cicatricial retraction, but retraction of this kind can be augmented by a superposed spasm. Deforming relics of inflammatory processes may impede the evacuation of the stomach; an ulcer remote from the pylorus seldom interferes with this.

With cancer, the connecting canal is generally, but not always, longer and more central than in non-malignant disease. In his cases of cancerous hour-glass shape, free hydrochloric acid was found relatively often, although only in small amounts. In his five cases of penetrating ulcer, the hour-glass deformity was explainable by cicatricial retraction. In several instances these patients suffered from attacks of intense pain, like gastric crises or gallstone attacks, and he has witnessed similar crises in two cases of callous duodenal ulcer. He explains them as the result of food getting into a recess in the ulcer, an actual incarceration colic.

In some of his hour-glass cases the patients had never referred their disturbances to the stomach, but merely to the intestines. The food was sometimes retained in the upper sac alone; the question should always be debated in operating whether the opening had better be made in the upper or lower sac or both, considering the functioning as well as the morphology of the stomach.

57. Occult Hemorrhage from the Stomach.—Boas urges the general practitioner to familiarize himself with the types of occult hemorrhage characteristic of ulcer and of malignant disease and also, with ulcer, as premonitory of more serious hemorrhage. With cancer, it is persistent and shows a constant gradual increase. With ulcer, it tends to decrease and, under appropriate treatment, disappears in from ten to fourteen days. When, after subsiding in this way, it returns later and shows a doggedly persisting and progressive character, the ulcer will be found to have assumed a malignant character. The intensity of the reaction for occult blood shows the proportion of blood present; the larger amounts testify more for cancer or warn of impending serious hemorrhage or are relics of such.

Boas' extensive experience with gastric ulcer has confirmed the frequency of ulceration in stomach or duodenum as the underlying cause of hyperacidity; also that manifest hemorrhage with ulcer is extremely rare while invisible hemorrhage is common. This renders it imperative, he declares, to examine the feces systematically for occult hemorrhage in all cases of pain in the stomach, whatever its character. In some cases suspicious of ulcer, with hyperacidity, not a trace of occult blood can be detected and yet the patients improve under a course of treatment for ulcer. Such experiences warn that persons with obstinate hyperacidity should be regarded as ulcer suspects, and tests for occult blood should be applied once in a while. An actually florid ulcer, he insists, without occult bleeding, is an impossibility. Under treatment the subjective pains subside first, then the sense of oppression and, last of all, by the end of ten to fourteen days, no further trace of invisible blood can be detected. This sequence occurs constantly under suitable treatment, not only with a brief but with a long history of ulcer trouble. Hence he has never had occasion for operative measures for uncomplicated chronic ulcer except in the rarest cases.

59. The Chemistry of the Stomach in Cholelithiasis.—Ohly expatiates on the importance of considering conditions in the stomach in every case of cholelithiasis. The secondary disturbances in gastric chemistry may take the form of hyperacidity—he summarizes 18 cases of this kind—or of deficient or lacking secretion, as he shows by the histories of 46 cases. In only 13 of his 87 cases were the chemical findings in the stomach normal.

Stomach or intestinal disturbances were frequent in the intervals between the gallstone colics; in most cases palpation showed that the liver was not normal. In the hyperacidity cases the gallstone trouble was generally more of an acute inflammatory character. Every colic is accompanied by gastric disturbances and these in time pass from phases of excessive to deficient secretion. In many cases the stomach and intestinal disturbances persisted for years before there was gallstone colic, or before an operation revealed the secondary changes characteristic of cholelithiasis. The stomach being the more sensitive organ, gives the warning signal of the cholelithiasis. One patient found that she increased in weight each time when gallstone trouble returned. As the acute inflammation in the gallbladder subsides, the secondary gastro-intestinal trouble should receive due attention. It is important to determine whether the stomach secretion is excessive, normal or deficient, and institute treatment accordingly. By curing the secondary gastro-intestinal disturbance, the gallstone affection is often coaxed into a latent phase.

Berliner klinische Wochenschrift

March 29, LII, No. 13, pp. 309-336

60 War and the Food Supply. (Krieg und Ernährung.) G. Rosenfeld.

61 Origin and Prevention of Valvular Defects in the Field. (Zur Entstehung und Verhütung von Herzklappenfehlern bei Soldaten.) A. Edel.

62 Further Research on the Protective Ferments. (Weitere Erfahrungen mit der Abderhalden'schen Fermentreaktion.) F. Ebeler und E. Löhnberg.

63 *Action of Synthetic Camphor. (Wirkung des künstlichen Camphers.) C. Lutz.

64 Legal Questions Interesting Physicians. (Aerztliche Rechtsfragen.) H. Licske.

April 5, No. 14, pp. 337-364

65 Eczema. P. G. Unna.

66 *The Physiology of the Brain. (Die Hirnphysiologie im Dienste des Krieges.) M. Rothmann.

67 *Thymol plus Charcoal in Treatment of Typhoid Bacilli Carriers. (Versuch einer Behandlung der Typhusbacillenträger.) A. Géronne and W. Lenz.

68 Wounds of Peripheral Nerves in War. (Die Kriegsverletzungen der peripherischen Nerven.) M. Bernhardt. Commenced in No. 13.

69 Digestive Disturbances from War Bread, and Their Treatment. (Verdaunungsbeschwerden nach dem Genuss von Kriegsbrot.) C. von Noorden.

70 Nature of Narcosis. J. Traube.

63. Synthetic Camphor.—The clinical course is given in detail of twenty cases in which synthetic camphor was given by subcutaneous injection. No by-effects were observed, and there seems to be no reason, Lütz says, why the synthetic cannot take the place of natural camphor.

66. Physiology of the Brain and Wounds of the Head.—Rothmann's experience confirms Mendel's recent statement that the bullet and shell wounds of the brain now being encountered sustain, like laboratory experiments, what has been learned in recent years from physiology and pathology with regard to cerebral localization of functions. A number of new facts have also been learned, among them the experience that crossed flaccid paralysis of the extremities, occurring immediately after a wound, is liable to retrogress more or less completely. The sequence of disturbances noted by Münk in his experiments on monkeys is also shown in many of the wounded, as, for instance, in one case paralysis of the left leg followed a wound of the right skull. Fourteen days later the right shoulder became paralyzed, and then in turn the elbow and the fingers. An operation showed the expected abscess at the anticipated point.

The localization in the occipital lobe of the center for vision was confirmed by complete blindness coming on the second, tenth or fourteenth day in three cases in which the occipital bone alone had been grazed by a bullet. This center for vision is thus particularly sensitive, but no permanent injury seemed to be left as vision gradually returned. In one case complete motor aphasia and agraphia developed from a bullet in the third left frontal convolution, and both subsided completely in three days after the bullet had been extracted. Systematic reeducation of the function materially promoted restitution.

67. Combination of Thymol and Charcoal for Typhoid Bacilli Carriers.—Géronne rapidly banished by this means the typhoid bacilli from the stools of three men who seemed to be developing into chronic carriers. This method is capable of wide application in the giving of drugs to prolong their action with the minimum of irritation. He selected thymol as an efficient disinfectant, and gave small amounts of animal charcoal with it, hoping that the charcoal would absorb the thymol and thus retard its absorption by the tissues and permit it to act over a much longer stretch of the bowel and for a longer period. His theoretic premises were all confirmed; the thymol was absorbed much more gradually and slowly, as could be seen by the urine. Tests with other, more soluble drugs were less successful unless much larger amounts of charcoal were used. He is now testing this principle of charcoal as a vehicle with narcotics and other drugs, and is convinced that it has a future. To the bacilli carriers he gave 1 gm. of charcoal and 1 gm. of thymol three times a day, the charcoal half an hour before the three meals and two 0.5 gm. thymol capsules half an hour after each meal. This was kept up for from eight to fourteen days and no appreciable by-effects were observed. Tests on a dozen normal persons showed marked reduction of the flora in the stools under these doses of thymol alone or of charcoal alone, but this reduction was far greater when they were given together as above, suggesting the possibility of effectual sterilization of the bowels by this means.

Deutsche medizinische Wochenschrift, Berlin*April 1, XLI, No. 14, pp. 393-424*

- 71 Modification of Typhoid Vaccine. (Eine Modifikation des Typhusimpfstoffes.) K. Kisskalt.
- 72 Typhoid Vaccination Entails Leukopeny and the Eosinophils Disappear. (Ueber Leukopenie und Aeosinophilie nach Typhusschutzimpfungen.) F. Schneider.
- 73 *Adsorption by Animal Charcoal. (Tierkohle.) R. Kraus and B. Barbara.
- 74 *Experimental Research on Action of Benzol. W. Neumann.
- 75 *Tartar Emetic in Treatment of Internal Leishmaniosis. G. di Cristina and G. Caronia.
- 76 Antilouse Measures. (Bekämpfung der Läuseplage.) K. Kisskalt, A. Friedmann and T. Axenfeld.
- 77 Diagnosis of Complicated Bullet and Shell Wounds. (Komplizierte Schussverletzungen.) E. Glass.
- 78 Improved Orthopedic Appliances. (Unser orthopädisches Institut.) W. Katz.
- 79 Sterilization of Surface Water in the Field. (Beschaffung von keimfreiem Oberflächenwasser im Felde mittels des Chlordesinfektionsverfahrens.) Haupt.
- 80 Digestibility of the War Bread. J. Schwalbe and Others. See Berlin Letter, p. 1259.

April 8, No. 15, pp. 425-456

- 81 Improved Technic for Culture Medium. (Bereitung des Dieudonné-Agars mit Hilfe eines Blutalkali-Trockenpulvers.) O. Lentz. (Brauchbarkeit des Kongorotnährbodens zur bakteriologischen Typhusdiagnose.) K. E. F. Schmitz.
- 82 *Percutaneous Rectopexy Best Treatment for Prolapse of Rectum in Children. (Die Ekehornsche Operation des Mastdarmvorfalls bei Kindern.) R. Tölken.
- 83 Congenital Syphilis in Infants without Wassermann Reaction. M. Soldin and F. Lesser.
- 84 Skull Wounds in War. (Schädelschüsse.) R. Eschweiler and R. Cords.
- 85 Improved Orthopedic Appliances. (Kriegsgemässe Orthopädie der Extremitäten.) L. Levy.
- 86 Work of the Red Cross, especially in East Prussia. (Organisation und Leistungen des "Roten Kreuzes" im jetzigen Kriege.) Solbrig.

73. **Detoxicating Action of Charcoal.**—Kraus and Barbara have found that filterable viruses are taken up by charcoal so rapidly that they lose their toxic properties for the tissues. This also occurs with kaolin, and might be utilized to arrest infection in wounds. It is possible that tetanus might be warded off by applying charcoal to infected wounds, the adsorption of the toxins by the charcoal preventing their getting into the tissues.

74. **Experimental Research on Benzol.**—Neumann failed in his efforts to find some drug or substance that would neutralize or annul the toxic action of benzol. His experiments and research all demonstrated the peculiarly variable action and effect of benzol, indicating wide differences in individual tolerance. This renders it extremely dangerous as it is unquestionably a powerful poison for the leukocytes, and it is impossible to estimate beforehand the extent of its toxic action.

75. **Tartar Emetic in Internal Leishmaniosis.**—Di Cristina and Caronia have applied Vianna's tartar emetic method in ten cases of internal leishmaniosis, and report gratifying results. They gave it intravenously, injecting from 0.02 to 0.1 gm. of a 1 per cent. solution of the antimony and potassium tartrate on alternate days. Two of the patients were moribund. Two others are children and they are already much improved; five others are completely cured, and one died from acute nephritis after showing transient improvement. The dosage in this case had been less than in any of the others, so that, if the medication is in any way responsible for the kidney disease, the organ must have been exceptionally susceptible. The total amount ranged from 0.06 to 0.84 gm., given in the course of ten to forty days. The children were between 1 and 6 years old, and the affection was severe and of two to eight months' standing.

82. **Rectopexy for Prolapse of the Rectum in Children.**—Tölken lauds Ekehorn's method as the simplest and least dangerous while the effect is excellent and permanent. He advises it for all cases in which conservative measures do not speedily correct the tendency to prolapse, illustrating his remarks with nine typical cases. This brings to fourteen the number on record in which this technic was applied. There has been no recurrence in any case nor any disturbances for which the operation was responsible. Under

general anesthesia the prolapse is reduced and the rectum pushed up with the left index finger inside, while a needle is introduced into the rectum from the rear, near the sacrum, guiding it with the left index finger and drawing it out through the anus. It is then threaded with a stout silk thread which is drawn out above by the needle. The needle is then introduced again on the other side of the sacrum and threaded with the other end of the silk thread which is drawn out in turn. The silk is then pulled tight and the ends tied over the sacrum. The children can eat at once and get up and after two weeks the suture is taken out. The entire bowel is thus suspended from the sacrum, and there is no incision or wound except the two points where the needle was introduced. Tölken uses a wire instead of silk. There was never any reaction in his cases. (The method was described in THE JOURNAL, June 12 and July 3, 1909, pp. 1966 and 84.)

Jahrbuch für Kinderheilkunde, Berlin*April, XXXI, No. 4, pp. 277-370*

- 87 Diphtheric Paralysis and Diphtheria Antitoxin. H. Kleinschmidt.
- 88 Antianaphylaxis to Measles. (Masernantianaphylaxie.) G. Bessau, J. Schwenke and J. Pringsheim.
- 89 The Energy of the Pulse in Children in Comparison with Adults. (Dynamische Pulsuntersuchungen bei Kindern im Vergleich mit Erwachsenen.) A. Hotz.
- 90 Proteolytic Ferments in Diphtheria. (Ueber die Fermente, die die Eiweisse des Diphtherieserums spalten.) A. Reisz and Z. Barabas.
- 91 Aleukemia with Blood Picture of Aplastic Type. R. Lawatschek.
- 92 The So-Called Scleroderma of the New Born. E. Mayerhofer.
- 93 *Postdiphtheric Stenosis of the Larynx. A. Rohn.

93. **Postdiphtheric Stenosis of the Larynx.**—Rohn classifies by ages the mortality after intubation in diphtheria in the Prague children's hospital since 1900. It was very much lower in children over 3. In ten cases the children were left with chronic stenosis but six were cured by continued intubation over from two to four months. One child was 22 months old when the stenosis developed following measles. No diphtheria bacilli were found in this case. During the first year the tube could be dispensed with only for 136 days and the third year 260 days. Then the child choked to death while eating without the tube. Two other children required tracheotomy and are still wearing their cannula.

Medizinische Klinik, Berlin*April 4, XI, No. 14, pp. 381-412*

- 94 *Mild Dysenteric Polyneuritis in Twenty Soldiers. H. Schlesinger.
- 95 Treatment of Sepsis. L. Fuhrmann.
- 96 *Exophthalmic Goiter. (Basedowsche Krankheit.) C. Hart.
- 97 Abscess in the Brain after Blocking the Trigeminal Nerve to Permit Removal of Teeth. (Gehirnabscess nach Zahnerkrankung. Misserfolg der Leitungsanästhesie?) F. Bannes.
- 98 Thermal Baths with Weak Heart. (Technik der Thermalbadekuren beim funktionsuntüchtigen Herzen.) J. Havas.
- 99 Foot-and-Mouth Disease in Frankfurt Model Dairy. (Die Epidemie der Maul- und Klauenseuche in der Frankfurter Milchkuranstalt, 1915.) E. Cahen-Brach.
- 100 Tenth Anniversary of Discovery of the Spirochaeta Pallida. R. Kaufmann.

94. **Polyneuritis Following Dysentery.**—Schlesinger has been unable to find in the literature any account of polyneuritis as a complication of dysentery, but he has had twenty typical cases in his charge, and has heard of similar cases in neighboring hospitals. This dysenteric polyneuritis is evidently of toxic origin as dysentery bacilli have generally disappeared from the stools before it develops. The pains were often of a sciatic type, or in the calves or joints; the head was never affected. Paresthesias were constant in fingers or toes, and the trunk nerves in the limbs were tender, but there was no actual paralysis although the patients got about only with difficulty and by using a cane. All disturbances gradually subsided in the course of a few weeks. Treatment was with rest, light sweating procedures and salicylates.

96. **Exophthalmic Goiter.**—Hart marshals data to sustain his classification of cases of Basedow's disease into three groups, those of thyroid origin, those of thymus origin and those in which thyroid and thymus are both etiologically involved. In the purely thyroid cases, the cause of disturbance in structure and functioning of the thyroid is still

a mystery, but in this group the thymus is not at fault. In the second, the thymus cases, there is always a constitutional inferiority. The thymus is abnormally large, the heart and aorta system abnormally small, with hypoplasia also of the chromaffine system and genital apparatus, while the height is extreme in proportion to the weight. The mentally and morally backward (psychic infantilism) also present an abnormally large thymus, and this is also a strikingly frequent finding in youthful suicides. The thymico-lymphatic state also prepares the soil for exophthalmic goiter.

The thymus is at the height of its functioning in early life, and the constitutional inferiority becomes evident then likewise. This suggests that in the third type of exophthalmic goiter, that in which both thyroid and thymus are involved, the thymus is the primarily abnormal organ. The practical conclusion of Hart's article is that it is possible to determine by the signs of constitutional inferiority the cases in which the thymus is involved, and thus point the way to effectual operative treatment. The greater the predominance of the thymus, the severer the clinical picture, as a rule. The action of the abnormal thymus is most intensive the more pronounced the hypoplastic character of the structure of the body. The earlier the exophthalmic goiter develops, the larger the share of the constitutional factors in its pathogenesis. The thymus type is therefore more common in the young. It is the increasing practice to resect the thymus first, and this seems to banish forever the formerly so dreaded "thymus deaths" in operations for exophthalmic goiter.

Monatsschrift für Geburtshilfe und Gynäkologie, Berlin

April, XLI, No. 4, pp. 293-370

- 101 *Korsakoff's Psychosis in Pregnant Women. F. Plahl.
102 *Anaerobic Bacteria and Puerperal Infection. P. Hüsy.
103 *The Protective Ferments in Obstetrics and Gynecology. (Neue Probleme des parenteralen Eiweissabbaues in ihrer Beziehung zur Geburtshilfe und Gynäkologie.) T. Petri.
104 The Stem Pessary. (Die Utero-Cervikalkanüle.) F. Ahlfeld.

101. **Korsakoff's Psychosis in Pregnant Women.**—Plahl cites various writers who have reported paralysis or neuritis occurring in pregnant women in connection with uncontrollable vomiting. Hösslin noted this combination in 34 per cent. of forty-six cases of serious pregnancy paralysis, and Alexandroff and a few others have reported a few cases in which the Korsakoff syndrome was evident. This was pronounced in the case here described in detail, polyneuritis developing after a period of uncontrollable vomiting at the fifth month of a pregnancy, the symptoms of Korsakoff's psychosis soon following, with spontaneous expulsion of a fetus that had evidently been dead about two weeks. Plahl is inclined to regard the case as a polyneuritis of alimentary origin, that is, developing in a neuropathic woman under the influence of inanition from the weeks of vomiting. Several months elapsed before the Korsakoff syndrome was entirely thrown off, and even a year afterward there were still slight traces of it. She had no remembrance of the months of her illness.

102. **Anaerobic Germs and Puerperal Fever.**—Hüsy investigated repeatedly the lochia and the blood for the presence of anaerobes in forty-nine cases of puerperal fever, including nineteen with a fatal outcome. Pure cultures of anaerobes were sometimes obtained from the blood but never from the lochia. This was the case in one of fulminating tetanus following a criminal abortion which, he says, is the sixty-seventh case of the kind on record. Anaerobes were found responsible for the fatal bacteremia almost as often as hemolytic streptococci. But this, he adds, must not be construed as evidence that all anaerobes are particularly dangerous; this is true of only a small number, including obligate anaerobic streptococci and staphylococci and Fränkel's gas bacillus. One case of fatal puerperal fever for which obligate anaerobic streptococci were found responsible has converted Hüsy—as clinching conclusions from previous experiences—to the theory of self-infection of parturients. This patient had had rapid and normal

delivery, without having been subjected to examination except once with gloves. These anaerobic germs could not have been proliferating on the outside but must have been already in the depths of the vagina. Fortunately the ordinary anaerobic gas-producing bacteria permit an extremely favorable prognosis. Mixed infection with these anaerobes and aerobes is particularly benign.

103. **Serodiagnosis in Obstetrics and Gynecology.**—Petri presents the history of serodiagnosis with an account of much personal research, his review closing near the end of 1913. He states that his own experiments on rabbits first showed that protective ferments are generated after intravenous injection of serum from the same species or even the animal's own serum, and that this can be demonstrated as early as within fifteen minutes and lasts for more than forty-eight hours but not up to the fifth day.

Monatsschrift für Kinderheilkunde, Berlin

XIII, No. 7, pp. 297-358

- 105 The Flora in Infants' Intestines. (Biologische Untersuchungen über die Darmflora des Säuglings.) K. Blühdorn.

Münchener medizinische Wochenschrift, Munich

March 30, LXII, No. 13, pp. 425-464

- 106 Treatment and Prophylaxis of Typhoid in the Field. R. D. v. Tabora.
107 Vaccine Therapy of Typhoid. (Zur intravenösen Bakteriotherapie des Typhus abdominalis.) M. Rhein. (Wirkung von tryptischen Verdauungsprodukten aus Typhusbazillen.) M. Matthes and A. Rannenber.
108 Reaction to Vaccination against Typhoid. (Längerdauernde Krankheitserscheinungen in zeitlichem Zusammenhang mit der Typhusschutzimpfung.) E. Toenniessen. (Typhusimmunisierung.) W. Weichardt. (Begleiterscheinungen der Typhusschutzimpfung auf Grund von 1340 Impfungen.) E. Schlesinger.
109 Rapid Technic for Detecting Typhoid Bacilli. (Methode des raschen Typhusbazillennachweises.) W. Löwenfeld.
110 Staining the Fluid Facilitates Agglutination Reaction. (Farbmethode der Gruber-Widal-Reaktion.) A. Perlmann.
111 Abdominal Wounds in War. (Zur Prognose und Behandlung der Bauchschüsse im Kriege.) G. Perthes. Concluded in No. 14.
112 Operations in Field Hospital. (Das Operieren im Felde.) G. Hosemann.
113 Nature and Treatment of Gas Phlegmons. W. Armknecht.
114 Devices for Extension after Fractures in War. (Zur Behandlung der Frakturen im Kriege mit der Extensionslatte.) F. Weissgerber.
115 Treatment of Retention of Urine with Wounds of Spinal Cord in War. (Harnverhaltung bei Rückenmarksschüssen.) B. Goldberg.
116 Extermination of Lice. (Zur Vertilgung der Läuse.) O. v. Herff.
117 Nitrobenzol Poisoning in Attempts to Exterminate Lice; Six Simultaneous Cases. Schultz.

Therapeutische Monatshefte, Berlin

April, XXIX, No. 4, pp. 193-236

- 118 *Operative versus Conservative Treatment of Exophthalmic Goiter. (Erfolge der operativen Behandlung des Morbus Basedowii.) H. Schröder.
119 *Drugs that Check or Promote Secretion in Stomach, Pancreas and Liver. (Pharmakodynamische Erregung und Hemmung der Sekretionen im Magen-Darmkanal.) R. Chiari.
120 *History of Intravenous Injection of Drugs. (Zur Entwicklung der intravenösen Injektionstherapie.) E. Ebstein.

118. **Exophthalmic Goiter.**—Schröder agrees with those who believe that exophthalmic goiter may be of nervous origin in some cases, although the thyroid is usually to be incriminated. He styles the neurogenous, the genuine or primary exophthalmic goiter; and the thyrogenous, the secondary or symptomatic Basedow's disease. An operation on the thyroid in this latter type might banish the symptomatic disturbances but would not act on the primary cause. It is possible that we may be able to distinguish these types by the Abderhalden method of serodiagnosis. It is a significant fact, he continues, that Basedow's disease cannot be induced by implantation or ingestion of Basedow goiter substance, while normal thyroid substance incorporated in the same way is liable to induce in man typical Basedow symptoms or even the well-defined disease, as likewise incorporation of iodine. Many persons can take iodine in large doses without disturbance, while others display Basedow symptoms on small doses. The same has been observed in animals—all testifying to some predisposing element and, in particular, a peculiarly instable nervous system. The thyroid secretion acts as a multiplier of this predisposing element, and this sets up a vicious circle. By getting rid

of this multiplying action of the thyroid secretion, the predisposing element drops back into a practically negligible factor.

The final conclusion of Schröder's analysis of the experiences to date with operative and nonoperative treatment of exophthalmic goiter, are, word for word, the same as the conclusions of most clinicians with regard to the treatment of cancer. That is to say, while fine results may be obtained with these or those nonoperative measures, yet operative treatment deserves the preference as the most certain and reliable measure at our command. The successes with it, in comparison with conservative measures, are as 85 to 10, in Klose's recent compilation.

119. Drugs that Influence Secretion in Stomach, Pancreas and Biliary System.—Chiari reviews a number of works that have been published on this subject in the last seven years. Among other points emphasized is the stimulating action on stomach secretion of cholin, a normal element in the tissues. Also the acute stimulating influence of opium and morphin in the fasting stomach. Among the measures that inhibit gastric secretion is restriction of the table salt intake. Enriquez was thus able to keep hyperchlorhydria under control by limiting the salt to 4 or 5 gm. a day. Klocman found that sodium salicylate reduced by 50 per cent. the secretion in the stomach. Quinin, ferrous lactate and digitalis have a similar but less pronounced effect, while antipyrin and arsenic stimulate gastric secretion. In regard to the pancreas, Chiari comments on the fact that the physical character of the food, whether coarse or finely divided, has a marked influence on pancreas secretion. Emotions also influence it, anger inhibiting it. Sodium salicylate is cited as one of the most effectual means to promote secretion of bile; Winogradow states that it is increased in volume from 20 to 80 per cent. and in concentration by 19 to 30 per cent. and that this increase keeps up for several days.

120. Intravenous Medication.—Ebstein gives an illustration from a work that dates from 1667, which portrays an intravenous infusion at the bend of the elbow between two tourniquets. The fluid is infused through a large quill with a bladder tied on the end. As early as 1669 experiments were being made with intravenous infusion of opium, and in 1665 syphilis was given intravenous treatment with good results according to Ettmüller's thesis (Leipzig, 1668). He also mentions intravenous treatment of epilepsy, apoplexy, hysteria, hypochondria and scabies. The by-effects mentioned even then are the same as noticed now. Ebstein cites other authorities which show that the intravenous technic was applied in the seventeenth and eighteenth centuries, but then was "discovered" anew by A. Landerer. In the clinic, May 27, 1881, he made an intravenous injection, and in October infused salt solution in a case of acute anemia, the first "saline" in man.

Therapie der Gegenwart, Berlin

April, LVI, No. 4, pp. 121-160

- 121 *Mechanotherapy for the Wounded. (Physikalische Heilmethoden im Reservelazarett bei der Behandlung der Kriegsverletzungen.) F. Kirchberg.
- 122 *Transient Loss of Pupil Reflex in a Diabetic. (Vorübergehende Pupillenstarre bei Diabetes.) L. Dünner.
- 123 Tetanus. (Klinische Beobachtungen über Tetanus und praktische Gesichtspunkte bei seiner Behandlung.) Rosznowski.

121. Mechanotherapy for the Wounded.—Kirchberg describes ways and means to fit up a base hospital with the least expense so it can give adequate treatment to the wounded to ward off or cure contracture and ankylosis. He remarks that the scant attention that has been paid to physiotherapy in the medical curriculum and in military medical circles in the past may soon be bitterly avenged unless prompt measures are taken to remedy this. The results in the base hospital in his charge have surpassed all anticipations. Function has been restored to absolutely stiff knees and other joints, to ankylosed jaws, etc. The secret is the skilful combination of hot air, massage, passive and active exercise, the suction bell, and stretching devices.

Three or four hours a day up to eight hours may be necessary, keeping this up for one to three months. Chewing on rubber aided in mobilizing the jaws, with intensive massage from inside the mouth. In two cases in which a bullet had lodged deep in the thigh, he had the men contract certain muscles systematically, and thinks that this aided in the change of the position of the bullet until it could be readily extracted. Perseverance on the part of all and the collaboration of a surgeon and a neurologist are indispensable to secure the best results.

122. Transient Loss of the Pupil Reflex in a Diabetic.—The behavior of the pupils is usually relied on to distinguish between tabs and other affections with similar symptoms, but Dünner here reports a case in which a woman of 67, diabetic for nine years, reacting negatively to all tests for syphilis, lost the knee-jerk and a week later lost the pupil reflex, and there was also slight ataxia. All these symptoms subsided within a few days. He thinks they were merely a toxic phenomenon just as Nonne has observed transient rigidity of the pupils in a drunkard.

Wiener klinische Wochenschrift, Vienna

April 1, XXVIII, No. 13, pp. 337-360

- 124 Serotherapy and Prophylaxis Advocated for Bacillary Dysentery. R. Kraus.
 - 125 Varuish as Aid in Extension and to Fasten Retention Catheters. (Extensionsbehandlung mit Mastisol.) E. Suchanek. (Zur Nachbehandlung der Amputationsstümpfe.) M. Seemann. (Befestigung des Verweilkatheters.) P. Blatt.
 - 126 *Necropsy Work in the Field. (Die Feldprosektur.) E. Miloslavich and A. Weichselbaum.
 - 127 The Trained Nurse. (Krankenpflegewesen in den Kulturstäaten.) M. Setz.
 - 128 Taking Prisoners of War. (Die Kriegsgefangennahme vom hygienischen Standpunkt.) E. Wiener.
- April 8, No. 14, pp. 561-386
- 129 Epidemiology and Prophylaxis of Cholera. C. Sternberg and A. Weisskopf.
 - 130 Prophylaxis of Typhus. (Zur Verhütung der Infektion mit Flecktyphus.) J. Frisch.
 - 131 Pathology and Treatment of Tetanus. B. Beer.
 - 132 Antilouse Measures. (Zur Frage der Läusevertilgung.) L. Zupnik, S. Fränkel and A. R. v. Lobaczewski.

126. The Field Prosector.—The advantages are extolled of having an expert in pathologic anatomy attached to each army corps. In warding off epidemics, in detecting mixed infections, in collecting material for the study of war surgery and sanitary statistics, the organization of a field necropsy service would be of the greatest importance. It would place the work of the physician in war on the same high scientific plane as his work in peace.

Zentralblatt für Chirurgie, Leipzig

April 3, XLII, No. 14, pp. 217-240

- 133 *Advantages of Silver Foil in Surgery. (Verwendung von Silberplättchen in der Chirurgie.) E. Lexer.
- April 10, No. 15, pp. 241-256
- 134 *Treatment of Gunshot Abdominal Wounds with Compressive Dressings. (Zur Frage der Behandlung der Bauchschüsse mittels komprimierenden Verbandes.) G. Kelling.

133. Silver Foil in Surgery.—Lexer relates that Halsted's use of silver foil was what inspired Credé to introduce in 1896 the silver salts as antiseptics. Lexer learned the use of silver foil from Cushing and applies it a little differently from Halsted's technic as published in THE JOURNAL, April 12, 1913, p. 1119. Lexer uses but one layer of the silver foil, and discards the protecting paper. He is enthusiastic over the simplicity and the advantages of the method, and commends it in high terms for general adoption by surgeons. The scars after plastic operations on the face are almost imperceptible when done with fine suture material and covered with the silver foil. He has never seen epidermis flaps adhere and heal so quickly and perfectly as under the silver foil. It offers special advantages also for sutures before applying a plaster cast, and permits more economical use of dressings. Halsted's words of praise for the method he regards as entirely justified.

134. Treatment of Gunshot Wounds of the Abdomen by Compression.—Kelling has had no clinical experience with this method of treating abdominal wounds as the stage

during which it would be applicable is long past when the wounded reach the hospital in his city, Dresden. But he has been studying it on animals, and the effect observed has convinced him that there is much to be gained by applying a compressing bandage at once after a bullet or shell wound of the abdomen. It checks the escape of intestine content and prevents its spreading, it promotes the development of adhesions, and tends to localize the peritonitis. It is especially important while the wounded man is being carried to the rear, and consequently it should be applied early, and done in such a way that compression is really exerted. The ideal, he remarks, would be to have an inflatable bag for the bandage, with an opening through it which could be fitted over the point where the bullet entered. By this means the inflated bag would exert an even pressure on the abdomen throughout, except at the injured spot. The pressure elsewhere would tend to expel the secretions at this point. Röper advises soldiers to refrain from eating just before a battle. Kelling adds that when one is sure the large intestine has not been injured, the escape of stomach content can be combatted by inflating the large intestine. When peritonitis has developed, with paralysis of the intestinal vessels and heart weakness, the blood drains into the splanchnic area and there is not enough left elsewhere to keep up the circulation. He suggests that this might be combatted by exerting counter pressure, opening up the abdomen at several points, in the epigastrium and inguinal region, and applying positive atmospheric pressure in a Sauerbruch cabinet, the head outside, or vice versa.

Zentralblatt für Gynäkologie, Leipzig

April 3, XXXIX, No. 14, pp. 217-240

- 135 *Radium and Roentgen Treatment of Cancer of the Uterus. H. Füh and F. Ebeler.

April 10, No. 15, pp. 241-256

- 136 *Puerperal Osteomalacia. R. E. Liesegang.

135. **Radiotherapy of Cancer.**—Füh analyzes his experiences with 56 cases of uterine cancer given radium or Roentgen treatment including 22 absolutely inoperable cases and 11 in which treatment was given merely to ward off recurrence. In 53 per cent. of 45 women given radium treatment, no general disturbance was noted from the measure, but the others showed more or less physical depression and in 9 cases there was a considerable loss of weight. The effect on the bladder and rectum is the most disagreeable by-action of this radium treatment; 10 women had severe tenesmus in bladder or rectum, including 2 who had imperious desires to urinate every five or ten minutes. The patients complained very much of these bladder and rectum disturbances and were materially depressed by them. They proved transient as a rule, but kept up for eight days in 2 cases. In 2 cases the prolonged radiotherapy entailed a stricture in the rectum. In 2 other cases pyometra developed and in another case a secondary abscess in the thigh. On the whole, he concludes, radiotherapy constitutes great progress in treatment of cancer. We can advise it with confidence although without too much optimism. All the 10 operable cancers have retrogressed entirely or nearly so. Six of the inoperable patients are clinically cured, but not much benefit was realized in the 10 cases of inoperable recurrence.

136. **Puerperal Osteomalacia.**—Liesegang presents evidence which apparently refutes Levy's arguments against the acidosis theory of the bone disturbances in osteomalacia.

Zentralblatt für innere Medizin, Leipzig

April 10, XXXVI, No. 15, pp. 225-244

- 137 Hygiene at the Front. (Die Hygiene im Stellungskriege.) E. Hesse.

Gazzetta degli Ospedali e delle Cliniche, Milan

March 28, XXXVI, No. 25, pp. 385-400

- 138 *Roentgen Treatment of Epithelioma of the Lips; Three Cases. E. Cavaglieri.

April 1, No. 26, pp. 401-416

- 139 *Urochromogen Reaction of Weisz Unreliable in Surgical Tuberculosis. A. Bruni.

138. **Roentgen Treatment.**—A complete cure was realized in one of the three cases of cancer of the lip described. In the others the cancer was of unusually rapid and malignant growth and it had to be excised. Benefit from the rays was apparent even in these cases, encouraging Roentgen treatment to ward off recurrence.

139. **The Urochromogen Reaction in the Urine.**—A study of the reaction of Weisz was published in THE JOURNAL, June 13, 1914, p. 1886. Bruni does not agree with that writer as to the value of the test in tuberculous affections. He applied it to 137 patients, and obtained a positive response in only 13 of 32 with some tuberculous process in bones, lymph-glands, pleura or peritoneum. It was positive in 9 of 47 patients with tumors, in 18 of 30 with febrile acute processes, and in 3 of 28 with fracture, lithiasis or other non-febrile trouble.

Policlinico, Rome

April 4, XXII, No. 14, pp. 449-484

- 140 *Ten Years of Radiotherapy. C. Esdra.

- 141 *Factors that Impede Experimental Tumor Transplantation. (Sui fattori che determinano l'attecchimento dei trapianti sperimentali dei tumori tra animali di specie diversa.) G. Donzello.

- 142 *The Physician's Unconscious Psychotherapy. (Dell'atteggiamento mentale del medico in presenza del suo malato.) S. Stefani.

140. **Radiotherapy.**—Esdra has applied one or more forms of radiant energy in 933 cases of various affections, including 302 of non-malignant tumors and 58 of cancer. The details of treatment and the results are given in tabulated form. With epitheliomas benefit was realized in all but 4 of the 31 cases in which radium was applied, and in 5 of the 11 cases under Roentgen treatment. The benefit was only transient; recurrence at the spot or at a distance followed, and the recurrences proved refractory to the rays. Epitheliomas of the lip, mouth and palate seemed to improve rapidly under radium but recurrence soon followed. The condition grew worse again so rapidly that it seemed as if the radium treatment had actually whipped it up into a fulminating course, speedily fatal. This was particularly manifest in a case of a small epithelioma of the palate of thirteen years' duration. It subsided under the radium but metastasis developed almost at once in a gland near by, and soon proved fatal. Only in one case of alveolar epithelioma the recurrences yielded likewise to the radium treatment, but metastasis in the pleura followed a traumatism.

With sarcoma, on the other hand, in 5 of the 8 cases a permanent cure seems to have been realized under the radium, and in 1 of the 7 cases given Roentgen treatment. In the 8 cases of leukemia, roentgenotherapy had a palliative influence in 7 and none at all in the other case. Epitheliomas not actively malignant yielded to radium or Roentgen rays in a most gratifying manner. The effect of the two seems about the same except that radium sometimes proved effectual when the Roentgen rays had failed. Only 8 under radium and 5 under Roentgen treatment proved refractory of the 203 benign tumors; these few refractory tumors were in the fingers, tongue, bladder, or at the anus. Especially fine results were obtained in 33 cases of epithelioma of the eyelid, only 1 case proving refractory. In the others even the cosmetic outcome was excellent. Radium was used in all but 2 of these eyelid cases. In 58 cases of warts, all disappeared promptly under radium treatment, even old chronic warts that had spread under the nails. In one case of leukoplakia, one patch subsided completely while a second patch proved absolutely rebellious. The effect realized with roentgenotherapy in chronic and subacute eczema surpassed that of any other treatment known to date. Complete cure under radium is reported in the 12 trachoma cases, 6 tuberculous ulcerations, and 7 of cheloid acne. Most of the work reported was done at the public institution for physiotherapy at Rome of which Esdra is director.

141. **Experimental Tumor Grafts.**—Donzello found evidences of protective ferments in the blood serum in the animals that proved refractory to tumor grafts. Histolytic processes thus readily explain why the graft fails to take root and grow.

Semana Medica, Buenos Aires*February 25, XXII, No. 8, pp. 245-276*

- 143 *Inherited Supernumerary Fingers. (Caso de polidactilia hereditaria.) C. Lanza.
- 144 Impotency as Cause for Annuling a Marriage. (La impotencia considerada desde el punto de vista medico-legal.) C. S. Belgrano and P. B. Aquino.
- 145 Color Test for Citric Acid. (Nueva reaccion cromatica del acido citrico.) J. A. Sanchez.
- 146 *Turpentine in Local Treatment of Puerperal Endometritis. A. Gutierrez.
- 147 Improved Technic for Roentgen Work. (Fotoradiolocalizador.) C. Heuser.

March 4, No. 9, pp. 277-308

- 148 *Syphilitic Disturbance in the Bladder. (Sifilis de la vejiga.) J. N. Posadas.
- 149 Gastric Secretion. (Produccion, extraccion y analisis del jugo gastrico.) P. J. Pando.
- 150 Streptobacillus of Pellagra. (La pelagra en Bessarabia—Rusia.) G. Tizzoni (Bologna, Italy).
- 151 *Epileptiform Seizures from Camphor Poisoning; Five Cases. (Ataques epileptoides producidos por el uso del bromuro de alcanfor.) A. Austregesillo.

March 11, No. 10, pp. 309-340

- 152 *Syphilitic Disturbance in Liver and Spleen. (Sifilis del higado y del bazo.) J. J. Viton and A. Gorostazu.
- 153 Improved Technic for Roentgen Work. (Nueva careta protectora de la cara contra los rayos X.) C. Heuser.
- 154 Spontaneous Generation. (La generacion espontanea, su realidad y lo que ella implica.) H. Charlton-Bastian (London).

143. **Inherited Supernumerary Fingers.**—Five cases are described and illustrated by Lanza, all encountered within two months in children born at the maternity. One of the mothers had a scar at the inner base of each thumb where a supernumerary finger had been excised, and her two children each had an extra finger like a supernumerary phalanx on the little finger, with a well-formed nail. One of the other children had a supernumerary finger on each hand. He resected the extra fingers in each case.

146. **Turpentine Treatment of Puerperal Endometritis.**—Gutierrez calls attention to some recent communications extolling the efficacy of turpentine in these conditions. A wick of gauze impregnated with turpentine is introduced into the uterus. It induces such profuse exudation that any retained scraps are washed out. The uterus is rinsed out beforehand with simple boiled water. Gutierrez adds that the effect of the turpentine in the uterus is like that of a fixation abscess in the skin, marked phagocytosis following and the bactericidal power of the blood serum being much augmented.

148. **Syphilitic Changes in the Bladder.**—Posadas has recently encountered a second case of syphilitic ulceration in the bladder. A robust bachelor of 41 for about a year had noticed a sensation of heat in the bladder region when micturition was delayed but the urine was normal until one day the urine was red with blood, growing redder toward the end of the emission. At the next micturition the urine was normal and there was no further hematuria and no pain at any time. The cystoscope revealed an ulcer, the walls of the bladder apparently normal everywhere else. With ulceration from any cause but syphilis there is always more or less cystitis. The Wassermann was positive and the ulceration promptly retrogressed under mercurial treatment, although the man persistently denied venereal disease and no other signs of such were apparent.

151. **Epileptiform Seizures from Camphor.**—In four of the five cases described, the camphor had been prescribed for gonorrheal urethritis but the patients took the doses too often. Two of them were medical men. The fifth patient was the wife of a physician; the camphor had been prescribed to relieve a painful cystitis, 1.5 gm. in the course of two hours. The convulsion occurred the following morning. There was only one seizure in each case, but all described it as resembling a typical epileptic seizure in every respect. The camphor had been given associated with hexamethylenamin in each case. Austregesillo warns that 0.6 gm. is the maximum dose for twenty-four hours, and 0.2 gm. the maximum single dose. If this is borne well, the dose might be increased a little, but never to the dosage given in the textbooks.

152. **Syphilitic Changes in Liver and Spleen.**—In Viton's four cases, two simulated Laennec's cirrhosis of the liver; the third simulated a subacute rheumatism plus the liver trouble, and in the fourth, anemia dominated the clinical picture. The irregular shape and large size of the liver, the exudate simulating ascites, and the positive Wassermann pointed to a gummatous affection of the liver. Under mercurial treatment all symptoms retrogressed except that the liver is still somewhat larger than normal. Syphilitic liver troubles display a great tendency to recur, and treatment should be cautious and the liver should be spared all extra work for a time. He advises absolute bed rest, not getting up for any purpose; nothing but water by the mouth for a day and a half, but plenty of water, up to 3 liters. Then skimmed milk in small amounts at frequent intervals until the end of the week, with enemas if the patient is constipated. In all four cases the spleen was much enlarged as well as the liver, and all had ascites; one patient required tapping every week at first. In one woman of 41, extreme anemia, fever and much expectoration suggested tuberculosis, but no tubercle bacilli were found. The skin reaction was negative, as also the Wassermann, but the large size of liver and spleen and the irregular pupils suggested syphilis, and complete recovery followed mercurial treatment.

Hospitalstidende, Copenhagen*April 7, LVIII, No. 14, pp. 329-350*

- 155 *Renal Diabetes. (Glykosuria, Diabetes renalis.) C. Gram.

155. **Renal Diabetes.**—Gram describes what he thinks is the first case of renal diabetes that has been published in Denmark. It is analogous to the experimental diabetes induced by phlorizin, and has no graver significance, as the sugar content of the blood is within normal range. His patient is a medical student of 25 from Iceland, previously healthy and of a large family, all healthy except that one uncle had diabetes. There were no symptoms and no objective findings except the 1.3 up to 3 per cent. sugar in the urine. On an ordinary diet, the total sugar eliminated was 39.2 gm. but on an antidiabetic diet it dropped to 22 gm. No albumin or acetone was found in the urine at any time, but the strictest antidiabetic diet never cleared it of sugar. This elimination of sugar in the urine with normal sugar content in the blood should be called renal glycosuria, not renal diabetes. So far as known to date, this condition never runs into actual diabetes later. There seems to be some chronic anomaly in the kidneys, like the condition induced transiently by phlorizin. The only injury, apparently, is that the weight is not quite up to normal. It seems advisable to restrict the sugar in the diet, but otherwise no restrictions need be imposed, and this renal glycosuria need not be regarded as a special risk in life insurance. The young man's general condition has been excellent and he completed his medical course with zeal and pleasure.

Hygiea, Stockholm*LXXVII, No. 5, pp. 225-288*

- 156 *The Vocal Organs in Schoolchildren. (Studier över röstorganet hos folkskolebarn.) K. Weinberg.

156. **Vocal Apparatus in Children.**—Weinberg in the course of medical inspection of the schools at Stockholm paid special attention to the vocal organ and the hearing. He here reports the details of this study of 50 boys and 50 girls from each of the eight classes of a public school. The ages ranged from 7 to 14. The work was undertaken to discover the causes of chronic hoarseness. None of the children had a vocal range of three octaves. The changes in the voice are tabulated from various standpoints under a piano keyboard, showing in particular the changes in the boys' voices at 12 and over, and the upward range of the girls' voices at 14. He found two types of mutation in boys, a stormy, catarrhal form of change of voice, and a dry form. Only 34.7 per cent. of the children were free from hoarseness in speaking and 40.3 per cent. in singing. All the 65.3 per cent. who were more or less hoarse were examined with the laryngoscope. In 127 boys and 89 girls chronic changes were found in the throat sufficient to explain the hoarseness, that is, in 27 per cent. of the total 800.



The Exposition Memorial Auditorium.

THE SAN FRANCISCO SESSION

AMERICAN MEDICAL ASSOCIATION, SIXTY-SIXTH ANNUAL SESSION, SAN FRANCISCO, CAL., JUNE 21-25, 1915

OFFICIAL CALL

TO THE OFFICERS, FELLOWS AND MEMBERS OF THE AMERICAN MEDICAL ASSOCIATION

The sixty-sixth annual session of the American Medical Association will be held at San Francisco, Cal., June 21-25, 1915.

The House of Delegates will convene at 10 a. m., Monday, June 21. In the House the representation of the various constituent associations for 1915 is as follows:

Alabama	3	New Hampshire	1
Arizona	1	New Jersey	3
Arkansas	2	New Mexico	1
California	3	New York	11
Colorado	2	North Carolina	2
Connecticut	2	North Dakota	1
Delaware	1	Ohio	6
District of Columbia.....	1	Oklahoma	2
Florida	1	Oregon	1
Georgia	3	Pennsylvania	9
Idaho	1	Rhode Island	1
Illinois	9	South Carolina	1
Indiana	4	South Dakota	1
Iowa	3	Tennessee	2
Kansas	2	Texas	5
Kentucky	4	Utah	1
Louisiana	2	Vermont	1
Maine	1	Virginia	3
Maryland	2	Washington	2
Massachusetts	5	West Virginia	1
Michigan	4	Wisconsin	3
Minnesota	2	Wyoming	1
Mississippi	2	Canal Zone	1
Missouri	5	Hawaii	1
Montana	1	Philippine Islands	1
Nebraska	2	Porto Rico	1
Nevada	1		

The fifteen scientific sections of the American Medical Association, the Medical Department of the Army, the Medical Corps of the Navy and the Public Health Service are entitled to one delegate each.

The general meeting, which constitutes the opening exercises of the Scientific Assembly of the Association, will be held at 10:30 a. m., Tuesday, June 22. The various sections of the Scientific Assembly will meet Tuesday at 2 p. m., and subsequently, according to their respective programs.

Wednesday, June 23, has been designated as "Health Conservation Day" and will be devoted to appropriate exercises.

The Registration Department will be open from 8:30 a. m. until 5:30 p. m., on Monday, Tuesday, Wednesday and

Thursday, June 21, 22, 23 and 24, and from 9 to 10 a. m., on Friday, June 25.

VICTOR C. VAUGHAN, President.

ALEXANDER R. CRAIG, Secretary.

MEMBERS OF THE HOUSE OF DELEGATES

A Preliminary Roster of the Legislative Body of the American Medical Association

The list of members of the House of Delegates for the session is incomplete, as a number of state societies are yet to hold their meetings at which delegates will be elected. The following is a list of the holdover delegates and of the newly elected members who have reported to THE JOURNAL in time to be included:

STATE DELEGATES

ALABAMA H. T. Inge, Mobile. W. H. Sanders, Montgomery.	MARYLAND G. Lane Taneyhill, Baltimore.
ARKANSAS Robert Caldwell, Little Rock.	MASSACHUSETTS J. B. Blake, Boston. H. G. Stetson, Greenfield. L. F. Woodward, Worcester. Hugh Cabot, Boston. B. W. Paddock, Pittsfield.
CALIFORNIA H. Bert Ellis, Los Angeles.	MICHIGAN E. T. Abrams, Dollar Bay. A. E. W. Yale, Pigeon. L. J. Hirschman, Detroit. H. E. Randall, Flint.
COLORADO L. H. McKinnie, Colorado Springs. H. R. McGraw, Denver.	MINNESOTA J. W. Andrews, Mankato. W. A. Coventry, Duluth.
CONNECTICUT E. J. McKnight, Hartford. D. Chester Brown, Danbury.	MISSISSIPPI L. C. Feemster, Tupelo.
GEORGIA E. C. Davis, Atlanta. W. C. Lyle, Augusta.	MISSOURI E. H. Miller, Liberty. A. W. McAlester, Jr., Kansas City. H. L. Reid, Charleston.
HAWAII C. B. Cooper, Honolulu.	MONTANA LeRoy Southmayd, Great Falls.
ILLINOIS G. L. Armstrong, Taylorville. J. W. Hamilton, Mt. Vernon. F. C. Gale, Pekin. W. L. Noble, Chicago. C. P. Caldwell, Chicago. Henry F. Lewis, Chicago.	NEBRASKA A. I. MacKinnon, Lincoln.
INDIANA J. Rilus Eastman, Indianapolis. Edwin Walker, Evansville.	NEVADA M. R. Walker, Reno.
IOWA L. W. Littig, Davenport. M. N. Voldeng, Woodward.	NEW HAMPSHIRE Irving A. Watson, Concord.
KANSAS M. F. Jarrett, Fort Scott.	NEW JERSEY Linn Emerson, Orange. Edward Guion, Atlantic City. William S. Lalor, Trenton.
KENTUCKY W. W. Richmond, Clinton. A. H. Barkley, Lexington.	

NEW MEXICO

William R. Tipton, E. Las Vegas.

NEW YORK

Dwight H. Murray, Syracuse.
Wendell C. Phillips, New York.
James W. Fleming, Brooklyn.
J. C. MacEvitt, Brooklyn.
Charles H. Richardson, New York.

OHIO

C. D. Selby, Toledo.
J. C. M. Floyd, Steubenville.

OKLAHOMA

Walter E. Wright, Tulsa.
Walter Penquite, Chickasha.

OREGON

Walter T. Williamson, Portland.

PENNSYLVANIA

Americus R. Allen, Carlisle.
J. Montgomery Baldy, Philadelphia.
Herbert B. Gibby, Wilkes-Barre.
Luther B. Kline, Catawissa.
Adolph Koenig, Pittsburgh.
William T. Hamilton, Philadelphia.
Joseph D. Findley, Altoona.
Thomas D. Davis, Pittsburgh.
Jesse Y. Scott, Washington.

TENNESSEE

Perry Bromberg, Nashville.
Jere L. Crook, Jackson.

TEXAS

C. E. Cantrell, Greenville.
Marvin L. Graves, Galveston.

UTAH

Sol J. Kahn, Salt Lake City.

VERMONT

C. H. Beecher, Burlington.

VIRGINIA

W. E. Anderson, Farmville.
Kirkland Ruffin, Norfolk.
R. C. Bryan, Richmond.

WASHINGTON

G. S. Peterkin, Seattle.
E. A. Rich, Tacoma.

WEST VIRGINIA

J. L. Dickey, Wheeling.

WISCONSIN

J. M. Dodd, Ashland.
A. H. Levings, Milwaukee.
J. F. Pember, Janesville.

DELEGATES FROM THE SECTIONS

PRACTICE OF MEDICINE

Richard C. Cabot, Boston.

SURGERY, GENERAL AND ABDOMINAL

Dean Lewis, Chicago.

OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY

Channing W. Barrett, Chicago.

OPHTHALMOLOGY

Walter R. Parker, Detroit.

LARYNGOLOGY, OTOTOLOGY AND RHINOLOGY

George E. Shambaugh, Chicago.

DISEASES OF CHILDREN

T. C. McCleave, Berkeley, Cal.

PHARMACOLOGY AND THERAPEUTICS

John F. Anderson, Washington,
D. C.

PATHOLOGY AND PHYSIOLOGY

A. W. Hewlett, Ann Arbor, Mich.

STOMATOLOGY

G. V. I. Brown, Milwaukee.

NERVOUS AND MENTAL DISEASES

W. W. Graves, St. Louis.

DERMATOLOGY

O. H. Foerster, Milwaukee.

PREVENTIVE MEDICINE AND PUBLIC HEALTH

Morgan Smith, Little Rock, Ark.

GENITO-URINARY DISEASES

F. M. McCallum, Kansas City.

HOSPITALS

F. A. Washburn, Boston.

ORTHOPEDIC SURGERY

John Ridlon, Chicago.

SAN FRANCISCO AND ENVIRONS

Her Romantic History and a Description of Her Unique Beauty

HISTORY

During the year of the signing of the Declaration of Independence at Philadelphia, Don Juan Bautista de Anza located the presidio (now our military post), the mission (which is still standing at the corner of Dolores and Sixteenth streets and open to visitors) and the pueblo or civil settlement on the shores of Bahia de Puerto de San Francisco. This was the most northern of the chain of missions established along the west coast of the Spanish colony of Alta California. The pueblo was called Yerba Buena after a weed of the same name which was supposed to promote fecundity. The mission, whose patron saint was St. Francis d'Assisi, was founded a "league" farther south.

The little pueblo continued its sleepy existence until 1847, when California was seized by Fremont and Commodores Sloat and Montgomery for the United States, and the name Yerba Buena was changed to San Francisco.

Between the time of the founding of the mission and the American seizure, the port was practically closed; but its value was recognized as a port of call for ships "around the Horn" or from the Isthmus of Panama bound for the Orient, as it lies directly on the shortest path followed by these craft.

In 1848 gold was discovered, and in the following year began the great gold rush, not less than 70,000

immigrants crossing the plains and coming by way of Panama, a monthly steamer service from New York having been established. San Francisco was as deserted as though the male population had been mustered for war. Every man who possibly could do so rushed to the mines. Even the ships in the harbor could not sail, as most of their sailors deserted to go to the mountains in search of the yellow metal. It was very soon seen, however, that fortunes could be made by the San Francisco merchants in supplying the prospectors and camps with their necessary food and implements, and from a sleepy maritime village of 850 inhabitants, San Francisco overnight became a thriving city. By July, 1849, the population had exceeded 5,000; in September it was 20,000. The gold yield that year was \$23,000,000.

The "forty-niners" were of two classes: sterling pioneers who came to develop the recently discovered gold fields, and those "living by their wits" who preyed on any to whom wealth came as newly and easily acquired estate. Sometimes in the open, at others in the quiet, but constantly, there was strife between these two elements of the population, which frequently resulted in lawless acts. On two occasions, once in 1851 and later in 1865, a vigilance committee responded to the call to overrule anarchism. So effective was the work of the latter of these that there never has been need for a third vigilance committee.



Fig. 2.—Topography of San Francisco and environs.

The completion of the transcontinental railroad in 1869 marks the entrance of San Francisco on its commercial development, which has been one of steady progress.

THE COMSTOCK DAYS

In 1859 the Comstock Mines were opened, and between the years 1872 and 1875 speculation was rife on the stock exchange in San Francisco. During the slump of 1872, prices dropped sixty million dollars in ten days, and in 1875 forty-two millions were lost by the San Francisco public in a single week. The latter panic closed the period known as the "Comstock or Bonanza Days"—that romantic period in California history immortalized by Mark Twain and Bret Harte.

THE EARLY FIRES

From December, 1849, to May, 1851, San Francisco was burned almost to the ground six times, in all over fifteen million dollars' worth of merchandise

TOPOGRAPHY AND DESCRIPTION

The Coast Range Mountains extend along the western shore of the American continent. The only break in the continuity of this range is where the waters of San Francisco Bay, into which flow the two great rivers, the Sacramento and the San Joaquin, draining the great central valley of California, to pass out into the Pacific Ocean through the Golden Gate.

The city of San Francisco is situated on the northern extremity of a hilly peninsula, having on its east and northeast San Francisco Bay, on the north the Golden Gate and on the west the Pacific Ocean.

In the great submerged mountain-locked basin, 65 miles long and from 4 to 10 miles wide, which forms San Francisco Bay, the harbor of the city, there project above the surface of the water the peaks of three mountains: Alcatraz Island, a military post, Angel Island, the United States



Fig. 3.—Views in and about San Francisco: Upper, a street scene in picturesque Chinatown. Left center, Market Street in the business district near Eddy Street. Right center, the museum, entrance Golden Gate Park. Lower, Bathing near Cliff House and Seal Rocks.

and buildings being consumed. After each fire, while the city was still smoldering, rebuilding was begun, the result always being a city better than that which had just been destroyed.

THE EARTHQUAKE AND FIRE

Up to 1906 the city had grown steadily. On the morning of April 18 of that year an earthquake shook the city, breaking the water mains leading into it. Numerous fires started which soon became uncontrollable owing to lack of water, and in three days there were destroyed 28,000 buildings over an area of 4 square miles, comprising 497 square blocks. Once more, as the city was smoldering, the rebuilding began, and now, nine years later, it is the city selected for the commemoration of the completion of the Panama Canal, marking the beginning of a new era.

quarantine and immigration stations, to the north of the city, and the Island of Yerba Buena, the United States naval training station, to the east.

The present eastern portion of the city, from Montgomery Street to the Embarcadero, is filled ground, the bay along this shore being sufficiently deep for the largest ocean liners to dock.

The city of San Francisco extends from the bay on the east to the beach along the shores of the Pacific on the west, a distance of about 7 miles.

The eastern portion is relatively level and is occupied by the wholesale and retail business districts.

THE BUSINESS SECTION

The business section of San Francisco is perhaps the most modern in the world. With the exception of the building occupied by the United States appraiser, every structure in

it has been built since the fire of 1906. The handsomest of these buildings are found in the financial district, where some of the insurance and bank buildings are well worth inspection by those interested in the adaptation of the classic and Renaissance architecture to our present utilitarian purposes.



The residence portion of the city is on the sides of the numerous hills rising to a height of several hundred feet on the north and west. The sites most desired for homes are those having an outlook on the bay and the Golden Gate. These steep hills form the principal charm of San Francisco, and their occurrence and attractiveness can be well appreciated when it is recalled that the Golden Gate is a great gorge cut through the mountains by the waters from the great central valley of California. San Francisco is built on the coast foothills of these mountains.

The city is built on two kinds of substrata—on rock in the hilly portions and business district, and on sand dunes in the westerly and southwesterly portion.

Notwithstanding the development of the modern apartment house, the San Franciscan builds his own home whenever possible, and numerous residence parks are the sites of homes of the moderately well to do. Solid blocks of residences built on a single plan are rare. The land is mostly owned in small lots by individuals, each of whom builds according to his own ideals, so that instead of the characterless, monotonous piles, there is a constant variety, each home reflecting the character and taste of its owner.

PARKS AND PLAYGROUNDS

In both the residence and business districts, numerous small parks and squares have been set aside by the municipality so that fresh air and light shall be plentiful.

Throughout the residence district there are a large number of free playgrounds under proper direction for the children of the neighborhood.

The city's great playground, Golden Gate Park, extends from the ocean beach $4\frac{1}{2}$ miles into the city, and comprises within its limits 1,013 acres. This wonderful park has been built under the guidance of John McLaren, one of the great landscape gardeners. He has been able to grow plants brought from every part of the world on what were once hopeless, barren sand dunes. Here, too, there are numerous wild animals, such as the bison, kangaroo and elk, running free in large enclosures. Baseball fields, tennis courts, a large children's playground, a trotting park, in fact, provisions for almost any sport, are available. There is no closed athletic season, and sports may be enjoyed here from January 1 to December 31.

Through the efforts of an individual, there has been installed in Golden Gate Park a Jap-



Fig. 4.—Hospitals at San Francisco: Upper, St. Mary's Hospital. Center, Mount Zion Hospital. Lower, Southern Pacific Company Hospital.

anese tea garden, built and cared for by Japanese gardeners, and representing in its entirety the miniature landscape garden and horticultural methods which are seen only in Japan.

The Memorial Museum in Golden Gate Park contains many art treasures and objects of local and general historical interest, and is well worth a visit.

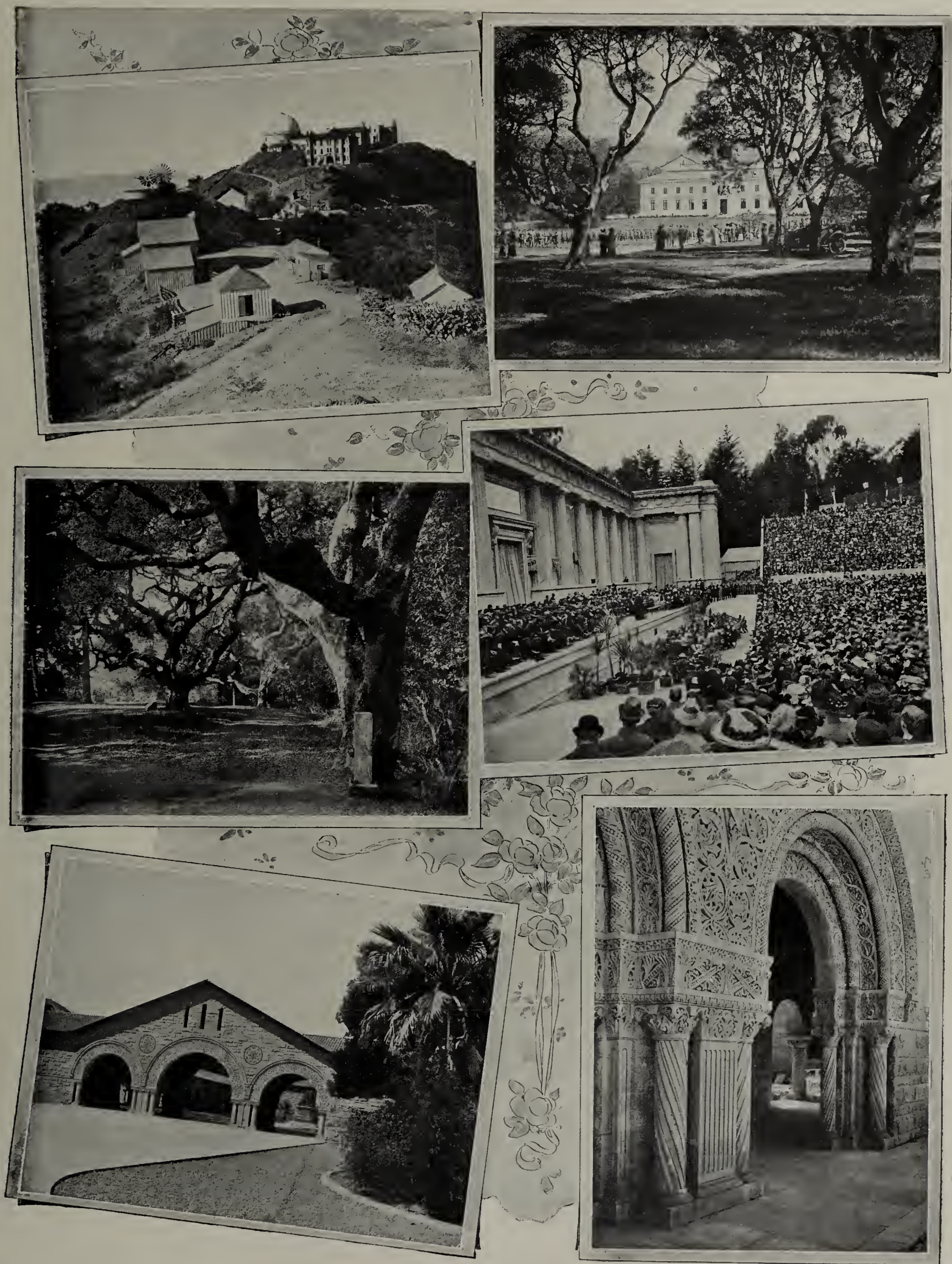


Fig. 5.—The Lick Observatory and the Universities: Upper left, Lick Observatory, Mount Hamilton. Upper right, campus, University of California, Berkeley. Left center, Oaks, University grounds, Berkeley. Right center, Greek theater, University of California. Lower left, Quadrangle, Leland Stanford Junior University, Palo Alto. Lower right, Arches, Leland Stanford Junior University.

Along the beach for a distance of about 5 miles, the municipality has built a handsome boulevard directly continuous with Golden Gate Park and the city's boulevard system. To the north, this boulevard ascends the hill surmounted by the famous Cliff House and the Sutro swimming baths and Sutro Heights, and leads by an interconnecting boulevard system to the presidio, the United States military reservation, which is a large park covering over 1,500 acres. The reservation

the meeting of the Association are to be held within its gates, those who come to San Francisco in June will see for themselves.

POPULATION

Notwithstanding the awful devastation caused by the fire of 1906, the United States census of 1910 credits San Francisco with 416,912 inhabitants, a gain of 21 per cent. over 1900. The estimate of the public service corporations for 1913 is 530,000. The cosmopolitan character of the population is



Fig. 6.—Spanish missions at Monterey, ninety-four miles south of San Francisco, where there are many instances of picturesque Spanish architecture. Above are views of the Carmel Mission, and below, of the Mission Dolores.

is open to visitors. From its steep, rugged bluffs, the outlook across the Golden Gate with Mount Tamalpais on the opposite shore is a sight never to be forgotten. Joining it on the east and occupying part of its territory on the south shore of the bay is the Panama Pacific International Exposition. It is not possible here to go into detail concerning this exposition and its beautiful buildings with their wonderful coloring and setting, but as part of the exercises of

equally marked in but few cities of the world. Nearly all of the civilized nations are represented. Certain of them, notably the Italians, Spaniards, Greeks, Russians, Chinese and Japanese, occupy entire districts of the city, giving to them a distinctive and

foreign character, which is extremely picturesque.

The Italian district, lying as it does upon the steep slopes and base of Telegraph Hill overlooking the bay, is like a

bit of old Naples transported into the midst of a busy American city, even to the steep streets with steps cut into the hillside for sidewalks. Here one finds Italian attorneys, physicians, bankers and booksellers, as well as Italian newspapers and macaroni and spaghetti factories. Here, too, are many restaurants and cafés where, for a moderate sum, a good dinner consisting of those dishes for which Italy is so justly famous may be enjoyed. Nearby is Fisherman's Wharf where

butcher shops with their dried meats, fish and poultry, and the greengrocers with their odd sorts of vegetables attract the attention of practically every visitor. The joss-houses (houses of worship) are interesting, not alone for their religious significance, but also for that display of skill at color combination and decorative effect in which the oriental has always so far excelled the occidental. Along Grant Avenue are Chinese and Japanese shops where Oriental silks,



Fig. 7.—A few scenes at the Exposition; Upper left, Portal of Palace of Varied Industries. Upper right, Court of the Universe. Lower left, Colonnade. Lower right, Corridor of Palace of Machinery.

Venetians, Genoese, Neapolitans, Sicilians and Greeks, few of whom can speak other than the mother tongue, earn their livelihood with boat and net, following the only occupation which they have known since the cradle.

CHINATOWN

Chinatown encompasses within its few square blocks almost the entire Chinese population of the city. It is veritably the Orient, modified by its occidental surroundings. The

embroideries, bronzes and furniture, prints and paintings tempt the lover of the beautiful and the unique.

THE GREEK COLONY

The Greek colony is principally along Third Street where there are Greek cafés, restaurants and other things of interest. It is not, however, old enough, nor have its citizens become sufficiently influential, to make a definite imprint on the life of the city.

CLIMATE

The following is culled from the U. S. Weather Bureau Reports: The mean temperature in the month of June is 56.3 F. There is 75 per cent. of the possible amount of sunshine. There is an average of one rainy day and one thunder storm during the month of June.

Between the hours of 7 and 9 in the morning and 3 and 7 in the afternoon it is apt to be foggy, the city being covered by a fog blanket about 1,700 feet deep. Between the hours of 3 and 7 in the afternoon it is frequently windy, the wind and fog usually disappearing after night-fall.



damming the Hetch-Hetchy Valley near the Yosemite in the Sierra Nevada Mountains.

MEDICINE

There are about 1,200 practicing physicians in San Francisco. The San Francisco physician usually has his office apart from his home in a physicians' office building, suited to all the needs of the practice of modern medicine, in the heart of the retail business district.



Nearly all of the hospitals, of which there are about twenty, are modern structures built since the fire of 1906, and are open to any reputable physician.

THE MEDICAL SCHOOLS

In San Francisco, the University of California and the Leland Stanford Junior University both maintain co-educational medical schools (rated Class A by the Council on Medical Education of the American Medical Association). Both these schools



Fig. 8.—San Francisco Hotels: Palace (above); Fairmont (middle); St. Francis (below).

COOL MORNING AND EVENING

Because of these chilly winds and fogs, the visitor is advised to bring with him medium-weight clothing and underwear, and to have a suitable wrap or overcoat when he leaves his hotel in the morning, because before he returns at night the winds may have sprung up and the temperature may suddenly drop many degrees.

WATER SUPPLY

At present San Francisco is supplied with safe, pure water by a public service corporation; but as the supply is rapidly growing inadequate, the municipality has undertaken this phase of public service and is building a large reservoir by

have been recently reorganized and are integral parts of their respective universities. The fundamental sciences and many of the clinical subjects are taught in both institutions by full-time men. Each has its own teaching hospital and outpatient department, as well as a large independent service in the San Francisco City and County Hospital, which has just been rebuilt and will be occupied during the summer of

this year. Both Stanford and the University of California have plans and funds for the construction of large modern teaching hospitals for the near future.

In connection with the University of California, through the munificence of Mrs. George Williams Hooper, there has been established the "George Williams Hooper Foundation for Medical Research" with an annual income of from fifty to one hundred thousand dollars.

Both these schools limit the number of students admitted to classes and require the hospital year. In addition, there are in San Francisco the College of Physicians and Surgeons, the Hahnemann Medical College and the San Francisco Polyclinic; the last-named engages exclusively in graduate teaching.

display of wares. Large department stores are numerous, and the small shops which specialize in art, wearing apparel, books, jewels, antiques and oriental goods will appeal to the discriminating purchaser. The fruit shops are particularly fine, and flowers are, at all times of the year, inexpensive. Beautiful flowers in season are sold for a "mere song" by the street venders, to be found on almost every corner in the shopping district.

PLACES OF SPECIAL INTEREST

GOLDEN GATE PARK

Golden Gate Park, mentioned above, is so well known that a detailed description is unnecessary here.



Fig. 9.—American Medical Association Exhibit at the Panama-Pacific International Exposition.—(See page 1716.)

MEDICAL LIBRARIES

The Lane Medical Library, occupying its own building adjoining the Medical Department of Stanford University, has 40,000 volumes. Its reading rooms and other facilities are open to the general medical profession without charge. On the payment of a small yearly subscription, the privilege of taking out books and journals is granted. This is the largest and most complete medical library west of Chicago.

The San Francisco County Medical Society has a working library of about 6,500 volumes for the use of its members.

SHOPPING DISTRICT

Entirely rebuilt since the fire, the shops of San Francisco offer to the visitors a most pleasing, artistic and attractive

The ocean beach, along which the city has constructed a magnificent boulevard, is thronged, throughout the year, particularly on Sunday, by all classes. It is the city's great picnic ground.

THE CLIFF HOUSE

Towering above the northern end of the ocean beach, on a fierce, rocky, wave-dashed bluff is the Cliff House. Here, overlooking the Seal Rocks, one may dine, with the gorgeous play of colors of the sun setting over the Pacific Ocean beneath.

Across the road from the Cliff House is Sutro Heights, a private park overlooking the ocean. It is open to visitors, and from its parapet there is a comprehensive view of the beach, Cliff House and surroundings.

MINT

On the corner of Fifth and Mission streets is the United States mint, one of the nation's four coining plants. It is open to visitors, and the entire process of coining money is explained by competent guides.

MUSIC

Two permanent symphony orchestras playing during the winter are maintained by groups of public spirited citizens. The personnel of these orchestras is at present largely incorporated in the official exposition orchestra. There are numerous musical clubs of high rank. Throughout the year the city is visited by all of the leading concert artists and occasionally by the great opera companies.

ENVIRONS OF SAN FRANCISCO

At an expense of \$18,000,000 the state of California has constructed a series of highways for the benefit of its residents. The roads are built on a concrete base with a fine asphalt covering, so that motoring from San Francisco is a pleasure. The speed limit throughout the state, outside of closely built portions, is 30 miles an hour. These roads, where completed, make all points in the state of easy access. In the vicinity of San Francisco most of these roads are in use.

OAKLAND, ALAMEDA AND BERKELEY

Directly across the bay from San Francisco, at the base of the foothills, lie its three sister cities, Oakland, Alameda and Berkeley.



Fig. 10.—The Columbia Theater, where the Opening Meeting will be held.

RESTAURANTS

San Francisco is famous for its restaurants. Because of the cosmopolitan population, they offer an endless variety of choice to the visitor. The leading hotels have in conjunction restaurants similar in price and style to those connected with first-rate hotels in any large city. Restaurants, however, are so numerous and so varied that by a judicious choice the visitor can dine in San Francisco more cheaply and as well as he can in a similar class of restaurant anywhere else on the continent.

Many of the smaller restaurants, some of them situated in out-of-the-way places, are famed for their cuisine and have specialties, national or local, which are sure to tempt the palate of the stranger.

In Berkeley is situated the University of California, the outlook from its campus through the Golden Gate at sunset being among the finest views in the world. As the members of the Alameda County Medical Association have arranged to take the visiting Fellows of the American Medical Association as their guests on an excursion by automobile from Oakland to Berkeley through the University of California and the Piedmont foothills and canyons, it is unnecessary here to give details concerning the natural beauties of this region.

THE UNIVERSITY OF CALIFORNIA

The University of California at Berkeley is the largest university in America and is coeducational. There are registered 8,700 students; the figure does not include the students

in the Department of Agriculture at the experimental farm at Dixon, those in the Hopkins Institute of Art in San Francisco or those in the extension courses. Tuition is free to residents of California. The University campus of 520 acres extends almost to the top of the beautiful Berkeley hills.

The world famous Greek theater with a seating capacity of 8,000 is built in a natural amphitheater in the hills back of the university, in the midst of groves of eucalyptus. Here the famous Greek classics are reproduced, and great actors and musicians perform by invitation. On Sunday afternoon there is given a "half hour of music" to which the public is welcome. Should there be an evening performance in the Greek theater during the session of the Association, the visitor is urged to take advantage of the opportunity to witness a great drama or to hear a great singer in these wonderful surroundings on a summer's night under the open sky.

MOUNT TAMALPAIS AND MUIR WOODS

Mount Tamalpais rises to a height of 2,600 feet to the north of the Golden Gate. On its summit is a good inn where one may remain overnight. It is reached by a ferry boat to Sausalito, a small town of pretty homes built on the sides of a steep bluff. From here an electric railroad takes one to Mill Valley, a village hidden away in deep wooded canyons; the Mount Tamalpais Railroad runs from here to the summit. The entire San Francisco Bay region, and on a clear day even the Sierra Nevada Mountains, may be seen from here.

Lying at the base of Mount Tamalpais are the Muir Woods, a national monument of 295 acres of virgin redwoods presented to the nation by William Kent in honor of John Muir, the great naturalist. Many of the trees are 300 feet in height and from 50 to 60 feet in circumference. There is also a good inn here. The train may be taken at Mill Valley for Muir Woods, or arrangements made to include both the summit of Mount Tamalpais and Muir Woods in a single trip. The round trip to Mount Tamalpais, exclusive of a stop at the summit, is about six hours; to Mount Tamalpais and Muir Woods, about nine hours.

DEL MONTE, MONTEREY, CARMEL AND PACIFIC GROVE

Four hours by train takes the visitor to the old town of Monterey on Monterey Bay, the Mexican capital of California and the seat of the *Presidente* of the Mission padres during their ascendancy. Here the American flag was first raised by Commodore Sloat in 1846. A number of the old adobe buildings of the Spanish days still stand. A drive of 4 miles around the bay takes one to the village of Carmel-by-the-Sea, a quaint little town where there is a colony of writers and artists. At both Monterey and Carmel are attractive Spanish Mission churches. The chief scenic attrac-

tion is the Seventeen Mile Drive, one of the famous drives of the world, which has been favorably compared with the drive to Naples from Sorrento.

Possibly the most interesting characteristic of the Monterey peninsula is that it forms what is known as an "arboreal island," that is, circumscribed and geographically well defined, so far as the trees are concerned, from the surrounding flora.

This peninsula is one of the most striking examples of an arboreal island in the world. The Monterey cypress is found here and nowhere else. Several varieties of pine found on this peninsula are found also in small islands farther south along the coast and nowhere else. The wind-blown Monterey cypress always attracts attention.

LICK OBSERVATORY AND SANTA CLARA VALLEY

Fifty miles south of San Francisco, just below the southern tip of San Francisco Bay in the heart of the Santa Clara Valley, the most fertile valley in the world, lies the city of San José, known as the Garden City. Here will be seen thousands upon thousands of acres of deciduous trees laden with ripe fruit. Peaches, prunes, almonds and cherries form the principal growths. San José and Santa Clara are old mission towns, and at Santa Clara is situated the College of the Pacific, a Roman Catholic university.

From San José the trip may be made to Lick Observatory, where visitors are permitted to look through the great telescope on Saturday nights.

PALO ALTO AND STANFORD UNIVERSITY

Thirty-five miles south of San Francisco lies the town of Palo Alto, which has grown up about Stanford University. The university has an endowment of \$25,000,000. It is coeducational, the number of women being limited. The buildings, lying in a large and beautiful park of 7,000 acres, formerly the stock farm of the late Senator Stanford, extending into the foothills, are arranged principally on the triangle plan. They are long and low, of light brick and

brown stone in the old Spanish Mission style. The long colonnades with their elaborately carved columns create a most pleasing impression. The Memorial Chapel has in its façade some beautiful mosaics.

YOSEMITE VALLEY AND THE BIG TREES

The Sierra Nevada Range has on its western slope many glacier-sculptured gorges. By far the most wonderful and beautiful of these is Yosemite Valley. Yosemite lies almost directly east of San Francisco in Yosemite National Park, and is 240 miles by rail or 200 miles by motor. Those whose time is limited should note that one can leave San Francisco in the evening and arrive at Yosemite Valley late the following morning.

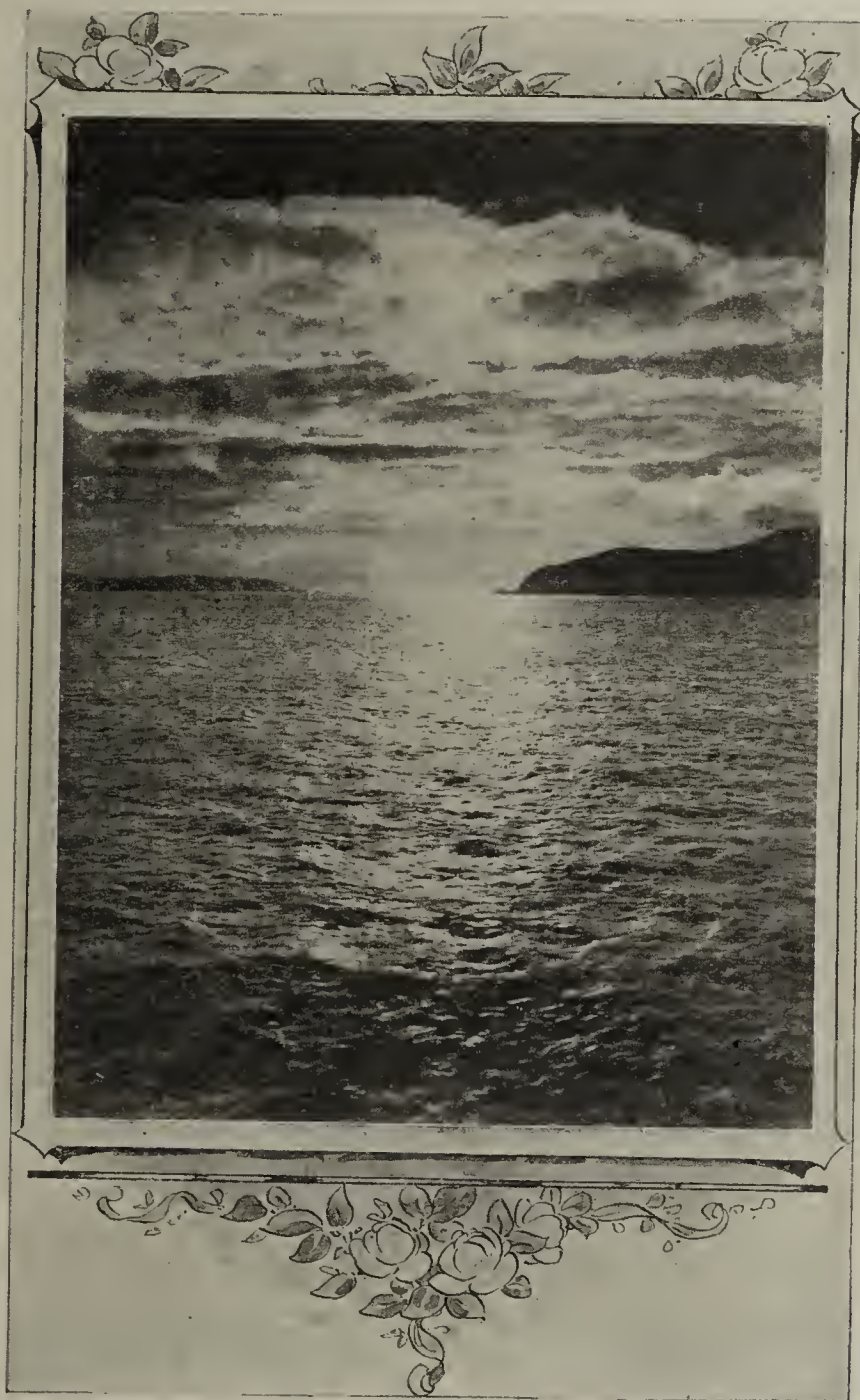


Fig. 11.—The Golden Gate.

Owing to the heavy rains and snows, the falls will be particularly fine this year. The falls are best visited late in May and during the month of June, as the fall of water diminishes as the summer advances.

Yosemite Valley is a beautiful grass-carpeted meadow, 4,000 feet above the sea, varying from one-half to one mile in width, above which on either side tower the sheer granite walls, over which great waterfalls plunge, almost 3,000 feet in height. Along the floor of the valley flows the swift Merced River.

Besides a hotel, there are numerous camps under government supervision where the visitor is made extremely comfortable during his stay in the valley.

In the Yosemite National Park is the Mariposa Grove of Big Trees. These trees (*Sequoia gigantea*), a different species from the *Sequoia sempervirens* found in Muir Woods and along the western slope of the Coast Range Mountains, occur as an "arboreal island" on the western slope of the Sierra Nevadas from the Yosemite region southward only. The trees of this grove vary in height up to 225 feet, and some of them have a diameter of 25 feet, 6 feet above the

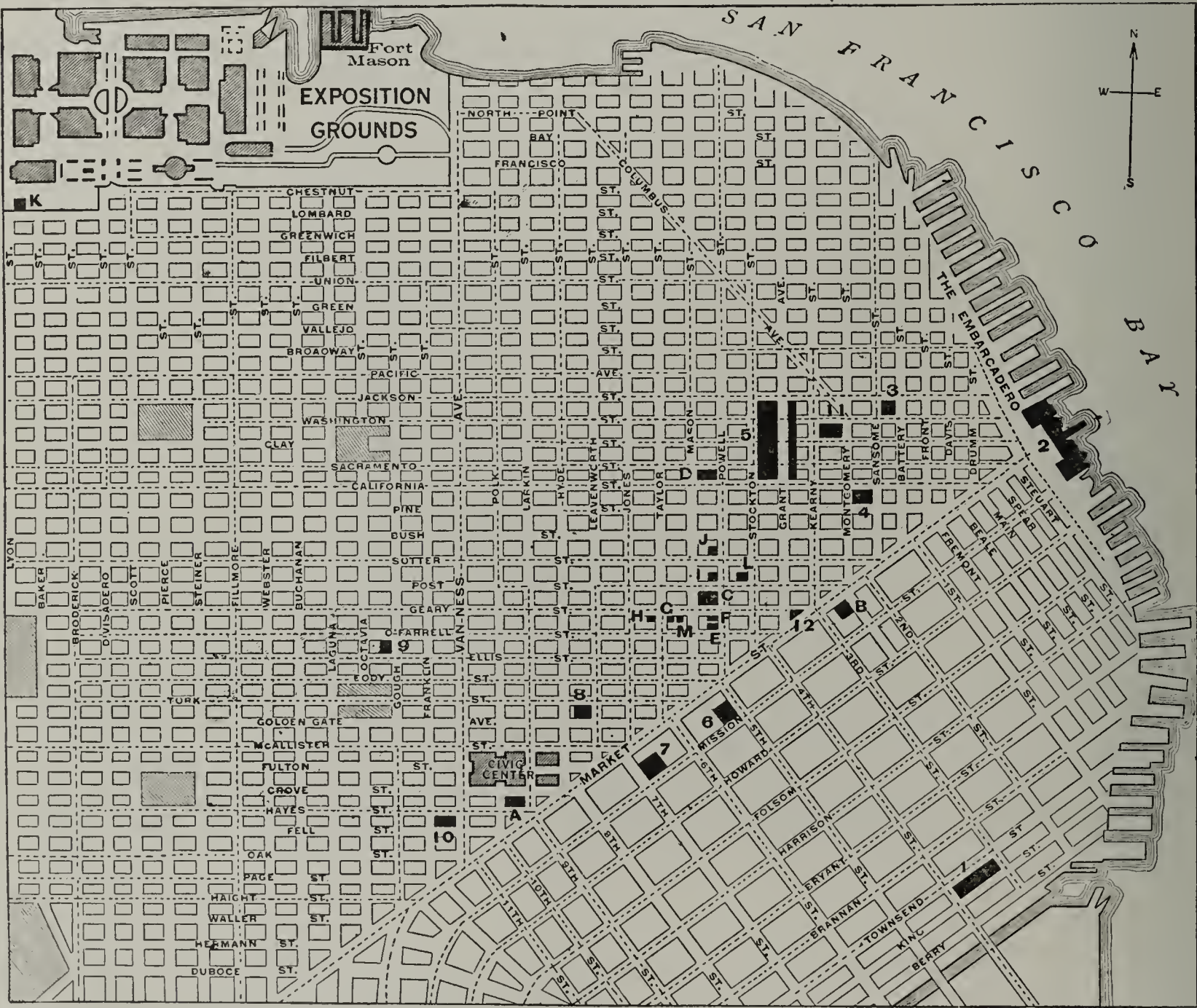
ground. An extra day, or better two, is required to visit this grove, which lies near Wawona, a small settlement in the Sierras about 26 miles from the valley by automobile. In arranging a journey to Yosemite Valley, it is wise to make the trip a circular one, going from San Francisco to Wawona, visiting the Big Trees and thence to Yosemite Valley, returning directly to San Francisco.

For those fond of mountaineering and exploration, camping parties can be made up to start from Yosemite or Wawona for a tramp into what is known as the High Sierras, a wonderful alpine region above and back of Yosemite Valley. Complete camping outfits can be had from the guides engaged in this business.

SPORTS

All of the outdoor sports, including golf, tennis and polo, which are mentioned as possibly of special interest to physicians, are indulged in throughout the year.

During June the fishing season is open throughout the state, and those intending to visit the mountain region should bring their rods and flies with them.



MAP OF SAN FRANCISCO

- A. Exposition Memorial Auditorium, Civic Center.

B. General Headquarters—Practice of Medicine—Palace Hotel, Market and New Montgomery.

C. Surgery, General and Abdominal—Obstetrics, Gynecology and Abdominal Surgery—St. Francis, Powell and Geary.

D. Ophthalmology—Laryngology, Rhinology and Otology—Fairmont, Mason and California.

E. Genito-Urinary Surgery—Manx, Powell and O'Farrell.

F. Orthopedic Surgery—Stewart, Geary and Powell.

G. Preventive Medicine and Public Health—Clift, Geary and Taylor.

H. Pathology and Physiology—Bellevue, Geary and Taylor.

I. Nervous and Mental Diseases—Chancellor, Powell and Post.
- J. Diseases of Children—Cartwright, Sutter and Powell.

K. Hospitals—Inside Inn.

L. Dermatology—Plaza, Post and Stockton.

M. General Meeting—Columbia Theater, Geary and Mason.
- Other public buildings located.

 1. Third Street Depot.
 2. Union Ferry Depot.
 3. U. S. Custom House.
 4. Chamber of Commerce.
 5. Chinatown.
 6. U. S. Mint.
 7. U. S. Postoffice.
 8. Y. M. C. A.
 9. Y. W. C. A.
 10. Public Library.
 11. Hall of Justice.
 12. San Francisco Hotel Bureau.

TRANSPORTATION TO THE MEETING

The Committee on Transportation and Place of Session urges Fellows to consult the local ticket agent in their town for complete information regarding rates, time limits, extensions and stop-over privileges available, in making the trip to San Francisco for the annual session of the Association. There is on file in every ticket office the traffic schedule which officially informs local agents of the rates from that point. Fellows should not leave the determination of the route desired until just before they are ready to start on the trip. Local ticket agents may have to obtain special tickets for these excursions from central points, and this must be arranged in time so that the tickets may be purchased when the journey is begun. General announcements outlining the routes available for travel to San Francisco have appeared from time to time in THE JOURNAL.

A summary of these announcements follows: Travel from the East to the Pacific Coast passes in the main through three "gateways"—Chicago, St. Louis and New Orleans. In other words, eastern trunk lines carry passengers to Chicago, St. Louis or New Orleans and from these points, other railroad systems take them to the Pacific Coast.

These western routes can be grouped roughly, according to the point at which they cross the Rocky Mountains, into the northern (the extreme northern one going through Canada), the central and the southern routes.

RAILROAD AND PULLMAN FARES

The following railroad fares have been announced to San Francisco and return: via direct routes from Chicago, \$62.50; from St. Louis or New Orleans, \$57.50; one way (not both) via Portland, Ore., Seattle, Wash., or Victoria, B. C., from Chicago, \$80; from St. Louis, \$75; from New Orleans, \$83.75.

The cost of Pullman service to San Francisco can be estimated from the following rates from the points mentioned. These are for space in regular line cars for a continuous trip and do not cover service in special cars or trains where stopovers are to be made at points en route to San Francisco.

Pullman rates from the following principal cities are:

PULLMAN RATES TO SAN FRANCISCO

From	Drawing Room	Com-part-ment	Section		Tourist	
			Upper	Lower	Upper	Lower
Boston	65.00	52.00	14.80	18.50	7.80	9.75
New York	63.00	50.50	14.40	18.00	*	*
Washington, D. C.	62.00	49.00	14.00	17.50	...	9.00
Chicago	46.00	36.50	10.40	13.00	5.60	7.00
St. Louis	44.00	35.00	10.00	12.50	5.20	6.50
New Orleans.....	41.00	32.50	9.20	11.50	4.60	5.75

* No Tourist.

BY WATER ROUTES

In addition to these all-rail routes, part or all of the trip may be made by water. From points on the Atlantic Coast, boats sail to New Orleans, and then through the Panama Canal or directly through the canal and up the Pacific Coast to San Francisco. This all-water route takes about two weeks, and the rates vary in accordance with the accommodations; first cabin passage, one way, between New York and San Francisco, is \$125 and up. On the Pacific Coast, the trip may be made by boat between the following points: San Diego and Los Angeles, San Francisco, Portland, Seattle or Tacoma and Vancouver.

Special Trains

Special trains from Chicago to San Francisco will be over three different routes. These trains will be designated the American Medical Scenic Route Special, the American Medical Grand Canyon Route Special, and the American Medical Direct Route Special.

THE AMERICAN MEDICAL SCENIC ROUTE SPECIAL

This train will go over the Chicago, Burlington and Quincy Railroad from Chicago to Denver, and the Denver

and Rio Grande, Denver to San Francisco. The party is to be personally conducted. There will be two trains: Train No. 1 will leave Chicago at 9:45 a. m., June 15, and arrive at San Francisco 5 p. m., June 20.

Train No. 2 will leave Chicago at 9 p. m., June 16, and arrive at San Francisco 5 p. m., June 20.

THE AMERICAN MEDICAL DIRECT ROUTE SPECIAL

This train is routed over the Chicago and North Western Railroad, Union Pacific and Southern Pacific, and the schedule is arranged with a view of making the trip between Chicago and San Francisco in as short a time as is practical.

The train is scheduled to leave Chicago, Friday, June 18, at 5:30 p. m., and to arrive at San Francisco, Monday, June 21, 11 a. m., making the run between Chicago and San Francisco in sixty-five and one-half hours.

THE AMERICAN MEDICAL GRAND CANYON ROUTE SPECIAL

The American Medical Grand Canyon Route Special is scheduled to leave Chicago, June 13, at 8:05 p. m., via the Santa Fe, and to permit visits to the Grand Canyon and the Panama California Exposition at San Diego en route, and to arrive in San Francisco, June 21, at 9:40 a. m. The entire day of June 16 will be spent at Grand Canyon, Arizona, and the day of June 18 at San Diego, arriving in San Francisco Monday morning, June 21, at 9:40. An additional fare of \$7.50 is charged for the Grand Canyon side trip. The Pullman rates for lower berth are \$5 more than the rate for direct routes without stopover.

NEW YORK AND NEW ENGLAND SPECIAL

This train, under the management of McCann's Tours, provides a fast schedule, leaving eastern points in the afternoon and evening of June 16 and getting to San Francisco on Sunday evening, June 20. The return trip will be made in a leisurely manner over an interesting scenic route, including a trip from San Francisco to Portland by way of the Shasta line, returning to New York on Thursday, July 8. Those who are not disposed to return by the route indicated may arrange to take the special train to San Francisco and to return within three months after the date of starting, by any authorized route selected.

CHICAGO MEDICAL SOCIETY SPECIAL TRAIN

A train is being arranged by the Chicago Medical Society. Dr. R. R. Ferguson, 3923 North Keeler Avenue, Chicago, is chairman of the committee, and the tour is under the management of the Gregory Tours, Lytton Building, Chicago. This party will travel by special train, leaving Chicago, June 17, at 10 p. m., over the Rock Island lines to Colorado Springs; from there, by way of the Denver and Rio Grande and the Western Pacific to San Francisco. The party will leave San Francisco at 8 a. m., June 28, for Los Angeles and San Diego, leaving Los Angeles at 4 p. m. on the evening of June 30, returning by way of Salt Lake City and Denver, and is scheduled to reach Chicago at 7:30 a. m., July 4.

OPHTHALMOLOGIC AND OTOLARYNGOLOGIC SPECIAL

The Sections on Ophthalmology and on Larynology, Otology and Rhinology will have a special train routed over the Santa Fe. The American Laryngological, Rhinological and Otological Society meets in Chicago June 14 and 15. This special train will leave after the adjournment of this society on June 15, at 8:05 p. m., and should arrive in San Francisco, 9 p. m., June 19. The schedule permits a day at the Grand Canyon.

THE HOOSIER SPECIAL

The members of the Indiana State Medical Association and their friends from neighboring territory are planning to go to the meeting on a special train over the Burlington line, leaving Chicago, June 10, at 10 a. m., spending ten days en route, stopping at interesting points, including San Diego. The party is scheduled to reach San Francisco June 20, and to leave, June 26, by boat to Seattle, thence over the Great Northern, stopping at Glacier National Park, and arriving in Chicago on the morning of July 6.

PRELIMINARY PROGRAM OF THE SCIENTIFIC ASSEMBLY

PROGRAM OF OPENING MEETING

Columbia Theater

Tuesday, June 22, 10:30

Music.

Call to Order. President, VICTOR C. VAUGHAN, Ann Arbor, Mich.

Invocation. BISHOP WILLIAM FORD NICHOLS, San Francisco.

Address of Welcome to California. HON. HIRAM W. JOHNSON, Governor of California.

Address of Welcome to San Francisco. HON. JAMES ROLPH, JR., Mayor of San Francisco.

Address of Welcome by the Medical Profession. H. M. SHERMAN, San Francisco, President, Medical Society of the State of California.

Introduction and Installation of President-Elect WILLIAM L. RODMAN, Philadelphia.

Address. WILLIAM L. RODMAN, President.

Music.

THE PROGRAMS OF THE SECTIONS

Outline of the Scientific Proceedings—The Preliminary Program and the Official Program

The following papers are announced to be read before the various sections. The order here is not necessarily the order which will be followed in the Official Program nor is the list complete. The Official Program will be a pamphlet similar to those issued in previous years, and will contain the final program of each section with abstracts of the papers, also lists of committees, programs of the General Meeting and of the meetings of the House of Delegates, lists of entertainments, map of San Francisco and other information. To prevent misunderstandings and to protect the interests of advertisers, it is here announced that this Official Program will contain no advertisements. It is copyrighted by the American Medical Association and will not be distributed before the session. A copy will be given to each member on registration.

SECTION ON PRACTICE OF MEDICINE

MEETS IN EXPOSITION MEMORIAL AUDITORIUM

Chairman—THOMAS McCRAE, Philadelphia.

Secretary—ROGER S. MORRIS, Clifton Springs, N. Y.

Tuesday, June 22—2 p. m.

1. Chairman's Address. THOMAS McCRAE, Philadelphia.
2. Phenoltetrachlorophthalein Test of Liver Function; a Series of Unselected Cases (Lantern Demonstration). JAMES S. McLESTER, Birmingham, Ala.
3. Leukemia—an Infection? Report of Cases. RAY LYMAN WILBUR, San Francisco.
4. Clinical Interpretation of the Platelet Count. W. W. DUKE, Kansas City, Mo.
5. A Clinical Contribution to Our Knowledge of Chronic Pancreatitis. MAX EINHORN, New York.

Wednesday, June 23

THIS SECTION WILL HOLD NO MEETING ON THIS DAY, BUT WILL JOIN IN THE COMMEMORATION DAY PROGRAM

Thursday, June 24—9 a. m.

6. Development of Immune Reactions in Serum Sickness. WARFIELD T. LONGCOPE, New York.
7. Specific Treatment of the Malignant Forms of Malaria. C. C. BASS, New Orleans.
8. Syphilis of the Stomach (Lantern Demonstration). FRANK SMITHIES, Chicago.
Discussion to be opened by DUDLEY FULTON, Los Angeles.
9. Gastric Cancer as a Sequel to Gastric Ulcer. WILLIAM FITCH CHENEY, San Francisco.
10. Essential Factors in the Diagnosis of Duodenal and Gastric Ulcers. CHRISTOPHER GRAHAM and GEORGE EUSTERMAN, Rochester, Minn.

11. Concerning the End-Results of Gallbladder and Duct Diseases. J. A. LICHTY, Pittsburgh.

Thursday, June 24—2 p. m.

12. Chronic Nephritis, with Analysis of Two Hundred and Fifty Cases in Private Practice. W. JARVIS BARLOW and R. L. CUNNINGHAM, Los Angeles.
13. Standards of Urea Excretion (Lantern Demonstration). THOMAS ADDIS and JUNSAI WATANABE, San Francisco.
14. Botulism. An Experimental Study. ERNEST C. DICKSON, San Francisco.
15. Influence of Age and Sex on Hemoglobin. A Spectrophotometric Analysis of Nine Hundred and Nineteen Cases. CHARLES SPENCER WILLIAMSON, Chicago.
16. Prognosis in Heart Disease from the Point of View of Etiology. W. H. WITT, Nashville, Tenn.

SECTION ON SURGERY, GENERAL AND ABDOMINAL

MEETS IN EXPOSITION MEMORIAL AUDITORIUM

Chairman—CHARLES H. PECK, New York.

Secretary—E. STARR JUDD, Rochester, Minn.

Tuesday, June 22—2 p. m.

1. Chairman's Address: Benign Lesions of Stomach and Duodenum, with Special Reference to Late Results. CHARLES H. PECK, New York.
2. Relation of the Duodenal Blood Supply to Operations in the Region of the Pylorus. EDWARD MARTIN, Philadelphia.
3. Chronic Gastric Ulcer. W. J. MAYO, Rochester, Minn.
4. The Relation Between Chronic Ulcer and Cancer of the Stomach. A. J. OCHSNER, Chicago.
5. Roentgenologic and Surgical Aspects of Gastro-Jejunal Ulcers. R. D. CARMAN and D. C. BALFOUR, Rochester, Minn.
6. Pulsion Diverticula of the Esophagus. ARTHUR D. BEVAN, Chicago.
7. Surgical Anatomy of Cleft Palate. J. RILUS EASTMAN, Indianapolis.

Wednesday, June 23

THIS SECTION WILL HOLD NO MEETING ON THIS DAY, BUT WILL JOIN IN THE COMMEMORATION DAY PROGRAM

Thursday, June 24—9 a. m.

8. Selection of Operative Cases in Chronic Intestinal Stasis. W. B. RUSS, San Antonio, Texas.
9. Ileocolostomy and Colectomy for Arthritis Deformans. REA SMITH, Los Angeles.
10. Intestinal Adhesions. W. B. BRINSMADE, Brooklyn.
11. Malignant Diseases of the Large Intestine. H. BEECKMAN DELATOUR, Brooklyn.
12. Postoperative Roentgen Studies in Gastric and Intestinal Operations. J. T. CASE, Battle Creek, Mich.
13. Combined Abdominal and Sacral Operation for Carcinoma of the Rectum. D. F. JONES, Boston.
14. The Transverse Incision in Operations for Appendicitis. A. E. ROCKEY, Portland, Ore.

Thursday, June 24—2 p. m.

15. Oration on Surgery: The Intestinal Tract. SAMUEL J. MIXTER, Boston.
16. Fascial Tubulization in Repair of Nerve Defects—an Experimental Study. DEAN D. LEWIS and E. G. KIRK, Chicago.
17. The Use of Inlay and Dowel Grafts in the Treatment of Fractures. F. H. ALBEE, New York.
18. The Suprarenal Gland in Shock. J. F. CORBETT, Minneapolis.
19. Operative Technic in Nephrolithiasis. W. E. LOWER, Cleveland.
20. Cystoscopic Methods in Ureteral Stricture and Calculus. BRANSFORD LEWIS, St. Louis.

Friday, June 25—9 a. m.

21. Roentgen-Ray Epitheliomas Curable by Radium—An Apparent Paradox. ROBERT ABBE, New York.
22. Myositis Ossificans Traumatica. C. M. SHERE, Denver.

SYMPOSIUM ON WAR SURGERY

23. Experiences in Military Surgery (Lantern Demonstration). WESLEY EARLE DRENNAN, Birmingham, Ala.
24. Surgery of Modern Naval Warfare. F. E. McCULLOUGH, U. S. Navy, San Francisco.
25. Surgery of the Battlefield. ALEXANDER W. WILLIAMS, U. S. Army, Washington, D. C.

SECTION ON OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY

MEETS IN EXPOSITION MEMORIAL AUDITORIUM

Chairman—THOMAS S. CULLEN, Baltimore.
Secretary—BROOKE M. ANSPACH, Philadelphia.

Tuesday, June 22—2 p. m.

1. Chairman's Address: Surgery, Gynecology and Obstetrics. THOMAS S. CULLEN, Baltimore.
2. The Relation of Gynecology to Obstetrics and to Surgery in Hospital Practice and in Teaching. WILLIAM M. POLK, New York.
3. Placental Bacteremia. J. MORRIS SLEMONS, San Francisco.
4. Abortion. E. E. MONTGOMERY, Philadelphia.
5. The Hysterogenesis of Intra-Uterine Life. HENRY O. MARCY, Boston.
6. Present-Day Results in the Treatment of Puerperal Eclampsia. GEORGE W. KOSMAK, New York.

SYMPOSIUM ON ANESTHESIA IN LABOR

7. Advantages of Nitrous Oxid Analgesia in Obstetrics Over the Freiburg Method. CARL H. DAVIS, Chicago.
8. The Appreciation and Limitations of Morphin-Scopolamin Amnesia in Obstetrics. JOHN OSBORN POLAK, Brooklyn.

Wednesday, June 23

THIS SECTION WILL HOLD NO MEETING ON THIS DAY BUT WILL JOIN IN THE COMMEMORATION DAY PROGRAM

Thursday, June 24—9 a. m.

9. Tuberculosis of the Uterine Appendages. HOWARD CANNING TAYLOR, New York.
10. Application of Various Theories in the Practical Management of Peritonitis. W. D. HAGGARD, Nashville, Tenn.
11. Methods of Drainage and After-Care in Pelvic Affections. L. G. BOWERS, Dayton, Ohio.
12. Relative Frequency of Ectopic Gestation. ALFRED B. SPALDING, San Francisco.
13. Causes of Mortality in Ectopic Pregnancy and Its Relation to Immediate or Deferred Operation. ELLICE McDONALD, New York.
14. Prognosis of Sterility. EDWARD REYNOLDS, Boston.

SYMPOSIUM ON TREATMENT OF CANCER OF THE UTERUS AND RECTUM BY RADIUM

15. Primary Results of Radium Therapy in Uterine and Rectal Cancers. HENRY SCHMITZ, Chicago.
16. Radium in the Treatment of Cervical and Vaginal Carcinoma. CURTIS F. BURNAM and HOWARD A. KELLY, Baltimore.

Thursday, June 24—2 p. m.

SYMPOSIUM ON THE EARLY HUMAN OVUM AND THE DETERMINATION OF SEX

17. Earliest Known Stages in the Development of the Human Ovum. HERBERT M. EVANS, Baltimore.
18. Determination of Sex. JAMES S. FREEBORN, Magnetawan, Ont.
19. Subinfection from Foci in the Pelvis and Abdomen. HORACE G. WETHERILL, Denver.
20. Cholecystectomy and Cholecystic Toxemia. W. WAYNE BABCOCK, Philadelphia.
21. Intestinal Obstruction. ALEXIUS MCGLANNAN, Baltimore.

22. Method of Differentiating Cancer of the Pylorus and of Increasing the Safety of Gastric Operations. GEORGE W. CRILE, Cleveland.
23. The Pylorus: Observations Noted in Association with Gastro-Intestinal Lesions. P. E. TRUESDALE, Fall River, Mass.
24. The Significance of the Fixation of Certain Abdominal Organs in the Human Body. ROBERT C. COFFEY, Portland, Ore.

SECTION ON OPHTHALMOLOGY

MEETS IN EXPOSITION MEMORIAL AUDITORIUM

Chairman—EDWARD C. ELLETT, Memphis, Tenn.
Secretary—GEORGE S. DERBY, Boston.

Tuesday, June 22—2 p. m.

1. Chairman's Address. EDWARD C. ELLETT, Memphis, Tenn.
2. Clinical Pathology of Ocular Muscle Paralysis. A Study of the Control of Ocular Muscles. WILL WALTER, Chicago.
3. Blastomycosis of the Eyelids, with Report of Cases. EDWARD JACKSON, Denver.
4. A Reaction of the Pupil, Strongly Suggestive of Arteriosclerosis with Increased Blood Pressure. MEYER WIENER and HENRY L. WOLFNER, St. Louis.
5. A Contribution to the Study of Bitemporal Hemianopsia (Lantern Demonstration). CLIFFORD B. WALKER, Boston.

Wednesday, June 23

THIS SECTION WILL HOLD NO MEETING ON THIS DAY BUT WILL JOIN IN THE COMMEMORATION DAY PROGRAM

Thursday, June 24—9 a. m.

EXHIBITION OF NEW INSTRUMENTS AND APPLIANCES

6. Extraction of Birdshot from Vitreous Through Pupil. KASPER PISCHEL, San Francisco.
7. Malignant Tumors in and Around the Orbit. Starvation Method of Treatment. E. H. CARY, Dallas, Texas.
8. Sudden Blindness Due to Suppuration of the Accessory Nasal Sinuses. H. M. STARK, El Paso, Texas.
9. Oxycephalic Exophthalmos, with Traumatic Rupture of Both Eyes. RALPH A. FENTON, Portland, Ore.

Thursday, June 24—2 p. m.

10. Postoperative Detachment of the Choroid with Reference to Elliott's Operation. HANS BARKAN, San Francisco.
11. Detachment of the Retina with Preliminary Report of an Operative Procedure. EDGAR S. THOMSON and THOMAS H. CURTIN, New York.
12. Scleral Trephining for Detachment of the Retina, with Report of Eleven Cases. WALTER R. PARKER, Detroit.
13. Some Aspects of Ophthalmia Neonatorum. GEORGE S. DERBY, Boston.
14. Projectile Wounds of the Head, with Particular Reference to Wounds of the Eyes. LLOYD MILLS, Los Angeles.

SECTION ON LARYNGOLOGY, OTOTOLOGY AND RHINOLOGY

MEETS IN EXPOSITION MEMORIAL AUDITORIUM

Chairman—NORVAL HARVEY PIERCE, Chicago.
Secretary—FRANCIS P. EMERSON, Boston.

Tuesday, June 22—2 p. m.

1. Chairman's Address: Transvaluations. NORVAL HARVEY PIERCE, Chicago.
2. Ozena: Its Etiology and Treatment. AUSTIN A. HAYDEN, Chicago.
3. The Etiology of Ozena. HENRY HORN, San Francisco.
4. Tuberculosis of the Frontal Sinus, with Report of Two Cases. JEROME B. THOMAS, Palo Alto, Calif.
5. Frontal Sinus Suppuration with Results of Operative Procedure. HOWARD A. LOTHROP, Boston.
6. Intranasal Antrum Operations with Report of Seventy-Three Cases. HOWARD YOUNG McNAUGHT, San Francisco.

Wednesday, June 23

THIS SECTION WILL HOLD NO MEETING ON THIS DAY BUT WILL JOIN IN THE COMMEMORATION DAY PROGRAM

Thursday, June 24—9 a. m.

7. Acoustic Disturbances in the Early Stages of Lues.
GEORGE H. WILLCUTT, San Francisco.
8. Labyrinthine Disease with Stigmata of Inherited Syphilis. Report of Case.
HILL HASTINGS, Los Angeles.
9. Chronic Deafness: The Present Status of Its Treatment.
D. HAROLD WALKER, Boston.
10. Inflammation of the Auditory Nerve.
G. P. WINTERMUTE, San Francisco.
11. Operation on the Hypophysis after the Herseh Method.
EDWARD C. SEWALL, San Francisco.
12. Chronic Purulent Otitis Media, with Reference to Tuberculosis.
WENDELL C. PHILLIPS, New York.

Thursday, June 24—2 p. m.

13. Opening the Lachrymal Sac and Duct. An Intranasal Operation.
HARRIS PEYTON MOSHER, Boston.
14. Difficulties in the Diagnosis of Sinus Thrombosis.
H. S. GRAHAM, San Francisco.
15. Early Diagnosis of Mastoiditis.
JOHN J. KYLE, Los Angeles.
16. Idiopathic Mastoid Abscess.
VIRGINIUS DABNEY, Washington, D. C.
17. Mastoid Operations, with a Report of One Hundred and Fifty.
CULLEN F. WELTY, San Francisco.
18. Defects of the Singing Voice Due to Nasal and Accessory Sinus Disease.
JOHN J. McLOONE, Phoenix, Ariz.
19. Tonsillectomy, with Analysis of Four Thousand Cases.
JUSTUS A. MATTHEWS, Rochester, Minn.

SECTION ON DISEASES OF CHILDREN

MEETS IN EXPOSITION MEMORIAL AUDITORIUM

Chairman—LAWRENCE T. ROYSTER, Norfolk, Va.
Secretary—F. P. GENGENBACH, Denver.

Tuesday, June 22—2 p. m.

1. Chairman's Address: The Pediatrician and the Section on Diseases of Children.
LAWRENCE T. ROYSTER, Norfolk, Va.
2. Recent Methods of Treating Diphtheria.
FRANK C. NEFF, Kansas City, Mo.
3. Practical Value of the Examination of Stools in Infants.
H. M. McCLANAHAN, Omaha.
4. Epidemic Abortion Reactions in Children.
J. P. SEDGWICK and W. P. LARSON, Minneapolis.
5. The Problem of Unresolved Pneumonia in Infancy and Childhood.
WILLIAM PALMER LUCAS, San Francisco.
6. Conservative Versus Radical Surgical Treatment of Empyema from the Point of View of an Internist.
H. LOWENBURG, Philadelphia.

Wednesday, June 23

THIS SECTION WILL HOLD NO MEETING ON THIS DAY BUT WILL JOIN IN THE COMMEMORATION DAY PROGRAM

Thursday, June 24—9 a. m.

7. Craniometry in Diseases of Children.
G. HARDY CLARK, Waterloo, Iowa.
8. Tuberculin Tests in Children of Colorado.
GEORGE H. CATTERMOLLE, Boulder, Colo.
9. Quantitative Determinations of Nitrogenous Elements in the Newborn.
F. W. SCHLUTZ and C. J. PETTIBONE, Minneapolis.
10. Pneumonia in Early Life. A Clinical Study.
HENRY D. CHAPIN, New York.
11. Cerebrospinal Meningitis During the Texas Epidemic of 1912.
J. S. BARDIN, Fort Worth, Texas.
12. Involvement of the Urinary Tract as the Result of Focal Infections in Children.
CLIFFORD G. GRULEE and F. W. GAARDE, Chicago.

Thursday, June 24—2 p. m.

13. Tonsillitis Simulating Gastric Fever.
LOUIS FISCHER, New York.

14. Blood Sugar in Children.
MARK JAMPOLIS, Chicago.
15. Mental and Physical Survey of Supposedly Normal Children.
LANGLEY PORTER and A. HUFFAKER, San Francisco.
16. Starch Digestion in Children: with Some Clinical Observations.
H. H. YERINGTON and CLYDE T. WETMORE, San Francisco.
17. Casein-Milk Feedings in Infancy and Childhood.
WALTER GELLHORN, Seattle.
18. Diet and Digestion in Relation to Health and Disease in Children.
A. F. BEDDOE, Dallas, Texas.

SECTION ON PATHOLOGY AND PHYSIOLOGY

MEETS IN EXPOSITION MEMORIAL AUDITORIUM

Chairman—A. J. CARLSON, Chicago.
Secretary—FREDERICK P. GAY, Berkeley, Calif.

Tuesday, June 22—2 p. m.

1. Chairman's Address: Some Problems in the Physiology and Pathology of Human Gastric Juice.
A. J. CARLSON, Chicago.
2. Intestinal Obstruction: The Chemical Nature of the Toxic Agent.
G. H. WHIPPLE, San Francisco.
3. The Motor Functions of the Intestine from a New Point of View.
WALTER C. ALVAREZ, San Francisco.
4. Experimental Basis of the Colloid-Chemical Theory of Edema: A Criticism.
A. R. MOORE, Bryn Mawr, Pa.
5. Pathologic Physiology of Lead Colic and Its Relation to Experimental Therapeutics.
A. D. HIRSCHFELDER, Minneapolis.
6. Weighing Parts of the Living Body.
C. D. SPIVAK, Denver.

Wednesday, June 23

THIS SECTION WILL HOLD NO MEETING ON THIS DAY BUT WILL JOIN IN THE COMMEMORATION DAY PROGRAM

Thursday, June 24—9 a. m.

7. Creatin and Creatinin Excretion During the Puerperium and Its Relation to the Involution of the Uterus.
ARTHUR H. MORSE, San Francisco.
8. Metabolism in Diabetes as Shown in Three Hundred Cases of Acetonemia.
A. J. HODGSON, Waukesha, Wis.
9. Globulin and Albumin Percentage Determination in Small Quantities of Blood Serum.
T. BRAILSFORD ROBERTSON, Berkeley, Calif.
10. Examination of Some of the Indirect Blood Pressure Principles.
JOSEPH ERLANGER, St. Louis.
11. Estimation of Carbon-Dioxid Tension in Alveolar Air.
PAUL ROTH, Battle Creek, Mich.
12. A New Classification of Tumors.
WILLIAM CARPENTER MACCARTY, Rochester, Minn.

Thursday, June 24—2 p. m.

13. Tumors of the Spinal Cord in Children.
RACHEL L. ASH, San Francisco.
14. The Relation of Animal to Human Sporotrichosis.
K. F. MEYER, San Francisco.
15. Efficiency of Various Antityphoid Vaccines.
W. A. SAWYER, Berkeley, Calif.
16. Laboratory Diagnosis of Smallpox by Skin Reaction.
JOHN NIVISON FORCE, Berkeley, Calif.
17. Nephritis: A New Series of Cases.
WILLIAM OPHULS, San Francisco.
18. Atheroma and Other Lesions Produced in Rabbits by Cholesterol Feeding.
C. H. BAILEY, San Francisco.

SECTION ON NERVOUS AND MENTAL DISEASES

MEETS IN EXPOSITION MEMORIAL AUDITORIUM

Chairman—FRANCIS X. DERCUM, Philadelphia.
Secretary—GEORGE A. MOLEEN, Denver.

Tuesday, June 22—2 p. m.

1. Chairman's Address: Recent Aspects of Nervous and Mental Pathology.
FRANCIS X. DERCUM, Philadelphia.

2. Objective Psychology and Psychopathology with Subordination of the Medically Useless Contrast of Mental and Physical. ADOLF MEYER, Baltimore.
3. Delusions of Persecution as a Biologic Defense Reaction. CHARLES LEWIS ALLEN, Los Angeles.
4. Serviceable Psychology. MARY LAWSON NEFF, Des Moines.
5. Traumatic Hysteria. J. T. FISHER, Los Angeles.
6. Cooperation in the Treatment of Nervous Maladies. J. MADISON TAYLOR, Philadelphia.

Wednesday, June 23

THIS SECTION WILL HOLD NO MEETING ON THIS DAY BUT WILL JOIN IN THE COMMEMORATION DAY PROGRAM

Thursday, June 24—9 a. m.

7. Myatonia Congenita. W. A. JONES, Minneapolis.
8. Chronic Tetany with Report of Case. J. P. MUNROE, Charlotte, N. C.
9. The Diagnosis of Tumors in the Posterior Cranial Fossa. T. H. WEISENBURG, Philadelphia, and PHILIP WORK, Pueblo, Colo.
10. Cerebellar Tumor Without Nystagmus. ERNEST G. GREY, Boston.
11. Galvanometric Studies of the Cerebellar Function. I. LEON MEYERS, Chicago.
12. Focal Disease of the Brain with Report of Eight Cases. CHARLES R. BALL, St. Paul.
13. The Voice in Tabes and Treatment for Vocal Ataxia. WALTER B. SWIFT, Boston.

Thursday, June 24—2 p. m.

14. Familial Spastic Paralysis. JOHN H. W. RHEIN, Philadelphia.
15. Acute Ascending Hemorrhagic Myelitis. BENJAMIN T. BURLEY, Worcester, Mass.
16. The Transverse Myelitic Type of Poliomyelitis. JAMES HENDRIE LLOYD, Philadelphia.
17. Spinal Cord Compression from Leptomenigeal Cysts. With Report of Two Cases. A. L. SKOOG, Kansas City, Mo.
18. Salvarsanized Serum in Syphilitic Nervous Disease. C. EUGENE RIGGS, St. Paul.
19. Treatment of Essential Epilepsy by Subcutaneous Injections of Cerebrospinal Fluid. ALFRED GORDON, Philadelphia.
20. Testing Muscular Tonus or Reflex Excitability in the Upper Extremity. ROSS MOORE, Los Angeles.

SECTION ON DERMATOLOGY

MEETS IN EXPOSITION MEMORIAL AUDITORIUM

Chairman—HOWARD FOX, New York.

Secretary—H. H. HAZEN, Washington, D. C.

Tuesday, June 22—2 p. m.

1. Chairman's Address: Dermatology of the Ancients. HOWARD FOX, New York.
2. An Uncommon Case of Multiple Sarcoid of the Skin. JOSEPH ZEISLER, Chicago.
3. The Treatment of Burns. A. RAVOGLI, Cincinnati.
4. Symptomatology and Treatment of Some Common Palmar Eruptions. RICHARD L. SUTTON, Kansas City, Mo.
5. Recurrent Herpes, with Report of Case and Considerations Concerning the Etiology. WILLIAM THOMAS CORLETT, Cleveland.
6. Lupus Erythematosus of the Mucous Membranes. GEORGE D. CULVER, San Francisco.

Wednesday, June 23

THIS SECTION WILL HOLD NO MEETING ON THIS DAY BUT WILL JOIN IN THE COMMEMORATION DAY PROGRAM

Thursday, June 24—9 a. m.

SYMPOSIUM ON LEPROSY

7. Historical Review of Leprosy. DOUGLASS W. MONTGOMERY, San Francisco.
8. Symptomatology and Diagnosis of Leprosy: Presentation of Cases. HOWARD MORROW, San Francisco.

9. Treatment of Leprosy. ERNEST DWIGHT CHIPMAN, San Francisco.
10. Public Control of Leprosy. A. A. O'NEILL, San Francisco.
11. Demonstration of Cases from the Skin Clinic of the Stanford University Medical School. HARRY E. ALDERSON, San Francisco.
12. Intraspinal Treatment of Syphilis of the Nervous System. Results of Two Years' Experience. R. B. H. GRADWOHL, St. Louis.

Thursday, June 24—2 p. m.

13. Factitious Dermatoses. OLIVER S. ORMSBY, Chicago.
14. Acanthosis Nigricans as an Indication of Internal Malignancy. A. J. MARKLEY, Denver.
15. Xeroderma Pigmentosum: Its Treatment with Autogenous Serum. J. B. KESSLER, Iowa City.
16. Cutaneous Cancer of the Extremities. H. H. HAZEN, Washington, D. C.
17. The Present Status of the Roentgen Ray in the Treatment of Diseases of the Skin. GEORGE MILLER MACKEE, New York.
18. Radiant Energy in the Treatment of Diseases of the Skin. EVERETT S. LAIN, Oklahoma City.

SECTION ON PREVENTIVE MEDICINE AND PUBLIC HEALTH

MEETS IN EXPOSITION MEMORIAL AUDITORIUM

Chairman—C. HAMPSON JONES, Baltimore.

Secretary—OTTO P. GEIER, Cincinnati.

Tuesday, June 22—2 p. m.

1. Chairman's Address and Oration. C. HAMPSON JONES, Baltimore.
2. The Nature, Treatment and Prevention of Pellagra. JOSEPH GOLDBERGER, Washington, D. C.; D. G. WILLETS, Milledgeville, Ga., and C. H. WARING, Jackson, Miss., United States Public Health Service, Washington, D. C.
3. A Plague-Like Disease of California Rodents, Affecting Man (Demonstration of Specimens). WILLIAM B. WHERRY, Cincinnati.
4. The Full-Time Health Officer. JOHN W. KERR, Washington, D. C.
5. The Relation of Mouth Infection to Some of the Common System Diseases of Obscure Origin. JOHN R. WILLIAMS, Rochester, N. Y.

Reports of Committees

Wednesday, June 23

THIS SECTION WILL HOLD NO MEETING ON THIS DAY BUT WILL JOIN IN THE COMMEMORATION DAY PROGRAM

Thursday, June 24—9 a. m.

SYMPOSIUM ON INDUSTRIAL SANITATION

6. Introductory Remarks: Industrial Sanitation—The New Factor in Public Health. OTTO P. GEIER, Cincinnati.
7. Physical Examination of Employees. SIDNEY MORRILL MCCURDY, Youngstown, Ohio.
8. The Control of Tuberculosis by Industry. GEORGE M. PRICE, New York.
9. Occupations and the Venereal Diseases. WILLIAM F. SNOW, New York.
10. Sickness Insurance. B. S. WARREN, Washington, D. C.

Thursday, June 24—2 p. m.

11. Some Medical Aspects of the Open-Air School. SHERMAN C. KINGSLEY, Esq., Chicago.
12. The Administration and Control of Communicable Diseases by a City Health Department. WILLIAM C. HASSLER, San Francisco.
13. The Favorable Influence of Glucose on the Growth of Acid Fast. GEORGE W. MCCOY, Honolulu, T. H.
14. The Relation of Rodent Plague to Human Infection. W. C. RUCKER, Washington, D. C.
15. Significance and Prevention of Amebic Infections in Mouths of Children. ANNA WESSELS WILLIAMS, New York.

SECTION ON GENITO-URINARY DISEASES

MEETS IN EXPOSITION MEMORIAL AUDITORIUM

Chairman—GRANVILLE MACGOWAN, Los Angeles.

Secretary—LOUIS E. SCHMIDT, Chicago.

Tuesday, June 22—2 p. m.

1. Prostatectomy, Mistakes and Failures.
GEORGE S. WHITESIDE, Portland, Ore.
2. Clinical Observations on Stone in the Bladder.
W. F. BRAASCH and A. B. MOORE, Rochester, Minn.
3. Plastic Operations on Ureters and Kidney Pelves.
HIRAM R. LOUX, Philadelphia.
4. An Entero-Ureteral Operation.
W. HOWARD BARBER, New York.
5. Stone in the Ureter: A Critical Review of Cases.
HUGH CABOT, Boston.
6. Supernumerary Kidney: Report of Case with Operation.
HERMAN L. KRETSCHMER, Chicago.
7. Urinary Antisepsis: A Clinical and Bacteriologic Study.
FRANK HINMAN, San Francisco.

Wednesday, June 23

THIS SECTION WILL HOLD NO MEETING ON THIS DAY BUT WILL JOIN IN THE COMMEMORATION DAY PROGRAM

Thursday, June 24—9 a. m.

8. Effect of Trauma on the Genito-Urinary Tract.
LEWIS WINE BREMERMAN, Chicago.
9. Diagnosis of Genito-Urinary Conditions in Women by Means of the Roentgen Ray.
G. SHERMAN PETERKIN, Seattle.
10. Electro-Mechanical Treatment in Genito-Urinary Diseases.
WILLIAM B. SNOW, New York.
11. Blood Cryoscopy and Blood Urea: A Comparative Study of Renal Function.
MARTIN KROTOSZYNER and GEORGE W. HARTMAN, San Francisco.
12. Destroying Limited Obstructive Glandular Growths in the Posterior Urethra by the High Frequency Current.
ROBERT V. DAY, Los Angeles.
13. Importance of Thorough Examination in Urologic Cases.
A. J. CROWELL, Charlotte, N. C.

Thursday, June 24—2 p. m.

14. Chairman's Address: GRANVILLE MCGOWAN, Los Angeles.
15. Vaccines in Gonococcus Infections.
CARL C. WARDEN, Ann Arbor, Mich.
16. The Mechanism of Urination.
ARTHUR B. CECIL, Los Angeles.
17. Nephritis.
PHILIP KING BROWN, San Francisco.
18. Verumontanitis.
W. J. PENNOCK, Spokane, Wash.

SECTION ON HOSPITALS

MEETS IN EXPOSITION MEMORIAL AUDITORIUM

Chairman—WINFORD H. SMITH, Baltimore.

Secretary—JOHN A. HORNSBY, Chicago.

Tuesday, June 22—2 p. m.

1. Chairman's Address. WINFORD H. SMITH, Baltimore.

SYMPOSIUM ON VENEREAL DISEASES

2. Efficient Dispensary Clinics a Requisite for Adequate Coping with Venereal Disease.
MICHAEL M. DAVIS, JR., Boston.
3. The Control of Venereal Diseases in California.
ROBERT T. LEGGE, Berkeley, Calif.
4. The Problem of Venereal Disease Quackery.
CALVIN S. WHITE, Portland, Ore.
5. Venereal Disease Clinics in New York and a Statistical Efficiency Test.
ROBERT J. WILSON, New York.

Wednesday, June 23

THIS SECTION WILL HOLD NO MEETING ON THIS DAY BUT WILL JOIN IN THE COMMEMORATION DAY PROGRAM

Thursday, June 24—9 a. m.

6. Medical Teaching in Hospitals.
H. T. SUMMERSGILL, San Francisco.

7. The Efficiency Standard at St. Joseph's Hospital, Philadelphia.
JOSEPH M. SPELLISSY, Philadelphia.

Thursday, June 24—2 p. m.

8. Important Elementary but Often Neglected Details in the Administration of Small Hospitals.
L. W. LITTIG, Davenport, Iowa.
9. Hospital Efficiency as Produced and Measured by a Follow-Up System.
ARTHUR A. HOWARD, Boston.
10. The Relation of the Roentgenologist to the Hospital.
H. W. VAN ALLEN, Springfield, Mass.
11. The Experience of Lakeside Hospital in the Manufacture and Administration of Nitrous Oxid for Anesthesia.
A. R. WARNER, Cleveland.

SECTION ON ORTHOPEDIC SURGERY

MEETS IN EXPOSITION MEMORIAL AUDITORIUM

Chairman—NATHANIEL ALLISON, St. Louis.

Secretary—EMIL S. GEIST, Minneapolis.

Tuesday, June 22—2 p. m.

1. Chairman's Address: Orthopedic Surgery and the Crippled.
NATHANIEL ALLISON, St. Louis.
2. Late Results of Excision of the Transverse Process of the Fifth Lumbar Vertebra.
FRED J. FASSETT, Seattle.
3. Lesions of the Lumbo-Sacro-Iliac Region.
H. L. LANGNECKER, Boston.
4. Surgical Treatment of Bunions (Mayo Method).
M. S. HENDERSON, Rochester, Minn.
5. Anteversion of Neck of Femur Causing Failure in Treating Congenital Hip Dislocation.
RUSSELL A. HIBBS, New York.
6. Congenital Dislocations of the Hip, Reduced by Manipulation Followed by Arthrotomy.
JAMES T. WATKINS, San Francisco.
7. Structural Changes in Congenital Hip Dislocations.
WALLACE BLANCHARD, Chicago.

Wednesday, June 23

THIS SECTION WILL HOLD NO MEETING ON THIS DAY BUT WILL JOIN IN THE COMMEMORATION DAY PROGRAM

Thursday, June 24—9 a. m.

8. Painful Feet.
HENRY W. FRAUENTHAL, New York.
9. Experimental Studies on Neuropathic Affections of the Joints (Charcot's).
LEO ELOESSER, San Francisco.
10. Roentgenographic Characteristics of the Bone Changes in Rickets.
ROBERT W. LOVETT, Boston.
11. Subperiosteal Resections in Osteomyelitis. An Experimental and Clinical Study.
D. B. PHEMISTER, Chicago.
12. Tuberculosis and Red Marrow.
LEONARD W. ELY, San Francisco.
13. End Results After Arthroplasty.
JOHN B. MURPHY, Chicago.

Thursday, June 24—2 p. m.

14. Knee Joint Disability Caused by Hypertrophy of the Alar Ligaments.
ROLAND O. MEISENBACH, Buffalo.
15. Treatment of Fractures of Long Bones from an Orthopedic Point of View, with Clinical Observations and Conclusions.
J. W. COKENOWER, Des Moines, Iowa.
16. Fractures—New Ideas and New Instruments.
H. R. ALLEN, Indianapolis.
17. Syphilis of the Spine.
WALTER BALDWIN, San Francisco.
18. Experimental Transplantation of the Epiphysis with Observations on the Longitudinal Growth of Bone.
S. L. HAAS, San Francisco.
19. Juvenile Osteochondritis of the Hip Joint—Report and Exhibition of Three Patients.
GEORGE J. MCCHESENEY, San Francisco.
20. Rôle of the Nose, Throat and Accessory Sinuses in Etiology of Chronic, Infectious Arthritis.
ROLAND HAMMOND, Providence, R. I.

THE SCIENTIFIC EXHIBIT AND HEALTH CONSERVATION DAY

The Board of Trustees has enlarged the scope of the Scientific Exhibit by adding a Health Conservation Exhibit with special and striking features. These two exhibits are more or less related, but are announced under separate headings.

I. THE SCIENTIFIC EXHIBIT

Special effort will be made to correlate the work of the sections with that of the Scientific Exhibit. There has been a gradual evolution in this direction, but it is hoped this year to hasten this desirable end. Every subject which lends itself to scientific demonstration will be more lucidly presented if its author will prepare an exhibit. Such exhibits are in themselves evidence of the writer's enthusiasm and faith in his work. To hearers, they are a satisfaction, making clear written claims, and stimulating attention in the matter presented.

The increase, year by year, of research exhibits at the annual meetings has been most gratifying. This year, particularly, laboratory workers engaged in original investigations should plan demonstrations for the meeting. The journey to the coast will be worth while, and they will be inspired by those engaged in similar work in the Far West. Bring small exhibits, pictures, charts, microscopic and gross specimens. These can generally be carried in a suitcase, or checked through as baggage. The Scientific Exhibit affords the investigator an opportunity to present the proofs of his research. The Association Gold Medal for the best research exhibit will be awarded, or if the winner so elects, he may have instead, a cash award. A limited number of Certificates of Honor will be given to a few particularly meritorious exhibits.

II. THE HEALTH CONSERVATION EXHIBIT

All section meetings will be adjourned on Wednesday of the meeting week, and the entire day devoted to "Health Conservation Day." The program will be given in the Exposition Memorial Auditorium. During the forenoon there will be formal addresses by Dr. Victor C. Vaughan, President of the American Medical Association, on "Infection and Immunity"; by Dr. W. C. Gorgas, Surgeon-General of the U. S. Army, on "Yellow Fever"; by Dr. W. J. Mayo, of Rochester, Minn., on "Cancer: Its Prevention and Cure"; and by Dr. W. A. Pusey, of Chicago, on "Syphilis as a

Modern Problem." In the afternoon, the two large convention halls will be given over to short talks by well-known experts, accompanied by lantern-slide and motion-picture illustrations of the following topics: malaria, dysentery, yellow fever, typhoid fever, plague, hookworm, leprosy, tuberculosis, syphilis, gonorrhea, pellagra, rabies, epidemic cerebrospinal meningitis, poliomyelitis, pyorrhea alveolaris and trypanosomiasis.

ILLUSTRATIVE EXHIBITS

At the same time that these lectures are being given in the convention halls, demonstrators will present exhibits in the corridors on the ground floor of the Auditorium, illustrating the subjects enumerated above. The talks given and the exhibits will not be of the conventional public health type. There will be shown enough of the historical and the scientific by lantern slides, charts, pictures, specimens and by other means, to make plain both to physicians and the laity the achievements of medicine in the broader scientific sense, and their relation to the prevention of disease. It is to be a triumphant and illuminating declaration to the world of its debt to scientific medicine for social, economic and humanitarian progress. In the consummation of this unusual program, the committee relies with confidence on those who are interested and active in the advancement of preventive medicine, and invites them to give freely of their expert aid in the staging and presentation of these features. The committee again requests scientific and public health workers to cooperate by exhibiting the materials necessary to illustrate, on a scientific basis, the evolution of preventive medicine to its present day practical and useful position. The committee will appreciate the active support of those interested in these great problems.

SUGGESTIONS TO PROSPECTIVE EXHIBITORS

Those preparing Roentgen-ray exhibits should communicate at once with Dr. P. M. Hickey, 32 Adams Avenue, West, Detroit, giving the subject to be treated, and the number and size of plates.

Shipments of exhibits should be addressed to "The Scientific Exhibit of the American Medical Association, Memorial Auditorium Building, care of Dr. William Ophuls, San Francisco. In addition, write Dr. Ophuls, northeast corner of Sacramento and Webster streets, at the time of shipment.

SAN FRANCISCO INFORMATION

MEETING PLACES AND HOTEL HEADQUARTERS

Letters refer to the map. All meetings of the House of Delegates and the Scientific Assembly, except the General Meeting, are held in the Exposition Memorial Auditorium.

HOUSE OF DELEGATES: Exposition Memorial Auditorium (A)—Fourth floor, west wing.

GENERAL MEETING: Columbia Theater (M).

SCIENTIFIC EXHIBIT, REGISTRATION BUREAU, COMMERCIAL EXHIBIT, INFORMATION BUREAU, TELEPHONES AND BRANCH POSTOFFICE: Exposition Memorial Auditorium (A).

SECTIONS, HOTEL HEADQUARTERS AND MEETING PLACES

PRACTICE OF MEDICINE: Palace Hotel (B)—First floor, east wing.
SURGERY, GENERAL AND ABDOMINAL: St. Francis (C)—First floor, west wing.

OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY: St. Francis (C)—Third floor, west wing, south room.

OPHTHALMOLOGY: Fairmont (D)—Third floor, east wing, south room.

LARYNGOLOGY, OTOTOLOGY AND RHINOLOGY: Fairmont (D)—Third floor, east wing, middle room.

DISEASES OF CHILDREN: Cartwright (J)—Third floor, west wing, middle room.

PATHOLOGY AND PHYSIOLOGY: Bellevue (H)—Second floor, west end north corridor.

NERVOUS AND MENTAL DISEASES: Chancellor (I)—Fourth floor, east end north corridor.

DERMATOLOGY: Plaza (L)—Fourth floor, east wing, south room.

PREVENTIVE MEDICINE AND PUBLIC HEALTH: Clift (G)—Third floor, east end north corridor.

GENITO-URINARY DISEASES: Manx (E)—Third floor, west end north corridor.

HOSPITALS: Inside Inn (K)—Fourth floor, east wing, north middle room.

ORTHOPEDIC SURGERY: Stewart (F)—Fourth floor, east wing, south middle room.

HOTEL RESERVATIONS

Although San Francisco can easily accommodate those in attendance on the annual session, Fellows are urged to make their hotel reservations early. It will be a great comfort on arriving at San Francisco to go at once to a hotel which is expecting you rather than to make a round of hotels, finding a number of them completely filled and finally being compelled to take the first lodgings which can be found in a hurried personal search. The list of hotels appearing in this issue locates the different hotels and gives their rates. Make your selection, write to Dr. F. B. Carpenter, chairman of the sub-committee on hotels of the local Committee on Arrangements, or the official Exposition Hotel Bureau, with which the committee on hotels is cooperating, addressing your letter in either instance to 702 Market Street, San Francisco. Take the reply you receive with you to San Francisco. Then, on arriving all you will have to do is to go to this hotel and register. In requesting a hotel reservation, be sure to state your full name and home address, the date you expect to reach San Francisco, the number in your party, the number of rooms required, the rate per day—per person, per room—you are willing to pay, the hotel you prefer—if any, and the section in which you will register.

TABLE OF DAILY RATES AND ACCOMMODATIONS OFFERED BY SAN FRANCISCO HOTELS

Hotel and Location*	No. Rooms	Without Bath		With Bath	
		One Person	Two Persons†	One Person	Two Persons†
NEAR CENTER OF BUSINESS SECTION					
PALACE.....Market and New Montgomery	500	\$2.00 to \$2.50	\$3.50 to \$4.00	\$3.00 to \$7.00	\$5.00 to \$10.00
ST. FRANCIS.....Powell and Geary	1,000	2.00 to 4.00	3.50 to 7.00	3.00 to 6.00	5.00 to 10.00
FAIRMONT.....Mason and California	500	.....	.....	4.00 to 7.00	7.00 to 10.00
Also American plan.					
BELLEVUE.....Geary and Taylor	244	.....	.....	4.00 to 6.00	5.00 to 7.00
Also American plan—add \$2 a person.					
CHANCELLOR.....Powell and Post	138	.....	.....	2.50 to 4.00	4.00 to 6.00
Also American plan.					
CARTWRIGHT.....Sutter and Powell	117	.....	.....	2.00 to 5.00	2.50 to 6.50
CLIFT.....Geary and Taylor	300	.....	.....	2.50 to 4.00	4.00 to 6.00
Also American plan—add \$2.50 a person.					
MANX.....Powell and O'Farrell	258	2.00 to 3.00	3.00 to 4.00	2.00 to 3.00	4.00 to 5.00
PLAZA.....Post and Stockton	282	1.50 to 3.00	2.50 to 4.50	2.00 to 6.00	3.50 to 7.00
Also American plan—add \$2 a person.					
STEWART.....Geary and Powell	250	2.00 to 3.00	3.50 to 4.00	2.50 to 4.00	4.00 to 6.00
Also American plan—add \$2 a person.					
DALE.....34 Turk	180	1.50 to 2.00	2.00 to 3.00	3.00 to 4.00	4.00 to 5.00
RAMONA.....174 Ellis	110	.....	.....	2.00 to 4.00	3.00 to 5.00
ARGONAUT.....Fourth and Market	380	2.00 to 3.00	2.00 to 3.00	3.00 to 5.00	4.00 to 5.00
CLARK.....Eddy and Taylor	140	1.50 to 2.50	2.50 to 3.50	2.50 to 3.50	4.00 to 5.00
GLENN.....Turk and Market	84	1.00 to 1.50	1.50 to 2.00	2.50 to 3.00	3.00 to 4.00
GRAND.....57 Taylor	160	1.50 to 2.50	2.00 to 3.00	2.50 to 3.50	3.00 to 4.50
KNICKERBOCKER.....589 Post	50	1.00 to 2.00	2.00 to 2.50	\$2.50	\$3.50
LEESMONT.....California and Stockton	75	.....	.....	2.50 to 3.50	3.50 to 4.50
MARTINIQUE.....737 Bush	50	.....	.....	2.50 to 4.00	3.50 to 5.00
MONTCLAIR.....995 Pine	75	1.50 to 2.00	2.00 to 3.00	2.50 to 3.50	3.00 to 4.50
REGENT.....562 Sutter	115	1.50 to 2.00	2.00 to 3.00	2.50 to 5.00	4.00 to 7.00
Also American plan—add \$1.50 a person.					
ST. DOMINIC.....Bush and Jones	100	.....	.....	2.50 to 3.00	3.00 to 4.00
WORTH.....641 Post	96	.....	.....	2.50 to 3.00	3.50 to 4.00
ZENOBIA.....947 Bush	50	.....	.....	2.50 to 3.00	3.00 to 5.00
ADENA.....144 O'Farrell	100	1.00 to 1.50	1.50 to 2.00	2.00 to 2.50	2.50 to 3.00
ALHAMBRA.....860 Geary	50	1.50 to 3.50	2.50 to 5.00	2.00 to 5.00	5.00 to 8.00
BALDWIN.....Grant and Sutter	65	.....	.....	2.00 to 4.00	2.50 to 4.50
BRAYTON.....50 Turk	100	1.00 to 2.50	1.50 to 3.00	2.00 to 3.50	2.50 to 4.00
CARSON.....972 Market	28	1.50 to 2.00	2.00 to 2.50	2.00 to 2.50	3.00 to 3.50
CLARIDGE.....749 Taylor	30	1.50 to 2.00	2.00 to 2.50	2.00 to 2.50	2.50 to 3.00
CORNELL.....715 Bush	50	1.00 to 1.50	2.00 to 2.50	2.00 to 3.00	3.00 to 4.00
CORT.....34 Ellis	60	1.00 to 2.00	2.00 to 2.50	2.00 to 3.00	2.50 to 3.50
COURT.....Bush and Stockton	128	1.00 to 4.00	1.50 to 5.00	2.00 to 6.00	2.50 to 7.00
Also American plan—add \$2 a person.					
EUREKA.....438 O'Farrell	35	1.00 to 1.50	1.50 to 2.00	2.00 to 2.50	2.00 to 2.50
GARFIELD.....354 O'Farrell	60	.....	.....	2.00 to 3.50	3.00 to 5.00
Also American plan.					
GARLAND.....O'Farrell and Jones	80	.....	.....	2.00 to 3.50	3.00 to 5.00
GOLDEN WEST.....Powell and Ellis	190	1.50 to 2.50	2.00 to 3.50	2.00 to 3.00	2.50 to 4.00
GOODFRIEND.....Powell and Geary	150	1.50 to 3.00	2.00 to 3.50	2.00 to 5.00	2.50 to 6.00
GRAYSTONE.....66 Geary	85	1.50 to 2.50	2.00 to 3.50	\$3.00	\$4.00
HACIENDA.....580 O'Farrell	73	1.50 to 2.00	2.00 to 2.50	2.00 to 2.50	2.50 to 3.00
HERALD.....Eddy and Jones	150	1.50 to 2.00	2.00 to 3.00	2.00 to 3.00	3.00 to 4.00
KENSINGTON.....Geary and Jones	99	1.50 to 2.00	2.00 to 2.50	2.00 to 3.00	3.00 to 4.00
KEYSTONE.....Fourth and Market	160	1.00 to 2.00	2.00 to 3.00	2.00 to 3.00	3.00 to 4.00
LANKERSHIM.....Fifth near Market	300	1.50 to 2.00	2.00 to 3.00	2.00 to 4.00	2.50 to 5.00
MAXWELL.....625 Taylor	40	1.00 to 2.00	1.50 to 2.00	2.00 to 2.50	2.50 to 3.00
MENTONE.....Ellis at Jones	80	.....	.....	2.00 to 3.00	3.00 to 5.00
SCHWARTZ.....62 Turk near Market	100	1.00 to 1.50	1.50 to 2.50	2.00 to 3.50	3.00 to 4.00
Also American plan.					
STANFORD.....Bush and Kearny	150	1.50 to 2.00	2.00 to 2.50	2.00 to 2.50	3.00 to 3.50
STRAND.....415 O'Farrell	100	1.00 to 1.50	1.50 to 2.50	2.00 to 2.50	3.00 to 3.50
SUSSEX.....701 Sutter	65	1.50 to 3.00	2.00 to 3.50	2.00 to 4.00	2.50 to 5.00
ST. ANDREW.....440 Post	50	1.00 to 2.00	1.50 to 2.50	2.00 to 2.50	2.50 to 3.00
THOMA.....Stockton and Post	96	1.50 to 2.00	2.00 to 2.50	2.00 to 3.00	3.00 to 4.00
TOWANDA.....556 Jones	41	.....	.....	2.00 to 3.00	2.50 to 4.00
TURPIN.....17 Powell at Market	195	1.50 to 2.00	2.00 to 4.00	2.00 to 3.00	3.00 to 6.00
VICTORIA.....Bush and Stockton	150	1.50 to 2.00	2.00 to 2.50	\$2.00	\$2.50
Also American plan.					
VON DORN.....242 Turk	150	1.50 to 2.00	2.00 to 2.50	2.00 to 3.00	3.00 to 4.00
WINDEMERE.....776 Bush	100	.....	.....	2.00 to 3.00	2.50 to 3.50
YUBA.....1146 Mission	150	1.00 to 1.50	1.50 to 2.00	2.00 to 3.00	\$3.00
ADAIRE.....Ellis near Jones	187	1.00 to 1.50	.....	1.50 to 3.00	2.50 to 4.00
ADRAIN.....493 Eddy near Hyde	50	1.00 to 1.50	1.50 to 2.50	1.50 to 2.00	2.50 to 3.50
ALTA.....165 Third	225	1.00 to 2.00	1.50 to 2.00	1.50 to 2.50	2.50 to 3.00
ARLINGTON.....Ellis and Leavenworth	160	1.00 to 2.00	1.50 to 2.00	1.50 to 3.50	2.50 to 4.00
Also American plan—add \$1.50 a person.					
ATHMORE.....450 Jones	47	1.00 to 1.50	1.50 to 2.00	1.50 to 2.50	2.50 to 3.50
AVON.....420 Jones, corner Ellis	24	1.00 to 1.50	1.50 to 2.00	1.00 to 1.50	1.50 to 2.00
BERESFORD.....Mason and Sutter	120	1.00 to 2.00	1.50 to 2.50	1.50 to 3.50	2.00 to 4.00
BERG.....221 Mason	75	.....	.....	1.50 to 2.50	2.50 to 4.00
DUMAS.....O'Farrell at Taylor	50	1.00 to 1.50	1.50 to 2.00	1.50 to 2.50	2.50 to 5.00
GRANT.....Bush and Powell	60	.....	.....	1.50 to 2.50	2.50 to 5.00
Also American plan—add \$1.25 a person.					
HAMLIN.....338 Eddy	85	1.00 to 2.00	2.00 to 3.00	1.50 to 2.50	2.50 to 4.00
HANSA.....447 Bush	47	1.00 to 1.50	1.50 to 2.00	1.50 to 2.50	2.50 to 3.00
KING GEORGE.....Mason at Geary	140	.....	.....	1.50 to 3.50	2.00 to 5.00
IRWIN.....Fourth and Mission	150	0.75 to 1.50	1.50 to 2.00	.....	.....
MADISON.....364 O'Farrell	65	.....	.....	1.50 to 3.00	2.50 to 5.00
MARYMOUNT.....Jones and O'Farrell	100	1.00 to 2.00	1.50 to 2.00	1.50 to 3.00	2.00 to 3.00
MINSTER.....Mason and O'Farrell	135	1.00 to 1.50	1.50 to 2.00	1.50 to 2.00	2.00 to 3.00
RAND.....364 Eddy	82	1.00 to 1.50	1.50 to 2.00	1.50 to 2.00	2.50 to 3.00
RITZ.....216 Eddy	100	1.00 to 1.50	1.50 to 2.00	1.50 to 2.00	2.00 to 3.00
SEQUOIA.....Jones and O'Farrell	75	1.00 to 2.00	1.50 to 2.50	1.50 to 2.50	2.00 to 3.50
SENATE.....471 Turk	190	1.00 to 2.00	2.00 to 3.00	1.50 to 4.00	2.50 to 5.00
SHASTA.....314 Kearny	100	1.00 to 1.50	1.50 to 2.00	1.50 to 2.00	\$2.00
ST. CECILE.....115 Fell, near Van Ness	60	1.00 to 1.50	1.50 to 2.00	2.00 to 2.50	2.50 to 3.00
TALLAC.....140 Ellis	144	1.00 to 1.50	1.50 to 2.00	1.50 to 2.00	2.50 to 3.50
THOMAS.....969 Mission	160	1.00 to 1.50	1.50 to 2.50	1.50 to 2.50	2.00 to 3.50
WINDSOR.....238 Eddy	110	1.00 to 1.50	1.50 to 2.00	1.50 to 2.00	2.00 to 3.00
STRATTON.....570 O'Farrell	40	1.00 to 1.50	\$2.00	.....	.....

Hotel and Location*	No. Rooms	Without Bath		With Bath	
		One Person	Two Personst	One Person	Two Personst
NEAR CIVIC CENTER (Near Auditorium where the Scientific Assembly of the Association will be held)					
ATLANTA.....Seventh and Mission	160	1.00 to 2.00	1.50 to 3.00	2.00 to 3.00	\$3.00
BELMONT.....730 Eddy	95	1.00 to 1.50	1.50 to 2.00	1.50 to 2.00	2.00 to 2.50
CADILLAC.....Eddy and Leavenworth	115	1.00 to 1.50	1.50 to 2.00	1.50 to 2.50	2.50 to 3.50
Also American plan—add \$1.50 a person.					
CARLTON.....545 Turk	150	1.50 to 2.00	2.00 to 3.00	2.00 to 3.00	2.50 to 3.50
Also American plan—add \$1.50 a person.					
EASTMAN.....1668 Market	38	1.00 to 1.50	1.50 to 3.00	2.00 to 3.00	2.00 to 5.00
ESSEX.....Ellis and Larkin	100	1.00 to 1.50	1.50 to 2.50	2.00 to 3.00	3.00 to 4.00
FALLON.....1693 Market	65	1.00 to 1.50	1.50 to 3.00	2.00 to 3.00	2.00 to 5.00
GLASGOW.....Turk and Larkin	75	1.00 to 2.00	1.50 to 2.50	2.00 to 3.00	2.50 to 3.50
GRAND CENTRAL.....1412 Market	100	1.00 to 2.50	1.50 to 3.50	2.50 to 4.00	3.50 to 5.00
PAGE.....161 Leavenworth	36	1.00 to 1.50	1.50 to 2.00	1.50 to 2.50	2.50 to 3.50
SENECA.....Sixth and Stevenson	200	1.00 to 1.50	1.50 to 2.50	1.50 to 2.50	2.50 to 3.50
ST. JAMES.....Van Ness and Fulton	150	1.00 to 2.00	1.50 to 2.50	2.00 to 3.00	3.00 to 4.00
BROWNELL.....335 Larkin	50	1.00 to 2.00	1.50 to 2.50		
CALVIN.....421 Leavenworth	40			1.00 to 1.50	2.00 to 2.50
GRANVILLE.....Market and Eighth	25	1.00 to 2.00	2.00 to 2.50		
IN RESIDENCE DISTRICT (About Midway Between Civic Center and Exposition Grounds)					
GRANADA.....Sutter and Hyde	200	2.00 to 3.00	3.00 to 4.00	3.00 to 4.00	4.00 to 5.00
Also American plan—add \$2 a person.					
RICHELIEU.....Van Ness and Geary	150	.....	.....	3.50 to 6.00	6.00 to 9.00
American plan.					
NORMANDIE.....1499 Sutter	200	1.50 to 2.50	2.00 to 4.00	2.00 to 4.00	3.00 to 5.00
Also American plan—add \$2 a person.					
BAKER.....1485 Pine	60	1.00 to 2.00	2.00 to 2.50	2.00 to 4.00	3.50 to 5.00
BALTIMORE.....Van Ness and Geary	90	1.00 to 2.00	1.50 to 3.00	1.50 to 2.50	2.00 to 3.00
Also American plan—add \$1.50 a person.					
BEATTIE.....1849 Jackson	25	\$1.50	\$2.00	\$2.00	\$3.00
Also American plan—add \$2 a person.					
BLENHEIM.....1504 Franklin	29	0.75 to 1.50	1.50 to 2.50	1.00 to 1.50	2.00 to 2.50
MONROE.....Sacramento and Franklin	94	1.50 to 2.00	2.00 to 2.50	2.00 to 3.00	3.00 to 4.00
Also American plan—add \$2 a person.					
CALIFORNIA.....Hyde and California	50	1.00 to 1.50	1.50 to 2.50	2.00 to 3.00	3.00 to 4.00
Also American plan—add \$2 a person.					
DORCHESTER.....Sutter and Gough	90	1.00 to 1.50	1.50 to 2.00	2.00 to 2.50	2.50 to 5.00
Also American plan—add \$2 a person.					
DOREL.....California and Larkin	24	1.50 to 2.00	2.00 to 2.50	2.00 to 2.50	2.50 to 3.50
EXPOSITION INN.....California and Pierce	110	\$1.00	\$1.50		
HARCOURT.....Sutter and Larkin	85	1.00	1.50	1.50	2.50
Also American plan—add \$2 a person.					
HILLCREST.....California and Jones	90	.....	.....	1.50 to 2.50	2.00 to 3.00
Also American plan—add \$2 a person.					
MARTINET.....1103 Geary	36	1.00 to 1.50	1.50 to 2.00		
POLK.....Polk and Turk	40	1.50 to 2.00	2.00 to 2.50	2.00 to 2.50	3.00 to 3.50
ROSEMONT.....214 Haight	40	1.00 to 1.50	2.00 to 3.00	2.00 to 3.00	3.00 to 4.00
Kitchenettes \$1 additional.					
ST. DUNSTAN.....1315 Polk	50	1.00 to 1.50	1.50 to 2.00	2.00 to 2.50	2.50 to 3.50
ST. MARCHIA.....875 Post	50	\$1.50	\$2.00	\$1.50	\$2.00
VAN NESS.....Van Ness and Pacific	53	1.00 to 1.50	1.50 to 2.00	1.50 to 2.00	2.00 to 2.50
VENDOME.....Polk and Washington	45	2.00 to 2.50	2.50 to 3.00	3.00 to 3.50	3.50 to 4.50
VOORHEIS.....Van Ness near Sutter	41	1.00 to 1.50	1.50 to 2.50	2.00 to 2.50	2.50 to 3.50
YORKE.....California and Larkin	80	1.50 to 2.00	2.00 to 3.00	1.50 to 3.00	2.50 to 4.00
Also American plan—add \$2 a person.					
WITHIN EXPOSITION GROUNDS					
INSIDE INN.....Exposition Grounds	650	1.50 to 2.00	3.00 to 4.00	2.50 to 3.00	4.00 to 6.00

* Rates are European plan except when American plan is stated. Where both European and American plans are offered, the rates quoted are for European plan and where announced the additional amounts charged for American plan are stated.
† About half the price for one person may be added for each additional person more than two occupying a room.

REGISTRATION

The Importance of Registering Early—A Few Instructions Given

The Bureau of Registration will be located in the Exposition Memorial Auditorium, Grove, Larkin, Hayes and Polk streets. A committee of local physicians will assist members in registration.

A branch post-office will be opened and a Bureau of Information established in connection with the Registration Bureau.

Fellows must register in order to obtain the official badge and program. The badge will be necessary for admission to entertainments. All are urged to register as soon as they can name their hotels.

The Registration Department will be open from 8.30 a. m. to 5:30 p. m., on Monday, Tuesday, Wednesday and Thursday, June 21, 22, 23 and 24, and from 9 to 10 a. m. on Friday, June 25.

Attention is called to the following directions. They should be noted carefully, as by following the suggestions, much annoyance will be avoided.

1. Each physician desiring to register will first fill out the registration card. One should write very plainly, or print, as the cards are given to the printer to use as "copy" for putting the names in the daily *Bulletin*.

2. Each Fellow who has paid his annual dues in full will present his pocket card (which was sent him from the Chicago office) and his filled-out registration card at a window marked "Registration by Pocket Card."

3. A delay, in order that the records may be consulted, always inconveniences those who have paid their dues but who fail to present their pocket cards, as suggested above. Be sure to bring your "pocket card."

4. Fellows who have not paid their dues will present registration card and make payment at a window marked "Cash."

5. Each applicant for Fellowship will present his registration card at the window marked "New Fellows," with a certificate of membership in his state society. Prospective Fellows, however, will save delay and annoyance by sending in their applications before the session. All such applications should be mailed to the American Medical Association, 535 North Dearborn Street, Chicago, so as to arrive not later than June 10.

6. Each Fellow on registering will receive a badge, a copy of the Official Program containing a full announcement of the scientific proceedings, invitations to the social functions, and such other notices as may be of interest.

POST-OFFICES AND TELEPHONES

An Association Post-Office will be maintained at the Registration Bureau in the Exposition Memorial Auditorium. Guests are requested to order mail addressed to them "Care American Medical Association, Convention Station, Civic Auditorium, San Francisco," or to their hotels, as preferred.

Telephone booths will be provided at each meeting-place for the use of Fellows.

PUBLIC HEALTH SUNDAY IN SAN FRANCISCO

In accordance with the plan followed for several years past, speakers on appropriate public health topics will be furnished for the churches, June 20, the Sunday preceding the session. This plan was followed last year in Philadelphia and the preceding year in Minneapolis and St. Paul with great success, practically all of the churches participating, including the Jewish, Roman Catholic and all of the Protestant denominations. The work of supplying speakers for the churches is under the direction of the Council on Health and Public Instruction. A local committee, of which Dr. Sol Hyman is chairman, has been appointed to cooperate with the Council in this work. Arrangements for filling the San Francisco pulpits are now going on and it is anticipated that a large proportion of the churches will participate in the observance of Public Health Sunday. Further details will be given later as the plans develop.

SOCIAL ENTERTAINMENTS

(The official Fellow's badge, or one of those provided for ladies and guests, will be required for admission to entertainments, and to other places to which free entrance is granted to those in attendance on the annual session.)

The San Francisco Committee on Arrangements feels that visitors will want to spend their spare time at the Exposition and will not wish to be overburdened with other entertainments.

Arrangements have been completed for a golf tournament open to Fellows of the Association. Monday, June 21, is the day set for this contest. In the evening a dinner will be held at the Presidio Golf Club, where will be discussed plans for a permanent American Medical Association Golf Club. The San Francisco members have offered a cup, the "Panama Exposition Cup," to be played for on this day. Those desiring further information or wishing to be entered in this contest should address Dr. James Eaves, 126 Stockton St., San Francisco, or Dr. Will Walter, 122 Michigan Ave., Chicago.

Monday night there will be banquets and smokers of some of the societies which meet before the session.

Tuesday and Thursday nights are set aside for such banquets, smokers and vaudevilles of the sections and the various medical alumni and class reunions as these organizations will arrange.

The evening of Tuesday, June 22, has been set apart for Section dinners and smokers and gatherings of other groups. The Section on Diseases of Children plans a Section dinner. Dr. George D. Lyman is in charge of the arrangements. A dinner of the Section on Nervous and Mental Diseases is being arranged by Dr. Milton B. Lennon.

Wednesday night a reception and ball in honor of the President will be given in the California Building, Panama Pacific International Exposition Grounds. This is the most formal of the social functions of the meeting.

On the evening of Thursday, June 24, among other events, it has been announced that the members of the Medical Association of the Isthmian Canal Zone, both those who are now residents of the Zone and those who have been, will meet at the University Club, Powell and California Streets; dinner at 7:15. Dr. H. T. Summersgill, who is in charge of the arrangements, requests that reservations for this dinner be made on or before June 19. Dr. Summersgill may be addressed at the University of California Hospital, San Francisco.

AMERICAN MEDICAL ASSOCIATION EXHIBIT AT THE PANAMA-PACIFIC INTERNATIONAL EXPOSITION

In the Palace of Education, block 19, section 154, is located the exhibit of the American Medical Association. This exhibit displays the work of the Association, more particularly with its reference to the public than along distinctly medical lines. Notwithstanding this, it will be of interest to the profession, as it graphically presents the numerous lines in which the Association serves the people and also the medical profession. The exhibit includes some of the educational placards of the Propaganda Department of *THE JOURNAL*; diagrammatic representations of the work of the Council on Medical Education; and certain of the cartoons of the Council on Health and Public Instruction. A glass-topped case contains the publications of the Association, showing the printed matter at the disposal of those who cooperate with the Association. In the center of the booth is a case containing twelve "three dimension" exhibits presenting to the public in an effective and startling manner the fallacies of "patent medicines," etc.

ALUMNI REUNIONS

Alumni Associations that may desire to hold reunions during the meetings of the American Medical Association are requested to communicate, through their secretaries, with Dr. Emmet Rixford, Chairman of the Committee on Entertainments, 916 Butler Building, San Francisco, the date desired for such meetings and any suggestions of entertainments they may wish to provide should be stated. Places of meeting or entertainment will be selected for them on request.

MEETINGS OF NON-AFFILIATED ORGANIZATIONS

The following medical societies are listed to hold their annual conventions and congresses in connection with the exposition: Pacific Coast Oto-Ophthalmological Society, sessions June 14, 15, 16; American Society of Tropical Medicine, sessions June 14, 15, 16; American Association Medical Milk Commissions, sessions June 17, 18, 19; Pan-American Medical Congress, sessions June 17, 18, 19; American Climatological and Clinical Association, sessions June 18, 19; American College of Surgeons, session June 21; Medical Society of the State of California, session June 21; American School Hygiene Association, June 25, 26; American Academy of Medicine, June 25, 26, 27, 28.

Pan-American Congress to Meet

The seventh Pan-American Congress will meet in San Francisco, June 17, 18, 19, 21. It assembles pursuant to invitation of the President of the United States issued in accordance with an act of Congress approved March 3, 1915.

The countries and colonies embraced in the congress are the Argentine Republic, Bolivia, Brazil, Canada, Colombia, Cuba, Chile, Costa Rica, El Salvador, Ecuador, Guatemala, Honduras, Haiti, Hawaii, Mexico, Martinique, Nicaragua, Panama, Paraguay, Peru, Santo Domingo, United States, Uruguay, Venezuela, British Guiana, Dutch Guiana, French Guiana, Jamaica, Barbadoes, St. Thomas and St. Vincent. The organization of the congress is perfected in these countries and the majority of them have signified their intention to be represented by duly accredited delegates.

The congress will meet in seven sections, viz.: (1) Medicine; (2) Surgery; (3) Obstetrics and Gynecology; (4) Anatomy, Physiology, Pathology and Bacteriology; (5) Tropical Medicine and General Sanitation; (6) Laryngology, Rhinology and Otology; (7) Medical Literature.

All members of the organized medical profession of the constituent countries are eligible and are invited to become members. The membership fee is \$5 and entitles the holder to a complete set of the transactions. Advance registrations are solicited and should be sent with membership fee to the treasurer, Dr. Henry P. Newman, Timken Building, San Diego, Cal. The Palace Hotel will be headquarters.

THE COMMERCIAL EXHIBIT

Books, Instruments, Surgical Appliances, Foods, Drugs, Furniture, etc., to Be Shown at San Francisco

The Commercial Exhibit will be held on the ground floor of the Exposition Memorial Auditorium. This building occupies an entire block in San Francisco's civic center, and will house the Registration and Information bureau, postoffice, scientific exhibit and the various section meetings.

It is the aim of the American Medical Association to make the exhibits of educational value—to have demonstrated for the benefit of the profession a careful selection of the newer medical, biologic and therapeutic products and the latest instruments, books, appliances and methods. Daily visits to the Exhibit Hall will enable the A. M. A. conventionist to become informed in the shortest possible time on the latest advances in the adjuncts to his work.

The list of exhibitors this year contains names known and held in high repute by the medical profession, and the reserved,

frank attitude of the representatives in charge of the various demonstrations should encourage the visitor to feel free to examine each exhibit.

Manufacturers are delighted to cooperate with the profession, to employ new suggestions and to make them promptly available to all who care to test their merits.

By attending the demonstrations at the various booths and interchanging opinions as to the worthiness of the articles under demonstration, mutual benefit will result both to the physician and to the manufacturer.

Dr. R. E. Bering, 916 Butler Street, San Francisco, is the local chairman, and Will C. Braun, 535 North Dearborn Street, Chicago, is the superintendent of exhibits.

On the next page we give a complete list of the exhibitors and brief descriptions of many of the exhibits.

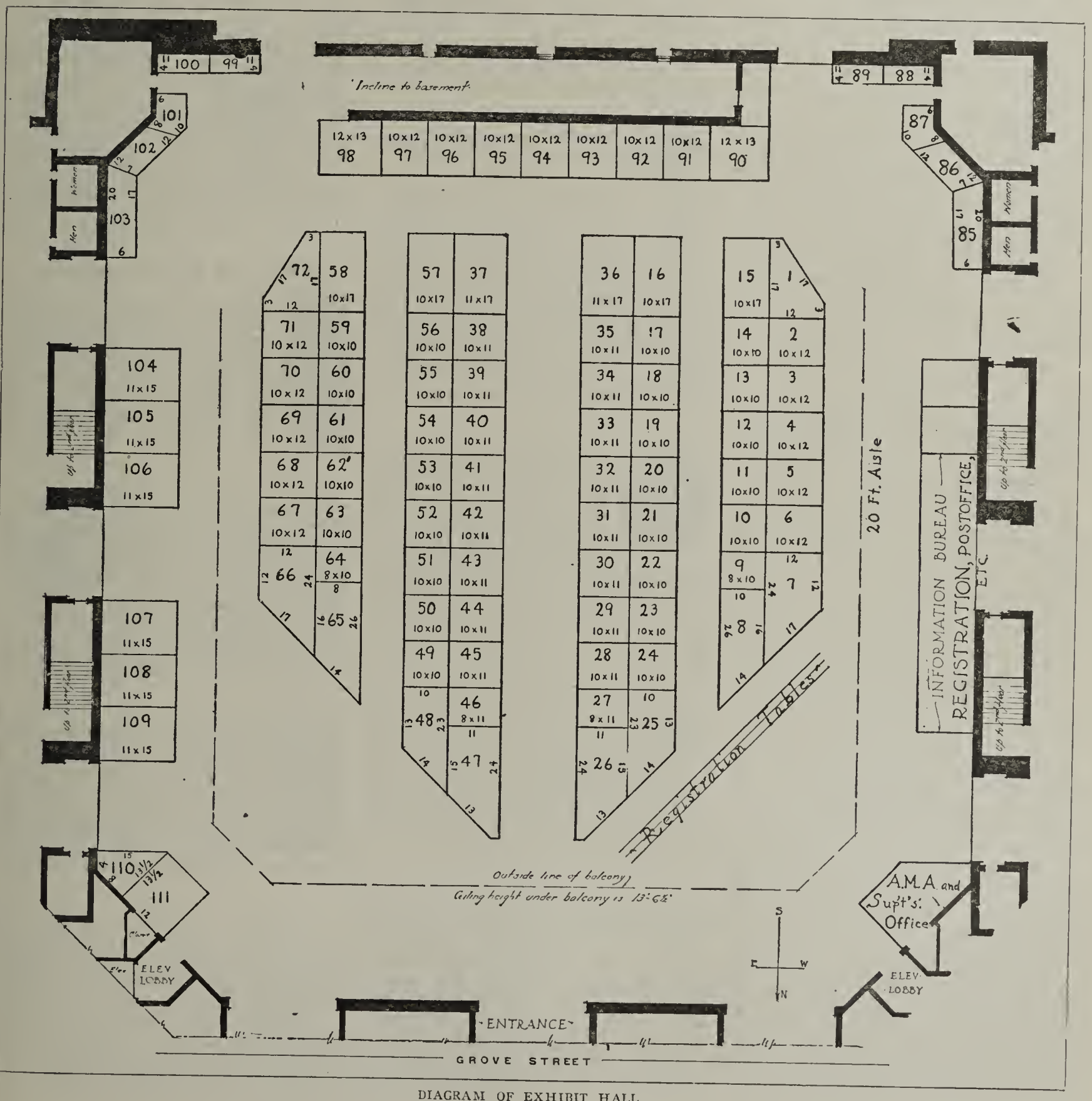


DIAGRAM OF EXHIBIT HALL

LIST of EXHIBITORS

Publishers and Books

	Space
American Medical Association.....	67
Appleton & Co., D., New York City....	4
Blakiston's Son & Co., P., Philadelphia...	47
Lea & Febiger, Philadelphia.....	7
Lippincott & Co., J. B., Philadelphia.....	12
Mosby Co., C. V., St. Louis.....	3
Rebman Company, New York City.....	25-26-27
Saunders Co., W. B., Philadelphia.....	65
Wood & Co., Wm., New York City.....	

Foods and Milk Preparations

Borden's Con. Milk Co., N. Y. City.....	66
Horlick's Malted Milk Co., Racine, Wis.110-111	
Johnson & Co., M., Jersey City, N. J....	51
Mellins Food Company, Boston.....	90-91
Uncle Sam Breakfast Food Co., Omaha...	36
Welch Grape Juice Co., Westfield, N. Y..93-94	

Clinical Laboratories

Lackenbach, Fred I., San Francisco.....	6
Pacific-Wassermann Laboratories, S. Fran.	16
Practitioner's Laboratories, Inc., S. Fran.	58

Anesthesia Apparatus

Clark & Co., A. C., Chicago.....	1
Teter Manufacturing Co., Cleveland.....	33
White Dental Mfg. Co., S. S., Philadelphia	14

Apparatus, Instruments and Furniture

Betz Co., F. S., Hammond, Ind....104-105-106	
DeVilbiss Mfg. Co., Toledo, Ohio.....	44
Leitz, Ernst, New York City.....	17
Life Saving Devices Co., Chicago.....	109
Meyer & Co., Percy J., San Francisco...34-18	
Mueller & Co., V., Chicago.....	23-24
Pilling & Son, Geo. P., Philadelphia.....	43
Jaechk Mfg. Co., Cincinnati.....	12
Scanlon-Morris Co., Madison, Wis.....21-22	
Thomas Co., F. H., Boston.....	29
Thorner Bros., New York City.....	19
Walters Surgical Co., San Francisco.....	54
Weder Mfg. Co., Philadelphia.....	46

Artificial Limbs and Supportive Appliances

Ambulatory Pneumatic Splint Mfg. Co...	86
Carnes Artificial Limb Co., Kansas City..	50
Hittenberger Co., C. H., San Francisco...	11

Electro-Medical and Diagnostic Appliances

Electro-Surg. Inst. Co., Rochester, N. Y...	5
Hanovia Chem. & Mfg. Co., Newark, N. J.	13
Meyowitz, E. B., Inc., New York City..63-64	
Physician's Spec. Co., Leesburg, Va.....	51

Radiographic Apparatus and Accessories

Brady & Co., Geo. W., Chicago.....	71
Campbell Electric Co., Lynn, Mass.....	37
Eastman Kodak Co., Rochester, N. Y....	35
Kelley-Koett Mfg. Co., Covington, Ky....	72
Macalaster-Wiggin Co., Boston.....	70
Meyer Co., Wm., Chicago.....	85
Scheidel-Western X-Ray Co., 99-100-101-102-103	
Snook-Roentgen Mfg. Co., Philadelphia...	55
Victor Electric Co., Chicago.....107-108	
Vulcan Coil Co., Los Angeles, Cal.....	98
Wappler Electric Mfg. Co., New York...42-52	

Postgraduate Institution

San Francisco Polyclinic, San Francisco..	58
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Pharmaceuticals and Biologic Products

Arlington Chemical Co., Yonkers, N. Y...	28
Cutter Laboratory, Berkeley, Cal.....	48
Fairchild Bros. & Foster, New York City.	45
Hynson, Westcott & Co., Baltimore.....	41
Lackenbach, Fred I., San Francisco.....	6
Mulford Co., H. K., Philadelphia.....39-40	
Schering & Glatz, New York City.....	38
Squibb & Sons, E. R., New York City...	8

Underwear and Surgical Corsets

Berger Bros., New Haven, Conn.....	10
Deimel Linen-Mesh Sys. Co., San Fran...	20
K. & S. Corset Co., San Francisco.....	56
Kops Brothers, New York.....	2
Linen Underwear Co., Greenwich, N. Y..	95

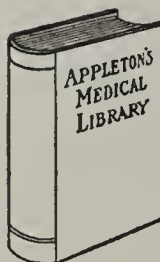
Sanitaria

Arrowhead Hot Spgs., Arrowhead, Cal...	53
Com. Club of Alb'que, Albuquerque, N. M.	31
The Oaks Sanitarium, Los Gatos, Cal....	81
Paso Robles Hot Spgs., Paso Robles, Cal..	62
Pottenger Sanat., Monrovia, Cal.....	62

Mineral Waters

Alqua Medicinal Water Co., San Francisco	68
Calso Water Co., Vallejo, Cal.....	59

Publishers and Books



D. APPLETON & Co., New York City. Space 67. The Appletons are featuring in their exhibit their latest publication, a new five-volume work, "Operative Therapeutics," edited by Alexander Bryan Johnson, as well as several distinctive books on Diseases of the Kidneys, Ureters and Bladder, Diseases of the Stomach, Borderline Diseases, Anemia and Resuscitation, Anesthesia, Occupational Diseases, Diseases of Women, Pain, etc., by such men as Drs. Howard A. Kelly, Charles G. Stockton, J. N. Hall, George W. Crile, James T. Gwathmey, W. Gilman Thompson, Charles L. Reed, Richard J. Behan and other notable physicians who are on the Appleton list.

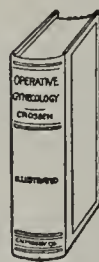
P. BLAKISTON'S SON & Co., Philadelphia. Space 4. Will have for free distribution a handsomely printed book of portraits that will interest medical men. This firm, as is well known, are leaders in the production of distinctly practical books covering every subject. Some notable works have been published during the past year, and the physician and surgeon will be well repaid for giving a careful examination to the books in the Blakiston booth, No. 4, opposite "Information Desk."



LEA & FEBIGER, Philadelphia. Space 47. Especially call attention to Progressive Medicine, published quarterly, bringing to the notice of the profession everything pertaining to Medicine that is thoroughly up to date. We also call your attention to the following new works and new editions, copies of which we will be pleased to show: Ormsby on Skin Diseases; Hare's Practice; Simon on Immunity; Aaron on Digestive Organs; Harrington's Hygiene; Ballenger on the Ear, Nose and Throat; Braun's Local Anesthesia; Park's Bacteriology; Polak's Gynecology; Lord on Lungs; Coakley on the Nose and Throat; Wiggers' Circulation of the Blood, and Wachenheim's Infant Feeding. We will publish in June the fifth and completing volume of Osler's Modern Medicine.



J. B. LIPPINCOTT COMPANY, Philadelphia. Space 7. Exhibit as usual their large and complete line of medical, pharmaceutical and nursing textbooks, and works of reference, covering the latest thought of the highest authorities on the most important subjects before the profession today. Many new monographs on "Immunology," "Simplified Infant Feeding," "Diabetes." The exhibit will be directly in front of the registration booth, conveniently arranged for quick reference, in charge of courteous and efficient attendants.



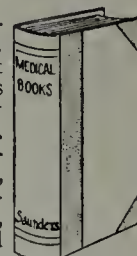
THE C. V. MOSBY COMPANY, St. Louis. Space 12. New books and new editions will be shown. The new books of greatest importance will be Crossen's "Operative Gynecology," Loeb's "Operative Surgery of the Nose, Throat and Ear," Horsley's "Blood-Vessel Surgery," Barnes on the Tonsils. New Editions shown will be Calot's "Indispensable Orthopaedics," in two volumes, Hewlett's "Manual of Bacteriology," and Buchanan's Manual of Anatomy, in three volumes.

WILLIAM WOOD & Co., New York City. Space 65. A great number of important books of most recent publication, indicating an unusually active year in medical publishing, will be displayed. A few of the most important works, from a scientific and practical viewpoint, are: The Medical Annual, 1915 (a Year Book of Treatment and Practitioner's Index); Andrew's "Abdominal Surgery"; Monsarrat's "Operative Treatment of Cancer"; Thompson's "Eye Diseases"; Ball's "Rectal Surgery"; Glendinning's "Gynecology and Obstetrics"; Perkin's "Pulmonary Diseases"; "General Medicine," by H. French, and "General Surgery," by Francis W. Goyder.



REBMAN COMPANY, New York City. Space 3. Among the interesting books to be displayed are Krause - Heymann - Ehrenfried, "Surgical Operations," Bing, "Textbook of Nervous Diseases," Krause, "Textbook of Histology," Wilson, "Student's Textbook of Hygiene," Asch, "Treatment of Gonorrhea," Lederer, "Tooth Extraction," Sheffield, "The Backward Baby," Freyberger, "Pocket Formulary," Ruttin, "The Labyrinth," Freud, "On Dreams," McNaughton-Jones, "Ambidexterity," Schlesinger, "Local Anesthesia," Leduc, "Mechanism of Life," Woodruff, "Medical Ethnology," Kingsbury Dermochromes, Taylor-McKenna, "Salvarsan Treatment."

W. B. SAUNDERS COMPANY, Philadelphia. Spaces 25, 26 and 27. This publishing house will exhibit many new books and new editions and advance sheets of a number of works in active preparation. Among other books, they will exhibit Braasch's Pyelography, Gant's Work on Diarrhea, Inflammatory and Parasitic Diseases, Kolmer's Infection, Immunity, and Specific Therapy, Prentiss' Embryology, new edition of Tousey's Medical Electricity, X-Rays and Radium, Crile and Lower's Anoci-Association, Crile on Emotions, Volume II of Cabot's Differential Diagnosis, Thomson's Clinical Medicine, Allen's Local Anesthesia, Kerley's Pediatrics, the June volume of Murphy's Clinics, the new Mayo Clinic Volume, Mallory's Pathologic Histology, new edition of Moynihan's Abdominal Operations, new edition of Anders and Boston's Medical Diagnosis, new edition of Morrow's Diagnostic and Therapeutic Technic, new edition of Church and Peterson's Nervous and Mental Diseases, and Garrison's History of Medicine.



Foods and Milk Preparations



BORDEN'S CONDENSED MILK CO., New York City. Space 66. An exhibit of their product will be given. The process of malting milk was invented by Baron Von Liebig, but he did not possess perfect machinery, and the Borden Company utilized the vacuum process of condensing without impairment of food value, which was discovered and perfected by Mr. Gail Borden, the founder of their company.

HORLICK'S MALTED MILK COMPANY, Racine, Wis. Spaces 110 and 111. Will display "Horlick's," the Original Malted Milk, together with Horlick's Food and Horlick's Diastoid. They will also serve the delicious Horlick's Malted Milk Ice Cream and Horlick's Malted Milk in solution, cold. Physicians appreciate that the name "Horlick's" insures originality, quality and uniformity, and commend it highly where a safe, palatable and easily digested food is indicated.



MEAD JOHNSON & COMPANY, Jersey City, N. J. Space 51. An exhibit of their Dextrin-Maltose (pure maltose and dextrin in about equal parts) will be made. It is a practical duplicate of the malt-sugar and dextrin preparations made in Germany, where they are largely used by pediatricists, especially those who employ the Finkelstein method of infant feeding.

The Mellin's Food Method of Milk Modification

nutrition of the normal healthy infant as well as the baby with a disturbed digestion.

MELLIN'S FOOD COMPANY, Boston. Spaces 90 and 91. Physicians seriously interested in the problems of infant feeding will be given ample opportunity to make inquiries regarding the manufacture and composition of Mellin's Food, and the application of this product in directing the

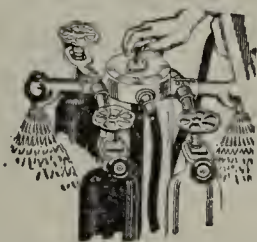
UNCLE SAM BREAKFAST FOOD COMPANY, Omaha, Neb. Space 36. A dietetic product recently introduced to physicians as an aid in the treatment of chronic constipation. Representatives of the firm will explain how their food promotes regular and gentle peristalsis, avoiding the disadvantages of continuously administering drugs. Modern suggestions for the treatment of this affection proceed on the principle of introducing natural laxatives derived from vegetables, etc., as found in their preparation. In addition to the laxative quality, the large percentage of nutritive elements present in the food will be explained.



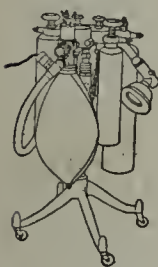
WELCH GRAPE JUICE Co., Westfield, N. Y. Spaces 93-94. The Welch Palace at the entrance to the Zone, Panama-Pacific Exposition, offers a cool haven for the convention-tired physician. Be sure to visit this handsome brick and stucco building at the commencement of the Joy Zone.

Anesthesia Apparatus

A. C. CLARK & Co., Chicago. Space 1. Will demonstrate the Clark Outfits for administering Nitrous Oxid and Oxygen for inducing Analgesia for Obstetrics and minor surgery and Anaesthesia, with and without Ether Sequence for major surgical operations. The Clark Company, which has been manufacturing N₂O Outfits for twenty years, will demonstrate the methods used in producing Painless Dentistry and the application of those methods and technique of Analgesia for Painless Childbirth or *American Twilight Sleep*.



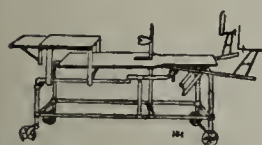
TETER MFG. Co., Cleveland, Ohio. Space 33. Their Regulated Pressure Gas Apparatus will be shown. Aside from indicating the exact amounts of gases, thereby preventing waste and assuring control in giving the amount desired, this outfit enables the operator to employ nitrous oxid-oxygen in producing positive inter-pulmonary pressure of the gases. It has many other features that make it popular with the anesthetist.



THE S. S. WHITE DENTAL MANUFACTURING COMPANY, Philadelphia. Space 14. A new Surgical Gas Apparatus will be exhibited by this House and its many sterling features demonstrated by Dr. D. F. Morrison. This new equipment provides facilities for the induction and control of anesthesia by the nonasphyxial method. It is simple, compact, strong, positive, efficient and instant in the operation of its parts.

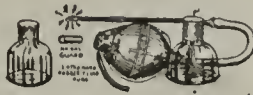
Apparatus, Instruments and Furniture

FRANK S. BETZ Co., Chicago. Spaces 104-105-106. This exhibit will consist of an unusually large display of surgical instruments, batteries, operating tables, lamps, sterilizers, high-frequency outfits and complete medical, surgical and hospital equipment. A flash coil which makes a skiagraph of the chest of the heaviest patient after very brief exposure will be an interesting feature.



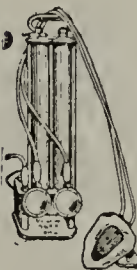
P. J. MEYER AND Co., San Francisco. Spaces 34 and 18. A complete line of the latest instruments for the general surgeon and for the eye, ear, nose and throat specialist. The Albee Electro-Operative Bone Set will be shown; the Hawley table for the suspension and immobilization of the trunk and extremities without lifting and disturbing the patient; sterilizers for the hospital and office.

DEVILBISS MANUFACTURING COMPANY, Toledo, Ohio. Space 44. A display of a full line of prescription and physicians' atomizers. Special attention will be called to a new physician's atomizer with removable spray tubes.



JAECKH MFG. Co., Cincinnati. Space 12. Improvements in compressed air and vacuum apparatus, atomizers, nebulizers, etc., will be well illustrated in this exhibit. The Jaekkh Mfg. Co. will demonstrate the new Robertson Compressed Air and Vacuum Machines in different styles, the latest being the attractive cabinet with motor and all mechanism enclosed and with all attachments and connections, including electric lighting and heating device, arranged in the most complete and convenient order.

ERNST LEITZ, U. S. Branch, New York. Space 17. Will exhibit a complete line of microscopes of interest to the practicing physician and for use in the hospital laboratory. Of special interest to the researchist will be the Leitz New Non-Objective Binocular Microscope, which sets a new era in the development of optics in the microscope. A number of new laboratory accessories also, including appliances for hematology and urinalysis; improved models in microtomes.



LIFE SAVING DEVICES Co., Chicago. Space 109. "The Lung-motor"—resuscitating device purchased by U. S. Bureau of Mines. Exhibit showing physiological tests and mechanical construction, operation and method of resuscitation from gas poisoning, electric shock, drowning, asphyxia-neonatorum collapse on operating table.

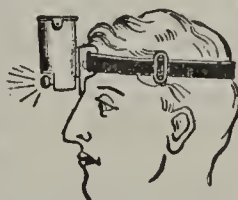
V. MUELLER & COMPANY, Chicago. Spaces 23 and 24. Visitors to this booth will be in a position to inform themselves of what is new in instruments and apparatus in their particular branch of work. A complete collection of instruments for vascular surgery will be exhibited. New electrically driven anesthesia and suction apparatus and ingenious and practical apparatus for bringing broken bones into apposition. Illuminating and operating instruments for use in every cavity of the body will be of special interest.



F. H. THOMAS Co., Boston. Space 29. Will exhibit Ligature and Suture Products, Greeley Units, as well as other New England made products.

WALTERS SURGICAL COMPANY, San Francisco. Space 54. Will exhibit their high grade sterilizers, hospital furniture and x-ray coils—in fact, everything for the equipment of office or hospital. This firm, as well as many other Western firms, has responded to the rare opportunity of being represented at the Convention and thereby coming in personal touch with the profession from all parts of the U. S.

WEDER MANUFACTURING Co., Philadelphia. Space 46. Will have their twins on exhibit, better known as "DE LYTE SURGEON" Electric Diagnostic and Illuminating Set, with head-band, Ear and Nasal Speculums, Tongue Depressor, Magnifying Glass, in Leather Case. The Simplex Surgeon is that Surgical set that you can carry in the vest pocket to meet every emergency. It has six instruments, needles and silk and two handles, in a metal tube, 1/2 by 3 1/2 inches; it is multum in parvo.

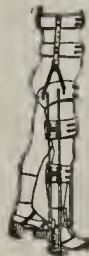


G. P. PILLING & Son Co., Philadelphia. Space 43. Will demonstrate not only the Faught Blood Pressure Apparatus, but also the Pilling Bracelet Blood Pressure Stethoscope. This stethoscope is attracting a great deal of attention, as it is claimed to be the most accurate way of taking blood pressure by the auscultatory method. This instrument consists of a Bowles Stethoscope to which an additional band has been added, fitting over the brachial artery. The whole apparatus is attached firmly to the end, thereby taking away any liability of slipping while in use.



Artificial Limbs and Supportive Appliances

AMBULATORY PNEUMATIC SPLINT MANUFACTURING Co., Chicago. Space 86. Will demonstrate the advantages of Ambulatory Pneumatic Splint for reduction, bed and walking treatment of various fractures of lower limbs, also "Ambumatic" Washable Abdominal Supporters. Also a demonstration of "Ambumatic" Flaxall Pure Linen Mesh Underwear, and of latest artificial limb, non-visible extension shoes and non-visible orthopedic appliances.



CARNES ARTIFICIAL LIMB COMPANY, Kansas City, Mo. Space 50. Will exhibit an artificial arm and hand made of steel and fiber of such ingenious mechanical construction as to enable the wearer to automatically bend the elbow, bend and turn the wrist and open and close the fingers. The demonstration will be by men wearing the arm and will consist of such feats as writing, lighting a pipe or cigar, picking up suitcases, satchels, etc.



Radiographic Apparatus and Accessories

GEO. W. BRADY & Co., Chicago. Space 71. There will be exhibited some of the work done by various x-ray operators who are using the new Paragon X-Ray Plates. These plates have met with great success since placed on the market, owing to their very fine quality, great speed and accuracy in bringing out minuteness of detail and shadow outlines. See the abdominal radiograms made under the new technique.



CAMPBELL ELECTRIC Co., Lynn, Mass. Space 37. A very interesting display of X-Ray and High Frequency Outfits to meet all requirements. They take especial pride, and justly so, in their model "Sure X," a transformer for heaviest and most rapid radiography, and intend to give the A. M. A. conventionists an opportunity to view and appreciate its merits.

EASTMAN KODAK Co., Rochester, N. Y. Space 35. Will demonstrate the "Seed" X-Ray plates for Gastro-Intestinal and Serial Stomach Examinations. These plates are becoming very popular with those who require extreme speed, with or without the use of the intensifying screen. If you are going to the Convention it will be worth while viewing this exhibit.

THE MACALASTER-WIGGIN Co., Boston. Space 70. Will exhibit a complete line of x-ray tubes and accessories. They will show some new types of water-cooled tubes for long and hard usage. They have recently brought out a new type of cathode which is of great importance to all users of x-ray tubes. Breakage will be prevented to a greater extent than heretofore, and the tubes will take a great deal more current without overheating than ever before.

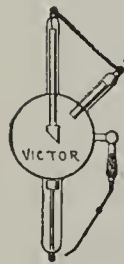


THE KELLEY-KOETT MFG. Co., Covington, Ky. Space 72. Will exhibit their very latest creations in X-Ray Transformers, Fluoroscopic Appliances, X-Ray Localizers, Automatic Plate-changers, Combination Tables, Stands, etc. Everyone interested in x-ray work should call upon Mr. Kelley and Mr. Fenn in Space 72—just to see the new things bearing that old familiar "COUPLE OF K's" trademark.



THE WM. MEYER COMPANY, 819 W. Washington Blvd., Chicago, Ill. Space 85. A new type of interrupterless x-ray machine containing several novel basic features will be shown. The radiographic work done with this new type machine and with the Meyer method by a roentgenologist without previous transformer experience is to be demonstrated. There will also be demonstrative Clinics at two Hospitals showing the operation of this interrupterless x-ray machine and the Meyer Combined Vertical and Horizontal Radioscope. Free tickets on application at their space.

SCHEIDEL-WESTERN X-RAY COIL COMPANY, Chicago. Spaces 99, 100, 101, 102, 103. Whether you are an x-ray operator or not, this exhibit will prove particularly interesting. Demonstrations will be given daily of the latest apparatus for roentgenoscopic examinations. There will also be shown a new interrupterless transformer which is said to be the first machine of this type where both the voltage and amperage will be under absolute control at all times.



VICTOR ELECTRIC Co., Chicago. Spaces 107 and 108. Will have on display what is now conceded to be one of the most complete lines of modern Roentgen apparatus and accessories on the market. Be sure and see the Victor Interrupterless Transformer—the one with "the x-ray punch;" also the new Victor-Bergonie apparatus for treating Obesity, Rheumatism, Diabetes, etc., and a number of other new electro-medical appliances which will be exhibited for the first time.

WAPPLER ELECTRIC MFG. Co., New York City. Spaces 42 and 52. The Wappler booth has always been a Mecca for those interested in real new scientific instruments and advice regarding x-ray or general therapeutic apparatus. A particularly fine line of the characteristic product will be displayed, and we will take the occasion to thank our patrons for their past favors and cooperation.



VULCAN COIL COMPANY, Los Angeles, Cal. Space 98. An exhibit mainly of portable X-Ray and High Frequency treatment apparatus, but there will also be shown some samples of their larger treatment apparatus in cabinet form delivering all known modalities in high frequency, including D'Arsonval, Diathermy, Fulguration, Desiccation without Carbonization, Morton Wave, etc.

Electro-Medical and Diagnostic Appliances

E. B. MEYROWITZ, INC., New York City. Spaces 63 and 64. A very complete line of Ophthalmological Apparatus and Eye, Ear, Nose and Throat Instruments is to be exhibited. One of the important instruments, interesting to general practitioners as well as specialists, is the Marple Electrically Lighted Ophthalmoscope, by means of which any one can make an examination of the fundus of the eye for general diagnosis after a very brief experience. This instrument can be had if desired with an Auriscope and Retinoscope Attachment, making a complete instrumentarium for the eye and ear. Other prominent features were Illuminating Apparatus in great variety, the new Hare Perimeter and a special form of incandescent lamp, pronounced a very important achievement.

ELECTRO-SURGICAL INSTRUMENT COMPANY, Rochester, N. Y. Space 5. Will exhibit and demonstrate, opposite the registration booth, complete line of electrically lighted diagnostic and surgical instruments for the general practitioner as well as the specialist. The instruments are now equipped with lamps with drawn tungsten filaments which give maximum illumination, while their temperature remains practically the same as that of the tissues under examination.



PHYSICIANS SPECIALTY Co., Leesburg, Va. Space 51. The Thompson & Plaster Electrical Cabinet for office practice; a highly specialized and efficient machine quality; capable of performing operations embracing the use of Compressed Air (tankless), Nebulizing, Electric Heating for fluids and air, Vibrator for Surface and Cavity Work, Bier's Hyperemia by Vacuum, D'Arsonval Current under Perfect Control, High Frequency Currents, Cautery Transformer, Diagnostic Light Controller, X-Ray, etc.

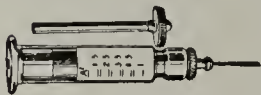
Pharmaceuticals and Biologic Products

CUTTER LABORATORY, Berkeley, Cal. Space 48. An interesting display of high grade biological preparations. They are anxious to prove to the conventionists from the East, West, North and South the high quality of their products and to explain to them the features of their service.

FAIRCHILD BROS. & FOSTER, New York City. Space 45. Exhibit products with which the name Fairchild has been so long associated, original entire gastric gland and pancreas gland extracts, with the newer products in the progress of the applied science to which they devote their attention. Pepton, Fairchild, for bacteriologic purposes, Fairchild Culture Pepton for the convenient preparation of complete culture medium, The Fairchild Culture of the *Bacillus Bulgaricus* are of special interest.



THE HYNSON, WESTCOTT AND COMPANY, Baltimore. Space 41. This laboratory has produced some very unique and interesting products during the last five years, which it will attractively exhibit. Besides the specialties, Bulgara, Lutein and Glycotauro, it will exhibit new diagnostic appliance and agents, such as Keidel Bleeding Tubes, Blood Culture Bleeding Tubes, Colorimeters, Phenolsulphonephthalein, Phenoltetrachlorophthalein, Urease-Dunning. Demonstrations will be made of the Massol-Grigoroff milk curdling organism, *B. lactis bulgaricus*.



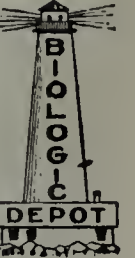
H. K. MULFORD COMPANY, Philadelphia. Space 39-40. A scientific exhibit of bacterins, serums, sero-bacterins and vaccines. Showing methods of production with working bulletins compiled from the latest information on the special subjects treated. This is not only designed to be an interesting but an instructive scientific exhibit to aid every practitioner.

SCHERING & GLATZ, New York City. Space 38. Will as in former years show a display of their leading synthetic therapeutic agents, arranged in such a manner as to demonstrate the progress made, and the prominent place occupied, in this field by the various manufacturers represented by the firm.



E. R. SQUIBB & SONS, New York. Space 8. Will exhibit a representative collection of their high-quality products, comprising U. S. P. and N. F. Chemicals and Pharmaceuticals and Medicinal Tablets; also Impurities removed from some products after they have reached the U. S. P. requirements, to bring them up to the Squibb standard. Samples of a few preparations will be at the disposal of physicians.

FRED I. LACKENBACH, San Francisco. Space 6. Will feature the biologic products included in New and Nonofficial Remedies—serums and antitoxins, bacterial vaccines, serobacterins, tuberculins and viruses, and the various diagnostic reagents. Technic of preparation will be described; containers and methods of employment demonstrated, and products displayed in finished packages. Preservation of such products under proper temperature and storage conditions will be suitably demonstrated.



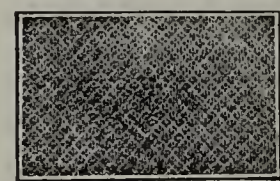
Underwear and Surgical Corsets

BERGER BROTHERS, New Haven, Conn. Space 10. Spencer Abdominal Supporting Corsets, the new Sacro-Iliac Support, Maternity Supporting Corset and other interesting Supports will be shown. Demonstrators will explain the Spencer method of designing each Support especially to meet the needs of the individual patient without extra charge.

DEIMEL LINEN-MESH SYSTEM COMPANY, San Francisco, Cal. Space 20. The exhibit of the Dr. Deimel Linen-Mesh Underwear is celebrating its 21st Anniversary, having made its first appearance at the Annual Session held in Baltimore, May, 1895. Visitors are cordially invited to inspect the Dr. Deimel Garments, which are made for men, women and children in all sizes and styles.

K AND S CORSET Co., San Francisco, Cal. Space 56. There will be demonstrations showing their methods of fitting corsets by correct anatomical, physiological and scientific measurements. It will be explained how to judge as to the efficiency of an appliance for proper surgical support, with special attention to the adjustment of their corsets for maternity cases, abdominal ptoses and postoperative retention.

KOPS BROS., New York. Space 2. A new "anti-ptosis" corset, having as a special feature their newly invented "Wonderlift" Bandage, made completely adjustable by a novel interior lacing device. The Bandage is semielastic; it fits closely the groin section, giving complete visceral support from underneath. This ingenious device closely simulates the obliquus externus and internus and the recti muscles, and even Poupart's ligament.



THE LINEN UNDERWEAR COMPANY, Greenwich, N. Y. Space 95. Will show samples of Flaxal Linen Mesh Underwear. This garment is made of pure linen knitted cloth designed for the express purpose of proper hygienic and comfortable underwear of exclusive character. It is made in three weights and in all the different style shirts, drawers and union suits.

Sanitariums

OAKS SANITARIUM, Los Gatos, Cal. Space 81. Some interesting pictures will be shown and much valuable information given visiting physicians regarding their cottage plan of treatment. This Sanitarium is situated in the foothills of the Santa Cruz Mountains, with climate and surroundings ideal for the care and treatment of tubercular patients.

POTTENGER SANITARIUM, Monrovia, Cal. Space 62. Will exhibit and explain the advantages of their institution for the scientific care and treatment of diseases of the lungs and throat. This Sanitarium is run on the cottage plan, and is already quite well known to the medical profession. It will pay any physician to get an accurate idea of the accommodations and high character of this institution.

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ANALYSIS AND COST OF READY-TO-SERVE FOODS

AN INTRODUCTION BY

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NEW YORK

Very early in his scientific career, in the year 1877, Atwater turned his attention to the question of the nutrition of the people. The many valuable bulletins published by the United States Department of Agriculture testify to much splendid study into the problems of food for the multitude. And yet little practical use has come of it all. Why then talk about nutrition? A critic writes, "We need food, but do we need books to remind us of our need? And as an unanswerable challenge another critic cries, "Does Professor X eat his own diet?" It is truly stated that normal nutrition is associated with appetite, and it is therefore argued that the appetite is not to be controlled by knowledge. One has only to recall the appetite for drink to realize the utter fallacy of this argument. A glass of beer or a glass of wine taken at the end of a wearisome day is not of demonstrable evil and may be of benefit to the digestion. Yet to follow the appetite when it leads to drink in excess is of injury to the body, the mind and the economic welfare of the individual and therefore inimical to the welfare of the state.

But why repeat such self-evident truths? Has not enough been said? Are not words wasted in repetition of the obvious? In defense one may recall a scene at the New York Academy of Medicine in which Sir William Osler maintained that the essence of successful teaching consisted in "Reiteration, reiteration, reiteration." One of the audience present qualified this definition by adding the words, "without irritation." If successful teaching be accepted as "reiteration without irritation," let the following presentation be an attempt in that direction.

Food has been defined as a well-tasting mixture of foodstuffs of such a composition that the body is not injured by its use, and of sufficient quantity to maintain the body in good condition.

One may consider this definition under three headings.

1. Value of flavor.
2. Importance of composition.
3. Importance of quantity.

* This is the introductory to a report of an investigation of the ready-to-serve foods in the Childs restaurants of New York, by F. C. Gephart, Chemist of the Russell Sage Institute of Pathology, in affiliation with the Second Medical Division of Bellevue Hospital. The complete report, in book form, with Professor Lusk's introduction, may be obtained of the American Medical Association, price, ten cents; postage two cents extra.

VALUE OF FLAVOR

It is known to all that the sight of appetizing food "makes the mouth water." It is known, however, to comparatively few that the sight of such food "makes the stomach water" in the same sense. That is to say, a flow of gastric juice is set up in the stomach. This flow is accelerated by the actual taste of the food, so that a large amount of valuable digestive fluid is set to flowing merely through the psychic appreciation of flavor. When food is taken without appetite, this important preliminary flow of gastric juice does not take place and proper digestion is rendered more difficult. Not only this, but the glands lying deeper down in the intestines yield their digestive juices in larger measure, the greater the quantity of gastric juice which passes from the stomach into the intestine. The appetite is like a magic wand influencing the whole of the digestive process. Fear and anger lead to a parched throat, and in an entirely similar manner to a parched stomach, so that food cannot be well digested under these circumstances. It is familiar to all that the sight, smell or sound of anything repellant will cause loss of appetite. The writer has seen an artist faint when an operation of Dr. Carrel became the subject of a dinner conversation where men and women were present. The appetite is favored by the extraneous refinements of civilized life, such as a spotless table cloth. It would also be affected by the cleanliness of the preparation of the food could one always look behind the scenes. It is affected by the atmosphere of cheer at the table. Neither scolding parents nor snarling children facilitate the digestion of the Christmas dinner.

The question of flavor in all its ramifications is therefore a very important one. It is one of the pitfalls of the prescribing physician, because he is very likely to believe that what he likes is excellent and what he detests is bad. The great multitude of people like pickles, but some do not; the latter class must not argue that pickles are therefore injurious. The common foods of life, such as potatoes, tomatoes, and bananas, all have their personal enemies based on dietetic prejudices which are largely imaginary, although as a psychosis the manifestations of repulsion are very real.

IMPORTANCE OF COMPOSITION

A celebrated school mistress once asked that a book be written which would tell her what apple sauce was without introducing the terms protein, carbohydrate and fat. Alas, that is impossible. It would be like teaching architecture without mentioning brick, granite and marble!

But the knowledge is not recondite. Protein is the characteristic solid constituent of muscle. The protein framework is essential for the manifestation of

those properties whose aggregate is called life. And besides this, water and salts enter into the organization of the living particles. These salts are as varied as are those of the sea water and they are essential to living things. In vertebrates, salts are further used to build the larger framework of the bones. When various molecules of protein are united in a certain definite order with water and salts, life is possible. If the definite order is disturbed, death results. Life depends on the arrangement of the particles. One recalls the story of the Yankee who, during the winter months, sold a "sure cure for potato bugs" with the caution "not to be opened till wanted for use" and with the promise of instructions for use inside the package. In the summer time, on opening the package the farmer found two small cubes with the directions "place the potato bug on one cube and press firmly with the other." Death not only takes place through such disarrangement of the particles, but also it may follow on the influence of a poison which prevents the proper functioning of the living thing.

A peculiarity of living tissue is that a part of its protein is constantly being broken down and replaced by repairing material. It is as if structural units were constantly being dissolved out of a building and automatically replaced by new ones. In the human body about two and one-half parts out of a thousand of its protein are thus daily renewed. It is as if one structural unit out of every four hundred in a building were replaced with a new one every day. For this reason one must eat protein. This is repair protein to replace that lost in the wear and tear on the machinery of the cells.

Protein is the essential constituent of all meats, fish and eggs; it is a large constituent of milk, and mixed with fat is the essential constituent of cheese. Protein is not a simple chemical substance, but it may be broken into seventeen different fragments. This is what happens when protein is digested in the stomach and intestines. These fragments are absorbed by the circulating blood and when they are carried to the different tissues the fragments are put together in a manner which is characteristic for each tissue. Suppose each structural unit in a building were made up of seventeen parts, all of them different, such as gold, silver, iron, lead, tin and so on, and when one of these larger structural units went into the scrap heap suppose there were always present a supply of all the several varieties of new parts necessary to build another like it; then one has an analogy of what happens. One might imagine that these seventeen different units might be arranged in different ways, depending on the use to which the particular structural unit was put. In like manner, it comes to pass that the protein of milk is split into fragments in the baby's stomach and these various fragments are absorbed by the blood and are carried by this medium to the different organs of the baby's body, there to build up the structure of each particular organ after its own particular way. The seventeen different chemical units known to occur in protein may be joined together in different ways so that 350 million times a million different combinations are possible even though only a single representative of each unit is used (Abderhalden). In this they resemble the multiplicity of combinations possible with the letters of the alphabet. On account of this it is possible to build liver protein or muscle protein out of milk protein. In the muscles of fish and in the white of egg there are again other

variations in the order of those letters of the protein alphabet, and therefore, these proteins are distinctive. These proteins contain all the seventeen units and are therefore capable of repairing any tissue. It has been suggested that such proteins be called proteins of Grade A.

Proteins are also found in all vegetable foods. The vegetables contain some complete proteins, that is, those which have the full array of seventeen individual units, but they also contain some incomplete proteins, that is, those which are deficient in one or more of the characteristic units which are necessary to build up animal protein. These incomplete proteins have little or no value in nutrition. Thus it comes about that it requires a much larger quantity of vegetable proteins (which include complete and deficient proteins) to maintain the machinery of the body in repair, than when animal protein is given in the form of meat, eggs, fish, milk or cheese.

It must be remembered, however, that when a person is engaged in active labor or excessive exercise he may be able to obtain a very liberal supply of proteins of the higher grade in the large quantity of vegetable foods of which he partakes. This gives a scientific explanation to the saying which has become proverbial, "the railways of the country have been built on beans."

Attention is called to the generally overlooked value of milk protein.

There is no danger of protein undernutrition in this country. The general trend is toward protein extravagance, that is, its ingestion and destruction in excess of the needs of repairing the tissues. This is due to the fact that to most normal men a beefsteak represents the choicest of good things. Here appetite triumphs over reason and economy. If one listens attentively one hears again a rumbling note, "Would Professor X eat his own diet?"

Yet the matter of enormous meat consumption is one of serious economic importance which is not to be lightly tossed aside. The following table prepared by Rubner indicates the quantity of meat consumed per head of population (adults and children) in the various nations of Europe and also the increase in the consumption of meat in Germany during the last hundred years.

TABLE 1.—RUBNER'S TABLE OF MEAT CONSUMPTION IN EUROPE

	Present Consumption of Meat Per Capita Per Year, Pounds	Consumption of Meat in Germany in Different Years	
		Date	Pounds
Germany.....	115	1912	115
England.....	105	1900	102
France.....	74		
Belgium and Holland.....	75	1892	72
Austria-Hungary.....	64	1873	65
Russia.....	59	1840	48
Italy.....	23	1816	30

There is little doubt that excessive consumption of meat constitutes a grave and unnecessary economic waste. The increased cost of food falls most heavily on this item of indulgence and its ever-increasing price follows as much the law of supply and demand as does the price of champagne, and, for the same reason, the price of flavor for those who have the price. It is part of the spirit that demands the motor car, the luxuries of life as well as its necessities.

As regards the utility of carbohydrate and fat in the food, one may especially attribute to them a value as fuel. They are oxidized in the body and keep the body warm and when work is accomplished they furnish the energy with which to perform it.

The carbohydrates consist in sugars and starches. The latter are convertible into sugars in intestinal digestion. One can speak of cornstarch as equivalent to the sugar into which it is convertible. Cane sugar has essentially the same value in nutrition as starch. The two belong to the same group and yet are not identical, and so the layman must learn the cumbersome term carbohydrate as the common name for the physiologically identical sugars and starches.

The great staple starchy foods include rice, potatoes, bread, beans, macaroni and corn. These are the cheapest food fuels. They all contain protein but their principal constituent is starch, which when converted into sugar is as much a fuel for the body as gasoline is for the automobile.

Fat is taken in the food with most meats. It is largely consumed as lard and also as butter. Nuts contain 50 per cent. of their weight as fat. The fats are a far more costly fuel than the carbohydrates, although they serve a similar purpose in nutrition. The advantage of taking a diet which includes a mixture of carbohydrates and fats lies in the fact that the intestine is not called to excessive effort in caring for the digestion and absorption of a large quantity of a single food material, and that equivalent amounts of fat are less bulky than carbohydrates. The disadvantages of a large use of fat are, first, its original cost, and, second, the fact that its ingestion diminishes the intake of vegetables and hence the amount of cheap vegetable proteins, thereby making fat indirectly a still more expensive food.

There are important accessory factors to be discussed concerning food. These are the fibrous roughage of cellulose, the salts of the diet and the so-called vitamins.

Sylvester Graham used unbolted wheat flour with which to make Graham bread. The cellulose here produces a freer movement of the bowels. Of similar import is the use of spinach, cauliflower, lettuce, cabbage, asparagus and tomatoes. These substances have almost no fuel value, but they can be prepared to serve with large quantities of fats or oils, and they furthermore give flavor and variety to the fare of the table.

The salts of the food are extremely important. Thus, if calcium be withheld from the diet of experimental animals the bones become porous and finally break. Such conditions are not found in human life, for the foods ingested always contain sufficient salts to replace those lost from the body. It has been found that when meats are oxidized they yield an acid ash, whereas vegetables usually yield an alkaline ash. It has been recently shown by Blatherwick that of all vegetables potatoes yield the greatest amount of alkaline ash for the use of the body, and that this alkali is most effective in dissolving and eliminating uric acid from the system. In the light of this, potatoes are highly desirable, not only in health, but also in the gouty condition. Yet one of the dietetic fads of the day is to eliminate potatoes from the bill of fare, a really absurd practice, always excepting the cases of those individuals who manifest personal repugnance to potatoes.

Finally, there is a class of substances which exists in minute quantities in some foods and little or not at all in others. This class is called that of the vitamins. Thus, individuals who live almost exclusively on polished rice acquire the disease of beriberi, and a similar monotonous diet of bread develops scurvy. A diet of bread and water does not maintain the strength of the organism and has been used as a disciplinary method. Minute quantities of vitamins are found, for example, in meat, in butter and in unpolished rice, but they are absent or deficient in polished rice, bread and lard. The vitamins are absolutely necessary for the proper harmonious maintenance and growth of the body. This statement should cause no alarm. There is no beriberi in the United States, for here rice does not ever form the dietary mainstay of the individual. There is practically no scurvy, although it has been known to occur in almshouses, where motives either of economy or graft have deprived the inmates of suitable food.

Summarizing, one can state that in the United States there is no protein, or salt or vitamin deficiency in the habitual diet, and there is plenty of roughage in the form of cabbage, sauerkraut or other vegetable foods available to him who desires it.

THE QUANTITY OF FOOD

Generally speaking, the mass of food ingested serves two functions, the protein is of use in the maintenance and repair of the cell machinery, and the carbohydrate and fat furnish fuel to this machinery that the motions of life may continue. Protein given in excess also serves the purpose of fuel, as do carbohydrates and fat. In the oxidative destruction of these materials in the body heat is liberated. When 1 gram of fat is burned sufficient heat is produced to raise the temperature of 1 liter of water 9.3° C. (= 16.5° F.). Since the unit of heat measurement or the *calory* is that quantity of heat required to raise 1 liter of water 1° C., it follows that 9.3 calories of heat are set free whenever 1 gram of fat is oxidized. The heat liberated in the body when 1 gram of fat is oxidized is exactly the same as when it burns outside the body. The similar value for starch is 4.1 calories per gram. In the case of protein, 4.1 calories are liberated whenever a gram of this material is oxidized within the organism. When, therefore, protein is consumed in excess, the excess has no greater fuel value than an equal weight of starch. Here then are the fuel resources which keep the body warm, maintain the heart and respiration, and the activity of the other organs, and enable the muscles to perform work. Since every machine requires more fuel when it is active than when it is at rest, it follows that the greater the activity of the body the greater will be the requirement for fuel.

The figures in Table 2 may be accepted as estimates of the fuel requirement of a man weighing 156 pounds (70 kilograms) during a twenty-four-hour period:¹

TABLE 2.—DAILY CALORIC REQUIREMENTS OF 156 POUND (70 K.) MAN

	Calories
Absolute rest in bed without food	1,680
Absolute rest in bed with food	1,840
Rest in bed 8 hours, sitting in a chair 16 hours, with food.....	2,168
Rest in bed 8 hours, sitting in a chair 14 hours, walking two hours, with food	2,488
Rest in bed 8 hours, sitting in a chair 14 hours, vigorous exercise 2 hours, with food	2,982

1. Lusk: The Fundamental Basis of Nutrition, Yale University Press, 1914.

It appears from this that that great class of human beings whose business it is to sit at their desks or to watch machinery, and who may walk to and from their work, require 2,500 calories. In their class are included writers, draughtsmen, tailors, physicians and other professional men, clerks, accountants, etc. Mental effort is accomplished without any increase in the quantity of energy required.

Individuals who stand at their work, such as bakers, dentists, car conductors, decorators and glass workers, require about 3,000 calories. If muscular labor be constant, more is required. Thus carpenters making tables and painters painting furniture require 3,300 calories. Farmers require 3,500 calories, stone masons 4,500, lumbermen 5,000 and over, and a man riding in a bicycle race during twenty-three hours requires 10,000 calories a day.

These are facts which at the present time are scarcely open to dispute. The sorrowful part of it is that outside a narrow circle they are practically unknown. Physicians sometimes starve their patients and the babies entrusted to their care, in blissful and childlike ignorance of what they are doing. The poor, 50 to 60 per cent. of whose income is spent for food, waste their money in the purchase of beautiful labels or relatively expensive and unnutritious foods. A publisher employing several thousand individuals says that his employees buy from choice the products advertised in his magazines. Children of the poor are sent to buy food for the family and the whole expenditure of half the family's income is effected in an atmosphere of unfathomable ignorance. Yet if one seeks to help, one is informed that one must not meddle with the appetites, and the funny man of the newspaper makes a witticism on the subject of "highbrow" information.

In spite of the inevitable attitude of the humorous editor, it is well to remember the severity of the winter's cold, the lack of employment, the suffering of the poor, which create a situation very far from humorous.

How can relief be given? One suggestion is to sell 1,000 calories of food in a well-balanced ration as cheaply as possible. Beans are cheap. But you don't like beans. Does Professor X eat his own diet? If beans are not acceptable, then how about macaroni and spaghetti? The meal shown in Table 3 is made up of 1,000 calories and contains 16 per cent. of those calories in protein, one-sixth of the protein being in the form of animal proteins of Grade A, and the rest being in vegetable proteins. The remaining 84 per cent. of the calories are nearly equally divided between carbohydrate and fat.

TABLE 3.—COMPOSITION OF A RATION CONTAINING 1,000 CALORIES

	Ounces	Calories
Cooked beans.....	7¾	400
Pork.....	1	234
Bread.....	2¾	180
Butter.....	½	103
Milk.....	5	100
Coffee.....	5	...
Total.....		1,017

The actual cost price of this meal of hot pork and beans, bread and butter and a cup of hot coffee and milk is 4¼ cents, excluding labor and rent, but including the coal used. The 2,500 calories required to maintain a man out of work on this diet would cost

TABLE 4.—THE COST OF 2,500 CALORIES IN FOODS
ARRANGED IN ORDER OF THEIR INCREASING PRICE

Note that when three portions furnish 2,500 calories, one portion affords a good meal. When nine portions furnish 2,500 calories, then three different portions should form the meal.

Name of Food	Nutritional Calories for Five Cents	Per Cent. in Bread and Butter	Cost of 2,500 Calories	No. of Orders to Make 2,500 Cal.
Napoleon	453.6	....	\$0.28	6
Crullers	444.0	....	.28	6
Cabinet pudding and vanilla sauce...	399.5	....	.31	6
Cocoanut pie	372.9	....	.34	7
*A—Roast beef sandwich with roll.....	357.8	....	.35	7
Bath buns	357.5	....	.35	7
Bread custard pudding.....	355.4	....	.35	7
Pineapple pie	347.4	....	.36	7
Corn muffins	342.2	....	.37	7
Apple pie	337.2	....	.37	7
New England pudding with vanilla sauce	330.7	....	.38	8
Chocolate spiced cakes.....	324.0	....	.39	8
Walnut layer cake with marshmal- low leing	323.2	....	.39	8
Milk crackers	317.1	....	.39	8
Bread pudding with vanilla sauce...	293.4	....	.42	8
Pumpkin pie	296.1	....	.42	8
A—Lamb croquettes and mashed pota- toes	291.4	29.5	.43	3
Coffee cake	290.2	....	.43	9
Rhubarb pie	286.8	....	.44	9
A—German meat cakes and French fried potatoes	284.5	27.2	.44	3
Old fashioned molasses cake.....	281.9	....	.44	9
Lemon pie	279.7	....	.45	9
*A—Vienna roast with French fried po- tatoes	278.3	29.7	.45	3
Butter cakes.....	278.0	....	.45	9
Minceed ham sandwich.....	277.3	63.8	.45	9
Pork and Boston beans.....	276.6	27.1	.45	3
Cornmeal cakes with maple cane syrup	275.2	....	.45	5
A—Ham croquettes	263.1	32.7	.47	5
Cold rice pudding.....	263.1	....	.47	9
Ham sandwich with roll.....	261.8	....	.48	10
Banana layer cake.....	253.4	....	.49	10
*A—Creamed chipped beef on toast.....	249.2	....	.50	3
Cocoa	247.5	....	.50	10
*A—Roast beef outlet with tomato sauce	246.5	38.4	.51	3
*A—German meat cakes with lyonnaise potatoes	246.4	....	.51	3
*A—Swiss cheese sandwich.....	244.0	59.6	.51	10
* —Boston baked beans.....	240.3	34.2	.52	5
A—Vienna roast, spaghetti and pota- toes	236.3	34.0	.53	4
Chocolate cornstarch with cream....	231.6	....	.54	11
Wheat cakes with maple cane syrup	231.1	....	.54	5
Milk crackers and milk.....	230.5	....	.54	5
*A—American cheese sandwich.....	230.2	....	.54	11
* —New York baked beans.....	229.7	35.5	.54	5
Hot corn bread.....	228.6	....	.55	6
*A—Country sausage	227.7	....	.55	11
Indian pudding with maple sauce...	227.2	....	.55	11
*A—Minceed tongue sandwich with tea biscuits	225.6	....	.55	11
Cream roll	225.1	....	.55	11
A—Beef cakes with brown gravy and macaroni	224.8	35.1	.56	4
* —New York beans, on the side	223.4	....	.56	11
Graham crackers	223.3	....	.56	11
A—Broiled ham	223.1	....	.56	3
A—Roast beef hash, browned.....	222.1	36.9	.56	4
Oyster pie	220.4	....	.57	4
*A—Minceed chicken sandwich.....	220.3	73.0	.57	11
Apple tapioca pudding.....	217.2	....	.57	11
Potato salad	217.0	38.4	.58	6
Chocolate layer cake.....	212.4	....	.59	12
*A—Breaded veal outlet and tomato sauce	211.9	33.0	.59	3
Egg plant fried in butter.....	208.7	....	.60	4
Buckwheat cakes with maple cane syrup	208.3	....	.60	6
A—Roast beef croquettes with macaroni	208.3	34.3	.60	4
A—Fried bacon with French fried pota- toes	208.1	....	.60	3
A—Sardine sandwich	207.4	....	.60	12
*A—Minceed ham sandwich with olives...	206.8	....	.60	12
*A—Ham and New York beans.....	206.6	40.2	.61	4
Vanilla cornstarch with cream.....	206.5	....	.61	12
*A—Roast beef outlet and mashed pota- toes	205.7	38.3	.61	4
A—Lamb outlet and mashed potatoes..	205.4	36.9	.61	4
Cocoanut cake	204.6	....	.61	12
Cream cheese walnut sandwich.....	201.5	....	.62	12
* —New York baked beans with tomato sauce	201.5	34.8	.62	6
A—Ham and Boston beans	201.3	44.6	.62	4
A—Liver and onions with French fried potatoes	200.1	....	.62	3
*A—Beef stew	199.8	35.3	.63	4
*A—Pork and New York beans.....	198.7	38.5	.63	4
*A—Ham sandwich	198.3	73.2	.63	13
Rlee croquette with bacon.....	196.2	43.4	.64	4
Baked apple with cream.....	196.0	....	.64	6

* Contains 15 per cent. or over of heat in protein. A contains the protein of meat, milk, eggs or cheese.

TABLE 4.—Continued

Name of Food	Nutritional Calories for Five Cents	Per Cent. in Bread and Butter	Cost of 2,500 Calories	No. of Orders to Make 2,500 Cal.
A—Frankfurters and potato salad.....	195.9	42.5	\$.04	4
* —Baked beans with macaroni.....	195.8	....	.64	4
Cup of coffee (containing cream and sugar)	195.2	....	.64	13
A—Mince pie	194.1	....	.64	6
*A—Lamb stew	193.6	39.6	.65	4
*A—Broiled salt mackerel with mashed potatoes	192.2	44.1	.65	3
Cherry pie	191.5	....	.65	7
Pound cake	191.5	....	.65	7
A—Chicken cutlet and mashed potatoes	191.2	57.6	.65	4
*A—Shredded wheat and milk.....	190.8	....	.66	7
Cream tapioca pudding.....	189.6	....	.66	13
Soda crackers and milk.....	188.6	....	.66	7
Strawberry pie	188.0	....	.66	7
Chocolateclair	188.0	....	.67	13
*A—Baked lamb pie (individual).....	187.7	46.6	.67	4
*A—Corned beef sandwich.....	186.0	79.1	.67	13
A—Broiled bacon	185.3	34.3	.67	3
Rice cakes with maple cane syrup...	185.6	....	.67	4
A—Cold ham	183.5	39.6	.68	5
A—Roast beef croquettes and spaghetti	183.0	....	.68	5
*A—Chipped beef and scrambled egg....	182.7	36.4	.68	3
A—Minced ham with scrambled eggs....	181.9	35.5	.69	3
Peach pie	181.8	....	.69	7
A—Baked macaroni and cheese.....	181.6	40.5	.69	7
Huckleberry pie	179.7	....	.70	7
French toast with maple cane syrup	179.2	....	.70	4
*A—Corned beef and New York beans...	179.1	....	.70	5
Blackberry pie	177.9	....	.70	7
*A—Veal pot pie with dumplings.....	174.9	47.9	.71	5
*A—Creamed codfish on toast.....	174.7	46.3	.72	5
A—Vienna roast with stewed tomatoes	174.7	31.3	.72	5
*A—Tomato omelet	174.4	55.3	.72	4
A—Small oyster fry.....	174.2	36.6	.72	4
Hot rice with cream.....	173.3	....	.72	5
A—Plain oyster fry with bacon.....	171.8	32.0	.73	4
*A—Hamburger steak	170.5	29.9	.73	4
A—Corned beef hash, browned in pan..	170.3	46.1	.73	5
A—Corned beef hash, steamed.....	169.3	55.8	.74	5
Cream	168.7	....	.74	5
*A—Chicken wings on toast.....	168.2	38.2	.74	4
A—Country sausage and French fried potatoes	167.2	....	.75	5
*A—Corned beef and Boston beans.....	166.7	48.6	.75	5
*A—Two fried eggs.....	166.0	53.1	.75	5
*A—Ham omelet	165.6	35.5	.75	4
*A—Plain omelet	165.5	47.2	.75	5
*A—Fried liver and mashed potatoes....	164.8	51.7	.76	5
*A—Creamed chipped beef.....	163.7	51.7	.76	5
A—Large oyster fry.....	161.8	35.1	.77	3
Apple fritters with fruit sauce.....	161.7	....	.77	8
A—Fish cakes with tomato sauce.....	161.2	54.4	.78	5
French fried potatoes, extra order...	160.4	....	.78	8
Chocolate cornstarch with whipped cream	159.6	....	.78	16
Shredded wheat and cream.....	159.5	....	.78	6
A—Chicken croquette and French fried potatoes	159.3	....	.78	5
*A—Corned beef hash with poached egg	158.9	35.5	.79	4
*A—Ham and eggs.....	158.3	29.8	.79	3
A—Ham and potato salad.....	158.1	31.1	.79	4
*A—Baked shad and dressing.....	157.7	....	.79	4
*A—Hamburger steak with Spanish sauce	157.4	33.7	.79	4
Charlotte russe	156.5	....	.80	16
*A—Creamed eggs on toast.....	155.6	37.6	.80	4
A—Bacon and eggs.....	155.3	29.8	.81	3
Strawberry fruit jelly with whipped cream	154.9	....	.81	16
*A—Buckwheat cakes with country sausage	154.7	....	.81	4
A—Oyster sandwich	153.8	46.3	.81	8
*A—Chicken gimblets on toast.....	153.0	41.5	.82	4
Hot rice with butter.....	152.6	....	.82	8
Pimento olive cheese sandwich.....	152.3	87.0	.82	16
*A—Liver and bacon with lyonnaise po- tatoes	151.0	29.7	.83	3
*A—Corned beef hash, browned, with two poached eggs.....	150.1	37.7	.83	3
Buttered toast	149.7	....	.83	8
*A—Liver and bacon.....	149.4	36.4	.84	3
*A—Chicken hash	146.9	46.3	.85	6
A—Two scrambled eggs.....	146.3	52.6	.85	6
*A—Milk	145.3	....	.86	9
Apple sauce with whipped cream.....	144.2	....	.87	17
Hot rice with poached egg.....	143.3	49.8	.87	6
*A—Corned beef with potato salad.....	143.1	53.1	.87	6
Fish cakes with poached egg.....	141.8	53.2	.88	4
*A—Cold roast beef.....	140.1	63.4	.89	6
A—Hot rice with milk.....	139.6	....	.90	9
*A—Small steak	138.0	28.3	.91	3
Baked apple	136.8	....	.91	18
Baked apple with ice cream.....	136.0	....	.92	9
A—Two lamb chops.....	135.3	....	.92	3
A—Chicken salad sandwich.....	134.7	....	.93	9
*A—Corned beef hash, steamed, with poached egg	133.8	44.3	.93	5
* —Boston beans on side.....	133.7	....	.94	19
Tomato sandwich	133.6	96.5	.94	19
A—Lamb chops, breaded, with mashed potatoes	132.7	48.6	.94	5

TABLE 4.—Continued

Name of Food	Nutritional Calories for Five Cents	Per Cent. in Bread and Butter	Cost of 2,500 Calories	No. of Orders to Make 2,500 Cal.
*A—Maple flakes with milk.....	132.6	....	\$.04	9
*A—Corned beef	132.4	45.8	.94	6
*A—Bulgazoon	132.1	....	.95	19
A—Spanish omelet with French fried potatoes	132.1	39.8	.95	4
Baked apple custard with whipped cream	131.5	....	.95	10
Boiled rice, side order.....	130.8	....	.96	19
*A—Fried egg sandwich.....	129.6	64.7	.96	10
*A—Onion omelet	129.1	27.0	.97	5
*A—Baked weak fish with dressing.....	128.9	45.0	.97	5
*A—Sirloin steak	128.1	20.1	.98	2
Fresh cooked oatmeal with cream...	127.7	....	.98	6
*A—Fish cakes with macaroni.....	126.9	....	.99	5
Sliced bananas with cream.....	126.2	....	.99	10
* —Macaroni, side order.....	125.8	....	.99	20
*A—Roast sirloin of beef and mashed potatoes	124.9	44.8	1.00	5
A—Tomato omelet with potatoes.....	121.9	42.9	1.03	4
*A—Two boiled eggs.....	121.6	....	1.03	7
*A—Fish cakes with spaghetti.....	120.6	54.0	1.04	5
*A—Macaroni omelet and tomato sauce	119.1	38.5	1.05	4
*A—Small steak with onions.....	118.3	25.8	1.06	3
*A—Fish cake sandwich.....	117.8	....	1.06	11
*A—Egg salad	116.0	54.9	1.08	5
*A—Parsley omelet	115.2	53.1	1.09	5
Green split pea soup.....	114.1	59.4	1.10	11
Vanilla ice cream.....	113.8	....	1.10	11
*A—Tenderloin steak with onions.....	113.3	24.5	1.10	2
*A—Cornflakes and milk.....	111.1	....	1.12	11
Strawberry tart	111.0	....	1.13	11
*A—Tuna fish salad.....	110.9	43.0	1.13	5
*A—Sirloin steak with onions.....	110.0	20.1	1.14	2
Pineapple fruit jelly with whipped cream	109.8	....	1.14	23
*A—Cup custard	109.5	....	1.14	11
*A—Roast beef with potato salad.....	107.4	43.9	1.16	5
*A—Tenderloin steak	106.3	19.8	1.18	2
A—Milk toast	105.6	....	1.18	8
Strawberry cornstarch with whipped cream	102.2	....	1.22	24
Strawberry ice cream.....	102.1	....	1.22	12
*A—Clam chowder	100.6	....	1.24	6
* —Chicken soup	100.4	49.5	1.24	8
*A—Crab meat salad.....	99.5	68.1	1.26	6
Vegetable soup	98.1	79.6	1.27	13
Stewed rhubarb	93.9	....	1.33	27
*A—Creamed chicken on toast.....	92.9	37.5	1.35	7
Strawberries with cream.....	91.9	....	1.36	9
Strawberry short cake.....	91.8	....	1.36	9
*A—Chicken omelet	90.8	32.1	1.38	6
*A—Deviled crab	90.7	64.1	1.38	7
Sliced bananas	89.9	....	1.39	28
*A—Spaghetti and cheese.....	88.0	....	1.42	14
*A—Fried ham	86.8	49.6	1.44	6
A—Minced chicken sandwich with let- tuce	86.3	....	1.45	15
* —Bean soup with creutons.....	84.4	....	1.48	15
*A—Hot roast beef sandwich.....	81.5	....	1.53	10
*A—Club sandwich	81.4	....	1.54	6
*A—Sliced chicken sandwich.....	78.1	....	1.60	16
*A—Poached eggs on toast.....	65.6	....	1.91	10
Strawberries with ice cream.....	65.0	....	1.92	13
* —Cream of wheat.....	63.0	....	1.98	20
Blackberries and cream.....	56.5	....	2.21	22
Stewed corn	52.5	....	2.38	48
* —Creamed asparagus on toast.....	49.2	....	2.54	13
Watermelon	39.4	....	3.17	20
* —Tomato soup with rice.....	36.6	....	3.42	34
Sliced pineapple	35.3	....	3.54	71
Grape fruit	25.8	....	4.85	32
*A—Raw oysters	18.6	....	6.72	45
Sliced tomatoes with lettuce.....	16.6	....	7.53	50
* —Sliced tomatoes	15.2	....	8.20	82
Tomatoes and lettuce with dressing..	13.5	....	9.26	47
Cantaloupe	12.1	....	10.33	69
Champagne	8.6	....	14.53	7

† Not purchased in the restaurant.

10.6 cents a day, or \$38.70 a year. If such a thing as a "submerged tenth" really exists in this country it would cost \$387,000,000 to feed 10,000,000 men for one year on this diet. The taxation in the United States, city, state and national, is said to be \$4,000,000,000 annually. Ten per cent. of this sum would feed with pork and beans, bread and butter, coffee and milk, 10,000,000 men who are out of work. A similar menu just as cheap can be based on spaghetti flavored with tomato or cheese. It is not argued that a diet based on the cheaper foods is a panacea for all the woes of the world. It is not argued that such diets are the equivalent of caviar, champagne and canvas

back ducks, but it is argued that good wholesome simple food should be more available for mankind at a moderate price in hours of adversity and distress than is the case to-day. People should know how they can conserve their resources without detriment to their bodily welfare.

Passing to the consideration of the nutrition of the great mass of the people it seems probable that at the present time no more valuable data can be obtained than those which may be derived from a study of the various food portions sold by the Childs restaurant establishments which are situated in many cities throughout the country. The portions served are standardized, i. e., planned to be uniform in quantity and quality and the prices are the same in all the restaurants. Mr. F. C. Gephart has completed a notable analysis of 350 different portions as they are sold to guests at these establishments. The results of these analyses have been tabulated. Table 4 gives the cost of each food if that particular variety were alone made to furnish the 2,500 calories necessary for a man leading a sedentary life, to which is added the restaurant price of these 2,500 calories and the number of portions necessary to furnish them. Portions which contain 15 per cent. of protein calories or more have received a star. Portions which contain meat, fish, egg or milk proteins are preceded with the letter A, indicating the presence of animal proteins. The material in this table is arranged in the order of the increasing price of the food.

It appears that fourteen different orders yield enough food fuel for one day at a cost of less than 40 cents, or less than \$145 per annum. Of these the roast beef sandwich made as a roll is conspicuous for cheapness.

Thirty-three different portions may yield the total energy requirement of 2,500 calories at a cost of less than 50 cents per day.

Suppose a restaurant be established with these thirty-three varieties only, and the consumer arranged his dietary so that he paid an average price of 40 cents for 2,500 calories, it would cost him \$145 per annum for his food. If it be a fair division of one's income to expend one-fourth for rent, one-fourth for clothes, one-fourth for food and one-fourth for extras, then a single man may live at a Childs restaurant when his income is \$50 a month, of which he spends \$12.50 for food if he restricts himself to those thirty-three varieties. As a married man he would require \$100 a month to maintain himself and his wife under similar circumstances.

Passing to food of a higher cost, it appears that thirty-two portions yield 2,500 calories at a cost of between 51 and 60 cents and here portions containing meat predominate.

There are forty-two varieties of foods which yield 2,500 calories between 61 and 70 cents and thirty-three which cost between 71 and 80 cents. At this latter level of cost orders for eggs such as fried eggs and creamed eggs on toast begin to appear.

Twenty varieties yield 2,500 calories at a cost of between 81 and 90 cents and twenty-four varieties cost between 91 cents and \$1.00. The sirloin steak appears at the level of 91 cents.

This gives a choice of 184 dishes which yield 2,500 calories at a maximum daily cost of \$1.00.

There are fifty-five varieties of food which cost more than \$1.00 per 2,500 calories. The cost rises rapidly. Seven orders of two boiled eggs (with but-

TABLE 5.—SELECTED MENUS

	Cost, Cents	Cal- ories
MONDAY		
Breakfast:		
Coffee (with milk and sugar).....	5	195
Hot corn muffins.....	5	453
Lunch:		
*A—Roast beef sandwich and roll.....	5	357
Crullers	5	444
Dinner:		
*A—Vienna roast, fried potatoes, bread and butter	15	834
Cocoanut pie	5	372
Total	40	2,655
TUESDAY		
Breakfast:		
Coffee (with milk and sugar).....	5	195
*A—Chipped beef and scrambled eggs.....	20	728
Lunch:		
*A—Roast beef outlet, tomato sauce, fried potatoes, bread and butter.....	15	738
Dinner:		
A—Lamb croquettes and mashed potatoes, bread and butter	15	874
Apple pie	5	177
Total	60	2,712
WEDNESDAY		
Breakfast:		
Coffee (with milk and sugar).....	5	195
Boston pork and beans, bread and butter.....	10	480
Butter cakes	5	278
Lunch:		
*A—German meat cakes with lyonnaise potatoes, bread and butter.....	15	738
Dinner:		
A—Roast beef hash, browned, bread and butter..	15	666
Pumpkin pie	5	296
Total	55	2,453
THURSDAY		
Breakfast:		
Coffee (with milk and sugar).....	5	195
Bath buns	5	357
*A—Country sausage	5	257
Lunch:		
A—Vienna roast, spaghetti, potatoes, bread and butter	15	708
A—Swiss cheese sandwich.....	5	244
Dinner:		
A—Roast beef croquettes, macaroni, mashed potatoes and bread and butter ..	15	624
Cold rice pudding.....	5	263
Total	55	2,648
FRIDAY		
Breakfast:		
Coffee (with milk and sugar).....	5	195
A—Broiled ham with bread and potatoes.....	20	892
Lunch:		
A—Beef cakes, brown gravy and macaroni.....	15	774
Dinner:		
A—Ham croquettes with mashed potatoes.....	10	526
Napoleon	5	453
Total	55	2,840
SATURDAY		
Breakfast:		
Coffee (with milk and sugar).....	5	195
Corn meal cakes and maple syrup.....	10	550
Lunch:		
A—Roast beef hash (browned), bread and butter..	15	666
Cup of cocoa.....	5	247
Dinner:		
*A—Roast beef outlet and mashed potatoes, bread and butter	15	617
Bread custard pudding.....	5	355
Total	55	2,630
SUNDAY		
Breakfast:		
Coffee (with milk and sugar).....	5	195
*A—Creamed chipped beef on toast, rolls and butter	15	747
Dinner:		
*A—Breaded veal outlet, tomato sauce, potatoes, bread and butter.....	20	847
Mince pie	10	388
Supper:		
Oyster pie	15	660
Cabinet pudding and vanilla sauce.....	5	399
Total	70	3,236

TABLE 5.—Continued

SUMMARY	Cost in Cents	Cal-ories
Monday.....	40	2,655
Tuesday.....	60	2,712
Wednesday.....	55	2,453
Thursday.....	55	2,648
Friday.....	55	2,840
Saturday.....	55	2,630
Sunday.....	70	3,236
Per week.....	\$ 3.90	19,174
Per diem.....	0.56	2,739
Per month.....	16.80	

Individual income appropriate to this expenditure is \$67.20 per month.

tered toast) costing \$1.03 for 2,500 calories stand out in their extravagance, but this is outdone by nine orders of two poached eggs on toast costing \$1.91 for the day's requirement. The portion of spaghetti with cheese is certainly overpriced, and were the service to an Italian clientele would not be so costly.

The greatest wonder appears in the cost of the tomato portions. Tomatoes with lettuce and dressing cost over \$9.00 for 2,500 calories, nearly as much as cantaloupe at \$10.00, while champagne (bought outside the restaurant at \$4.00 a quart) costs \$14.00 for 2,500 calories.

The mystery of tomatoes is baffling. A can of tomatoes is little else than flavored water. The popularity of the tomato probably depends on its flavor and its color. A painter wishing to sell a landscape puts a figure with a red cloak in the center. It is an ancient device. In like manner, a restaurant puts a few lettuce leaves on a plate with a red tomato in the middle, covers it with a little dressing and gets a large price. It is the work of an artist for a connoisseur.

To indicate the practical value to which this work may be put, the following selected menus have been arranged. They give the cost and caloric content of inexpensive dishes which may be ordered at the restaurant and which provide for three meals a day during a week for a man of average weight. Only the morning cup of coffee occurs more than once.

TABLE 6.—COST TABLE

Ham and Eggs, 25 Cents	Cents	Plain Omelet, 15 Cents	Cents
2 Eggs.....	6.66	2 Eggs.....	6.66
3½ oz. Ham.....	4.40	3 Slices bread.....	0.45
3 Slices bread.....	0.45	10 gm. Butter.....	0.89
10 gm. Butter.....	0.89	500 calories.....	8.00
2½ oz. Potatoes.....	0.04		
800 calories.....	12.44		
Bacon and Eggs, 25 Cents	Cents	Tenderloin Steak, 55 Cents	Cents
2 Eggs.....	6.66	9½ oz. Steak.....	17.30
1 oz. Bacon.....	3.72	3 Slices bread.....	0.45
3 Slices bread.....	0.45	10 gm. Butter.....	0.89
10 gm. Butter.....	0.89	2½ oz. Potatoes.....	0.04
2½ oz. Potatoes.....	0.04	1,300 calories.....	18.68
800 calories.....	11.76		
		Ham Sandwich, 5 Cents	Cents
		½ oz. Ham.....	0.70
		2 Slices bread.....	0.30
		10 gm. Butter.....	0.89
		200 calories.....	1.89

At Bellevue Hospital, New York, in 1912, the cost of food from the market, that is, of uncooked food, was 25 cents daily for 3,200 calories for each person in the establishment; at the Municipal Lodging House during 1911 the cost was 13 cents daily for 2,700 calories per person.

When one considers that Childs restaurant pays for service and for expensive ground floor rental in the busiest parts of New York City, surely food at the

cost outlined above is not expensive. But this menu is laboratory made, calculated from the scientific standpoint and from the standpoint of food economics. The restaurant in question could easily give this information on its menu card. It would have immense educational influence were it to do so.

In a few selected portions Mr. Gephart has estimated the retail market value of materials entering into the portions sold and these are revealed in Table 6.

It is evident that the actual cost of these standard portions is about half to one-third their cost in the restaurant. The housewife who knows how to buy the essential ingredients, and especially how to cook them, is an economic factor of prime importance in the home. Of such stuff is the science of food economics.

Mr. Gephart's work is the first extended investigation of its kind. It would be wise if the public could be better informed regarding the caloric value of foods which it purchases. It would be of vast significance if the barrel of flour, the can of lard, the pot of beans or the package of breakfast food could be labeled with the caloric content of the particular unit of sale.

The question would not then be asked, would Professor X eat his own diet? But the individual could then ask himself, am I sufficiently well-to-do to be careless of what I spend for food? And, can I spend less with equal profit and as great satisfaction?

SCOPOLAMIN-MORPHIN TREATMENT IN LABOR

A CRITICAL ANALYSIS OF SIXTY CASES

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A series of cases under scopolamin-morphin treatment was begun January 1, this year, in the Michael Reese Maternity, on the obstetric service of Dr. Lester E. Frankenthal, and continued on the service of Dr. Frank Cary. The series terminated February 5.

All private cases, all cases that threatened to become pathologic, and all cases that came in too soon before delivery to permit of the proper administration of the drugs, were kept out of the series. The total number analyzed was sixty.

Of the four delivery rooms in the Michael Reese Maternity, each constructed with cork-lined, sound-proof walls and sound-proof doors, the largest was chosen for the "twilight sleep" cases. Two nurses, both graduates with extensive obstetric experience, were especially engaged for day and night duty during the entire period of the series, and they remained constantly in the delivery room. The patients were furthermore under the continual observation of either the senior or junior intern on obstetrics, and of the day and night head nurse in charge of the maternity. All results were tabulated and the observations were constantly checked by Drs. Frankenthal, Cary and myself.

Patients in labor were sent to the third floor admitting room where they received a tub bath (sponge bath if membranes had ruptured), shaving of the genitals, and an enema, if not too far advanced in

labor; when, if suitable for the series, they were taken to the delivery room, where treatment was begun with the following indications; in multiparas, when the pains recurred every ten minutes, and in primiparas when the pains recurred every five minutes.

The drug used in the earlier cases was a tablet form of scopolamin put out by Sharp and Dohme and made by Merck; later a powder form of scopolamin by Merck and ampules of scopolamin from Hoffman-LaRoche, preserved with mannite, according to the formula of Straub of Freiburg, were employed in alternate cases.

The total dosages varied from one-eighth to one-quarter grain morphin and from two doses of 1/200 to nine doses of 1/150 and eleven doses of 1/200 grain scopolamin, hypodermically. Subdued light, smoked glasses and avoidance of unnecessary and loud talking were strictly enforced. Observations on all points brought out in the literature were taken and recorded at half-hour intervals, and oftener when necessary.

The accompanying table represents a summary of the sixty cases in two groups, primiparas and multiparas. A few of the items were analyzed in only the last twenty-one cases, and are marked "2d S."

At the close in each case a brief impression of that case was written, and these remarks are here presented verbatim in groups arranged according to the degree of success or failure.

RESULTS OF TREATMENT

NO SUCCESS, TWENTY-SIX CASES

CASE 10.—Patient's memory was clear at all times. Patient was somewhat indifferent to the pains, but said that the pains were severe.

CASE 13.—Slight vertigo—memory clear at all times.

CASE 29.—Patient's memory clear throughout, slight flush and marked thirst being the only noticeable symptoms.

CASE 32.—At no time during labor had patient the slightest cloudiness of memory, sleeping between pains.

CASE 53.—Patient was delirious for several hours, doing foolish stunts and was very restless.

CASE 55.—Patient was very delirious, throwing herself about in a wild manner and later required restraint.

CASE 56.—Very restless—the drug increased her restlessness.

CASE 58.—Very restless, and during the second stage patient was absolutely unmanageable—could not be aroused and had to have restraining sheet.

CASE 61.—Treatment stopped after 5/150 grain scopolamin and 2/8 grain morphin because labor pains ceased. Patient also vomited and became restless; fetal heart tones dropped to 96 and forceps were used.

CASE 63.—Not much effect of the drug could be seen.

CASE 66.—Patient had a mitral insufficiency and myocarditis, a supposedly ideal case for the use of the treatment. After three doses subcrepitan râles appeared in the upper left lung, the pulse became fast and irregular and the fetal head stood in deep transverse arrest. Forceps and immediate extraction were followed by a pulmonary edema, from which the patient finally recovered. The baby was born in asphyxia pallida and was resuscitated with difficulty.

CASE 68.—No effect of drug noticed.

CASE 3.—Patient's memory at all times was clear and no effect of the drug noticeable.

CASE 9.—Patient's memory at all times was clear and very little effect of drug could be noticed. Patient had difficulty in getting the head past the outlet. Pains were strong, but no progress. "Kristeller" resulted in normal delivery.

CASE 11.—Delivery rapid following a somewhat quiet period. Patient quite indifferent, apparently having little pain, but somewhat cyanotic.

CASE 12.—Patient in the beginning was quiet; after the third dose became somewhat noisy and hysterical; memory was clear throughout labor.

CASE 14.—Child revived with difficulty. Later condition good. Treatment did not give desired effect of drugs.

CASE 19.—With heart tones at 108 from 124 after two doses, deemed it inadvisable to continue the treatment. Patient's mind was clear at all times and no effects of the treatment were noticeable.

CASE 25.—Patient had no disturbance of memory.

CASE 33.—Patient stopped for about four hours; after the fourth injection of scopolamin no effects of the drug were obtained.

CASE 37.—Patient's memory was clear at all times.

CASE 59.—Patient's memory clear throughout labor. After delivery became restless, then delirious, got out of bed and ran to window, getting onto the sill, was dragged off by the nurse, overpowered her, ran to the rear stairway, where three nurses finally succeeded in subduing her and getting her into the quiet room, where she was shackled and kept so four days, when she finally became entirely rational again.

CASE 62.—Patient's memory clear throughout. Case terminated by rupture of uterus. Patient, nonipara, had three doses of scopolamin 1/200 grain, and 2/8 grain morphin. After the last dose at 1:45 a. m., pains became less frequent and stopped at 4:30 a. m. At this time the fetal heart tones could no longer be heard, and the patient gradually became semiconscious. At 6:30 she was pale, and sweat appeared on the brow. The dilated cervix was found collapsed and the presenting head had receded. Diagnosis, rupture of the uterus, seen by Drs. Frankenthal, Cary and myself, abdominal section done, fetus and placenta found free in the abdominal cavity, a jagged transverse rupture in the lower uterine segment of the uterus, running straight across the whole width anteriorly just at the level of the fundus of the bladder and a huge retroperitoneal hematoma up to the kidney. Hysterectomy was done—patient died on the second day.

CASE 65.—No effect of drug noticed.

CASE 67.—No effect of drug noticed.

CASE 70.—No effect of drug noticed.

LITTLE SUCCESS, SEVEN CASES

CASE 6.—Patient's memory seemed clear at all times, bearing down pains were very few.

CASE 16.—Toward the end, patient appeared for a few seconds rather confused. Memory always clear, slightly irrational after returning to the ward, restless and required restraint.

CASE 18.—Patient at no time before delivery had cloudy memory. Pain lessened toward end.

CASE 20.—Labor seemed very easy, patient's memory was clear at all times.

CASE 49.—With the exception of about two hours after the fourth dose, patient had clear memory throughout.

CASE 69.—Patient slightly drowsy at birth, but knew of birth.

CASE 7.—Patient's memory was slightly cloudy at time of birth.

PARTIAL SUCCESS, EIGHT CASES

CASE 15.—Drugs apparently had some effect on memory though not throughout. Duration of effect rather short—no marked improvement on giving last dose; patient very noisy, excited, and at times toward the end became irrational and difficult to control until about the last hour, when she quieted down considerably.

CASE 24.—Patient had six doses 1/150 grain of scopolamin, but had few symptoms showing effect; although patient responded to memory tests before birth she had no recollection of the birth of child. She says she had chloroform.

CASE 28.—Amnesia present to slight degree. Patient very noisy during the last hour, and had to have restraining sheet in ward.

CASE 34.—Patient appeared very drowsy. Difficult to concentrate thoughts. At intervals she seemed to have cloudy memory for events.

SUMMARY OF CASES

	Totals	Primiparas	Multiparas
Cases	60	33	27
Drugs:			
Scopolamin, total amount (range).....		2/200-9/150-11/200	8/150-7/200
Morphin, total amount (range).....		1/8-2/8	1/8-2/8
Time from first to last hypodermic (range).....		1: 15-19: 45; Av., 8: 15	1: 15-12: 15; Av., 5: 35
Duration (Compared with an untreated series of one year ago):			
First stage		17: 10 Untreated (10: 20)	14: 13 Untreated (7: 55)
Second stage		2: 10 series (2: 00)	1: 59 series (1: 33)
Total labor		19: 42 (12: 51)	15: 11 (7: 53)
Subjective symptoms:			
Memory, clear	26	12	14
Memory, cloudy	39	24	15
Deep T. S.	1	1	0
Very deep T. S.	0	0	0
Thirst	32	17	15
Euphoria, 2d S.		Good, 6; fair, 1; poor, 4	Good, 6; fair, 1; poor, 2
Headache	27	15	12
Vertigo	31	22	9
Objective symptoms:			
Sleep	43	24 (slight 8)	19 (slight 3)
Incoördinate movements	13	10 (slight 1)	3 (slight 1)
Reflexes		Not abolished	Not abolished
Flushing of face.....	45	24 (marked 2)	21
Dry skin and mucous membranes, 2d S.	18	10	8
Apparent effect on pain:			
Absent	1	1	0
Less	39	20	19
Average	19	10	9
Increased	1	1	0
Consciousness:			
Present	45	23	22
Partial	10	6	4
Absent	5	4	1
Excitation:			
Absent	39	17	22
Present	16	12	4
Marked	2	2	0
Delirium	9	7	2
Abdominal pressing:			
Good	24	10	14
Medium	18	9	9
Absent	10	7	3
Vomiting, 2d S.	4	1	3
Birth:			
Spontaneous	57	31	26
Operative, etc.	4	2 (forceps)	2 Kristeller abdom. section
Mental state at birth:			
Clear	28	15	13
Cloudy	26	14	12
Deep T. S.	5	4	1
Expression of pain:			
None	4	2	2
Slight	5	3	2
Average	37	20	17
Marked	8	5	3
Additional anesthesia	3	2 (ether)	1 (ether)
Perineal tears	12	7	5
Baby:			
Respiration spontaneous	47	25	22
Respiration artificial	13	8	5
Rhythm and character, 2d S.	3	3 feeble	0
Asphyxia	6	4	2
Oligopnea	4	4	0
Pulse 1 hr., P P, 2d S.		Good, 8; fair, 2; poor, 1	Good, 9
Pupils, 2d S.		Dilated, 4; slightly, 6	Dilated, 2; slight, 3
Stillbirth	1	0	1 (rupture uterus)
Late lasting symptoms:			
Mydriasis, 2d S.	8	7	1
Cloudiness, 2d S.	9	6	3
Delirium, 2d S.	2	1	1 marked
Puerperium:			
Breast engorgement, 2d S.	3	3	0
After-pains, 2d S.	8	6	2
Involution		Normal	Normal
Placenta:			
Spontaneous delivery	2	1	1
Crédé	57	31	26
Manual removal	1	0	1 (laparotomy)
Blood pressure-range:			
Antepartum		115-150	115-150
Postpartum		110-145	110-145
Strength of contractions, 1st stage:			
Average	51	28	23
Decreased	8	5	3
Strength of contractions, 2d stage:			
Average	29	13	16
Decreased	28	18	10
Increased	3	2	1
Postpartum hemorrhage.....	7	5	2
Number of bimanual examinations (total, 77):			
One examination	52-52	26	26
Two examinations	5-10	5	0
Three examinations	5-15	2	3
Positions:			
L O A.	47	25	22
R O A.	10	7	3
R O P.	1	1	0
Dp. tr. arrest.....	1	1 (No. 66 forceps)	0
Success of treatment:			
None	26	12	14
Little	7	6	1
Partial	8	4	4
Fair	5	4	1
Good	8	5	3
Complete	6	2	4

CASE 17.—Toward the end patient seemed slightly confused. Memory occasionally cloudy, but was quite clear after delivery.

CASE 21.—Patient drowsy throughout from a half hour after the first injection. Attempted to sleep between pains. Pain apparently uninfluenced; memory clear throughout.

CASE 48.—Patient was under effect of the drugs only at the very end. Treatment lasted 6½ hours.

CASE 51.—Patient's memory was only slightly cloudy.

FAIR SUCCESS, FIVE CASES

CASE 8.—Patient's memory was clear throughout, but she appeared indifferent to what was going on.

CASE 43.—Patient was under influence of the drug as concerns amnesia for about one hour. Treatment lasted five hours and twenty-five minutes.

CASE 44.—Patient's memory was cloudy—excitation in the last half hour very marked, throwing herself about wildly. In the ward she had to be tied in bed.

CASE 45.—Patient was wildly delirious at time of pain, sleeping between pains, but throwing herself about for two hours before delivery in a wild manner.

CASE 57.—Postpartum hemorrhage half hour after patient returned to bed. Patient did not know when the baby was born. Abdominal muscles not used after the fifth dose of scopolamin.

GOOD SUCCESS, EIGHT CASES

CASE 5.—Patient seemed to come partially out of the effect of the treatment shortly before delivery.

CASE 22.—Patient after the first three doses showed considerable amnesia; partially recovered; after last two doses she showed amnesia again and doesn't remember when the baby was born.

CASE 26.—After the third dose did not use her abdominal muscles; hence head remained at the vulva longer than need have been.

CASE 35.—Memory tests were interfered with on account of the delirium present. Patient seemed to remember on the following morning much better than had been expected.

CASE 47.—Patient was very quiet; very difficult to arouse; memory was cloudy; abdominal muscles not acting.

CASE 40.—So far as could be ascertained, this case was a success; patient quite an ignorant person and information difficult to obtain; memory quite cloudy; pain not noticeably diminished.

CASE 41.—Patient quite noisy immediately prior to delivery, but after child was born she slept, during which motions of the extremities were spasmodic and involuntary. Drug seemed to act promptly, and amnesia was present after the second dose.

CASE 54.—Amnesia attained at the time of delivery—temporary—semi-delirious toward the end.

COMPLETELY SUCCESSFUL, SIX CASES

CASE 23.—Patient had absolute loss of memory, but was very delirious, throwing herself about in a wild manner. Repair work was almost impossible on account of her wild actions, and restraint was necessary in bed. Child started breathing with little stimulation; ten minutes later stopped and artificial respiration had to be resorted to.

CASE 60.—Patient did not know when baby was born. Conduct during labor excellent.

CASE 42.—Patient's memory was only slightly cloudy prior to delivery, but amnesia was more marked after the birth of the child. Delivery was rapid.

CASE 46.—Patient was very quiet and slept all the time from one hour before delivery until several hours thereafter. Pains during second stage were good, regular and strong, but abdominal muscles were not used.

CASE 50.—Patient's memory was cloudy. Gave no expression of pain at time of birth and slept most of the time.

CASE 52.—Patient's amnesia was complete. Slept almost all the time, arousing only slightly at the return of each pain.

Two primiparas, cases 53 and 56, classified as unsuccessful, received the maximum total doses, 9/150

grain scopolamin, and a primipara, case 49, classified as slightly successful, received 11/200, whereas case 60, primipara, and cases 42, 46 and 50, multiparas, classified as completely successful, each received a total of only 3/150 grain scopolamin. These striking variations in dosage, effective conversely to the total amounts used, show clearly how utterly uncertain the outcome must be in any given case. But the women whose faith in their local physicians of worth has been shaken by the trumpet blasts of the optimists—what do they know about these petty details?

The average duration of the so-called first stage (17:10, primiparas, and 14:15, multiparas) exceeded that of a series of one year ago of the same number of cases taken for comparison (10:20, primiparas and 7:55, multiparas) by about seven hours, while the second stages in the two series (2:10, primiparas, and 1:59, multiparas, this series, and 2:00, primiparas, and 1:33, multiparas, untreated series) were about equal. However, it must be remembered that the total number of bimanual examinations made on the entire sixty cases was only seventy-seven, and that every patient admitted to the Michael Reese Maternity is examined once bimanually as soon as prepared after admission, and thereafter not again unless there is the strictest indication; hence the onset of the second stage had to be determined in most cases by other means, such as rupture of membranes, bearing down pains, etc., and as a result the seven hour retardation should be considered as applying to the combined first and second stages. To overcome this generally conceded prolongation of labor (though several writers have claimed the opposite result) pituitary extract has been freely and frequently employed elsewhere. Such juggling with the natural powers, like the combined use of the brake and the whip, has seemed to us an attempt to make a right out of two wrongs. The use of pituitary extract in the Michael Reese Maternity service is limited sharply to the terminal portion of the second stage, when its maximum benefits are seen without secondary disadvantages.

Memory tests were carried out conscientiously but without unnecessarily disturbing those patients that seemed somnolent. Twenty-six remained clear throughout labor, thirty-nine were cloudy, yet the twenty-six had a greater total of scopolamin than the thirty-nine.

Thirty-two women complained of a thirst so intense as to be literally unquenchable. Their parched mouths and incessant requests for water were not the least distressing feature of the treatment.

Headache and vertigo were present in twenty-seven and thirty-one cases, respectively, and the former was a source of much distress and even intense suffering, persisting for several days in some cases. Yet these same women who were rendered so wretched, in many instances for hours and days after delivery, would have gone through a normal confinement of from eight to eleven hours' average duration, and would have been comfortable and happy thereafter, if they had not had the so-called blessings of "twilight sleep."

Forty-three patients slept part of the time, but could always be easily aroused, seeming to respond to external stimuli and to feel the contractions.

Pain was felt by many of these women regardless of the number of doses of scopolamin. It was diminished in thirty-nine, absent in one, average in nineteen

and increased in one. That this applied equally to the cases at Freiburg, is evidenced by the various series in which additional anesthetics were used at the end, such as ether, ethyl chlorid, etc. If this be so, then why discard the old and tried combination of morphin hypodermically for pain and chloral by rectum, with completely effaced and partially dilated cervix, as used by the obstetricians of the Michael Reese Maternity for more than a quarter of a century with safety? The typical analgesia and amnesia of the more favorable reports in the literature were obviously not attained in a large number of cases in which we had every reason to expect results if the claims made by the proponents of this procedure had been substantiated.

Restlessness was present in eighteen cases and delirium in nine, in seven of which restraint and shackling were necessary. These "obstetrical jags," as Dr. Cary so aptly put it, represented the most annoying and unpleasant phase of the whole investigation, appeared in every kind of case with few or many doses, and necessitated unremitting watchfulness on the part of the nursing staff and interns, in spite of which such incidents as those in Case 59 occurred.

The serious risk of self-infection during labor engendered by the uncontrolled motions of these women was a source of constant anxiety. They sat cross-legged and the heel would enter the vulva. In their vague efforts to reach the region of pain, they repeatedly attempted to explore their genitalia. It was next to impossible to keep the genitalia free from feces, and the fact that we had no infections can be ascribed chiefly to the careful initial preparation all patients receive in the admitting room of the maternity, plus the untiring alertness of the nursing force to keep these women from harming themselves. In this connection, comment is in order on the practice of one clinic, in which patients undergoing the treatment are virtually under strait-jacket restraint. Is a treatment necessitating such measures deserving of recognition, much less approbation?

Three days prior to the occurrence of Case 62, rupture of the uterus, Dr. Frankenthal spoke to me of the danger that this treatment could obscure such important symptoms as the pain in premature separation of the placenta, *cessation of pains* in rupture of the uterus, even the presence of an eclampsia suppressed by medication similar to the Stroganoff treatment; and though thanks to the day and night staff, this case was detected, who knows what further disasters might happen in future series or isolated cases, under the combined blanket of the drug, the semidarkness of the room and the patient too restless for proper examination?

Birth in all cases but four was spontaneous. Case 9, sextipara, Kristeller, after the head had been on the perineum one and one-half hours; Case 61, primipara, heart tones dropped to 96, after 27:10 hours of labor and low forceps were applied; Case 66, primipara, broken cardiac compensation, head in deep transverse arrest after 22:25 hours, 4:25 of which were in the hospital, terminated by forceps; and Case 62, abdominal section for rupture of the uterus.

Amnesia at birth was entirely absent in twenty-eight, present in twenty-six, and marked in five, while analgesia was present in four, slight in five, pain was average in thirty-seven, and marked in eight at birth. Ether was used in three cases, all operative.

Perineal tears occurred in twelve cases, or 20 per cent. of the series, seven in primiparas, and five in multiparas, ranging from slight first degree, to deep second degree, all of which were repaired immediately, this being the routine in the Michael Reese Maternity for all tears however slight. In the untreated series of sixty cases of a year ago there were seventeen perineal tears, or 28 per cent.; but in this connection it is debatable whether a very slow passage of the head over the perineum and through the vulva, leaving the mucocutaneous surfaces intact, to be sure, but causing a separation of the perineal musculature subcutaneously with subsequent rectocele and possible prolapse, is more desirable than an occasional episiotomy with immediate and accurate repair. The understanding women of this generation seem much more concerned lest a tear be left unsutured or improperly sutured, than by the occurrence of the tear itself.

Respirations in the baby were spontaneous in forty-six cases, and required artificial aid in thirteen cases. Methods used ranged, after laryngeal aspiration, from spanking to hot and cold tubbing, artificial respirations, Schultze swinging, and direct tracheal insufflation by catheter. Four were oligopneic and six were asphyctic, requiring constant watching and in two cases repeated resuscitations.

The one stillbirth occurred in Case 62, rupture of the uterus, with escape of the fetus into the abdominal cavity and prompt death.

Of the "late lasting symptoms," the patients complained most of blurred vision; eight were pronounced, lasting over twenty-four hours; nine patients had cloudy memory lasting over six hours postpartum, and two had marked delirium, persisting two and four days postpartum. Who can read such statistics, knowing the care with which this work was done and the safeguards that were thrown around the cases, and not feel out of patience with those who seemingly are trafficking in the natural fears of pregnant women?

After-pains were noteworthy in eight cases, six in primiparas, a larger proportion than is usual; involution, breast engorgement and lactation were not influenced. Our mothers nurse their babies, the babies do well, and are taken off the breast only on the rare occasions when a threatened breast infection requires radical action to avoid pus formation.

"The exhaustion of labor" has always been conspicuous by its absence in the wards of the Michael Reese Maternity, excepting in the occasional pathologic primiparas, and even these are usually alert on the second day. We find it hard to understand this phrase, graphic though it is, for there is seldom a day when on making rounds it is not necessary to insist that some recently delivered woman get off her elbow, stop entertaining her neighbors, and lie down. The women are permitted to turn frequently, and after four days are encouraged to lie face downward the greater part of the time and so favor anteflexion in involution. All patients sit up in bed on the eighth day, get out of bed on the ninth and go home on the eleventh day (many on the tenth at their own request because they feel so well).

Spontaneous delivery of the placenta occurred only twice, fifty-seven cases requiring the Credé expression, which is not attempted until thirty minutes postpartum even if a placental pole shows at the outlet. In the untreated series of sixty cases there were five spon-

taneous expulsions. The single manual removal occurred in the case of ruptured uterus.

Blood pressures taken on admission and immediately postpartum showed an average drop of 5 mm.

There were seven postpartum hemorrhages, none of which required packing, but were variously controlled by holding the fundus (not massaging), vulvar compression, ergot and pituitary extract hypodermically, and temporary compression of the abdominal aorta. This compares unfavorably with the untreated series of sixty cases in which only one postpartum hemorrhage occurred, but is surely explained by the enfeebled contractions, the lengthened labor and the restlessness of the patients.

That frequent bimanual examinations are not necessary, even in such a series as this in which the patient is so unreliable a guide, is proved by the small total of seventy-seven in sixty cases, in spite of which no obstetric indications were overlooked.

From the foregoing results it seems reasonable to conclude that there are such dangers connected with the administration of the drugs, and that there is such a striking uncertainty of action in any given case, that the routine adoption of the treatment is not to be considered; moreover, it has been found impossible to "select" cases on any intelligent basis.

The lay press and magazines in their anxiety to outdo one another have published articles filled with the most extravagant phrases, but it is a bit out of the ordinary to read of a medical enthusiast announcing that by this treatment *the horrors of the delivery room are avoided*. The women must be few and far between who look back on the room in which they gave birth as a "chamber of horrors."

SUMMARY

The prolongation of labor, the increase in the number of fetal asphyxias, the excessive thirst and intense headaches that are so distressing, the difficult control of patients and avoidance of infection by soiling of the genitals, the more frequent postpartum hemorrhages, the blurred vision, the ghastly deliriums persisting far into the puerperium, the inability to recognize the onset of the second stage unless by risk of more frequent examinations, the masking of early symptoms such as antepartum hemorrhage, rupture of the uterus and even eclampsia, the violence and uncertainty of the whole treatment, the general bad impression given to our patients who are being taught to approach the "horrors of labor" in fear and trembling, constitute so severe an arraignment of this treatment of labor cases that we feel compelled to condemn it, leaving open the question of the merits of a single dose of morphin and scopolamin in those cases in which we have hitherto given morphin and atropin.

New Feature of Antifly Campaign.—At Buffalo in order to encourage and promote the antifly campaign the health department has inaugurated the plan of granting a certificate to the proprietors of all places of business who will make war on flies and certify on honor that there were no flies in their places on the first days of June, July, August and September. This it is believed will prove effective in increasing efforts against the fly nuisance. As suggestions in the way of fly extermination and prevention the following are offered: "Kill all winter flies, the egg-layers; clean up the premises and keep them free of dirt, refuse, manure, garbage, etc., the breeding places; screen all windows and doors; cover garbage cans and manure boxes; place fly traps in April; get the neighbors interested."

SCOPOLAMIN AND NARCOPHIN SEMI-NARCOSIS DURING LABOR *

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The conservative attitude of American physicians toward the use of scopolamin and morphin during labor has been chiefly due to the lack of uniformity in the results obtained in the various German clinics, for in that country the method was devised and has been steadily improved. In a number of obstetric cases recorded by Schneiderlein,¹ anesthesia obtained by this means proved fatal in one instance, and subsequently the use of these drugs for the purpose of obtaining complete anesthesia has not been advocated. A smaller dosage, as Steinbuchel² found, would induce seminarcosis which was safe for the mother. While in this state the patient may be sensitive to pain but is unable to remember that she suffered, or in fact, to remember anything which occurred during the course of labor. This method of treatment, therefore, does not produce anesthesia, but seminarcosis and amnesia.

Steinbuchel's technic, however, did not yield satisfactory results in the hands of Gauss,³ who was stimulated to seek better means for regulating the administration of the drugs. Later Straub sought a more stable preparation of scopolamin. Such precautions were necessary to prevent overdosage and to avoid decomposition products of scopolamin which are toxic. Gauss believed that administration of these decomposition products, especially apoa tropin, accounted for the untoward symptoms which Hocheisen⁴ frequently observed and which led him to denounce emphatically the use of scopolamin in any case. But, even after the required stable preparation had been procured and the technic standardized to give uniform results in Freiburg, the reports from other European clinics varied. In Berlin, for example, Strassman⁵ observed when scopolamin and morphin were used that uterine contractions were frequently impaired, and even more frequently that the fetus was asphyxiated; and for these reasons Strassman did not recommend the treatment. On the other hand, the results in Döderlein's clinic in Munich reported by Zweifel⁶ have been encouraging.

The fact that efforts are being made continually to simplify and perfect the method also indicates that it is still in the experimental stage. In May, 1914, Siegel,⁷ one of Krönig's assistants, reported a series of 220 cases in which narcophin was used to replace morphin. The repeated administration of both drugs was based on a time-schedule, and not on various tests which Gauss has employed. Siegel came to the conclusion that narcophin had less effect than morphin on

* From the Woman's Clinic of the University Hospital.

1. Schneiderlein: Die Skopolamin-Morphium Narkose, München. med. Wehnschr., 1903, i, 37.

2. Steinbuchel: Schmerzvernünderung und Narkose in der Geburtshilfe mit spezieller Berücksichtigung der kombinierten Skopolamin-Morphium Anaesthesia, Leipzig and Vienna, 1903.

3. Gauss: Geburten in künstlichem Dammerschlaf, Arch. f. Gynäk., 1906, lxxviii, 579; Bericht über das erste Tausend Geburten im Skopolamin Dammerschlaf, München. med. Wehnschr., 1907, p. 157.

4. Hocheisen: Ueber Geburten unter Skopolamin-Morphium, Ztschr. f. Geburtsh. u. Gynäk., 1907, liv, 131.

5. Strassman: Die Schmerzstillung bei der Geburt, Berl. klin. Wehnschr., 1911, xlviii, 982, 1046.

6. Zweifel: Ueber Morphium-Skopolamin Dammerschlaf, Monatsschr. f. Geburtsh. u. Gynäk., 1912, xxxvi, 719.

7. Siegel: Schmerzlose Entbindungen in Dammerschlaf unter Verwendung einer vereinfachten Methode, Deutsch. med. Wehnschr., 1914, xl, 1049.

the child and that the lapse of a given interval of time could generally be relied on as an indication for the need of additional doses of one or both drugs. As this report represented the last word from the Freiburg clinic and the results were as good as, if not better than, those previously reported we selected for trial the procedure which Siegel recommended. My conclusions, therefore, are based on the observation of thirty-five cases in which scopolamin and narcophin were administered. All the patients had normal pelves and in every instance the fetus presented by the vertex. In other words, if normal obstetric conditions did not prevail, we have not ventured to employ the treatment; nor have we used it in the case of elderly primiparas.

In each instance the treatment was started when there was definite evidence that labor had begun, or when the patient was admitted to the hospital somewhat advanced in labor. The first dose has usually been given when the pains were from five to ten minutes apart, and at this time the cervical dilatation was found to be 2 cm. or more in the case of primiparas, 4 cm. or more in the case of multiparas. In the earlier cases of the series the sequence of doses was arranged according to Siegel's schedule, but later it was found more satisfactory to depart somewhat from that routine.

SIEGEL'S SCHEME OF DOSAGE

Dose	Amount	Interval
First	Scopolamin .00045 gm. (1.5 c.c.) Narcophin .03 gm. (1 c.c.)	
Second	Scopolamin .00045 gm. (1.5 c.c.)	45 minutes after first dose.
Third	Scopolamin .00015 gm. (.5 c.c.) Narcophin .015 gm. (.5 c.c.)	45 minutes after second dose.
Fourth	Scopolamin .00015 gm. (.5 c.c.)	1½ hours after third dose.
Fifth	Scopolamin .00015 gm. (.5 c.c.)	1½ hours after fourth dose.
Sixth	Scopolamin .00015 gm. (.5 c.c.) Narcophin .015 gm. (.5 c.c.)	1½ hours after fifth dose.

According to Siegel's scheme, subsequent doses are administered every hour and a half as illustrated in the latter part of the table, and narcophin is added to every third dose of scopolamin. Thus the third, sixth and ninth doses contain scopolamin 0.00015 gm. and narcophin 0.015 gm. The intervening doses consist simply of scopolamin.

If this schedule was implicitly followed, we found occasionally that uterine contractions ceased, or the infant was born deeply asphyxiated. Consequently, we have limited the use of narcophin to the initial dose unless the effect of that dose was insufficient or wore off. And I agree with Knipe⁸ that it is not always possible to regulate the dosage of scopolamin on a time basis. Nevertheless, such an outline as Siegel has provided will be found very helpful when beginning the use of this treatment, and the schedule has been satisfactory for more than half our cases. Whenever the patient is deeply narcotized and the uterine contractions are becoming impaired, the next dose indicated in the schedule should be deferred or dropped altogether.

Our solutions were prepared in the hospital pharmacy from the scopolamin manufactured by Hoffman-La Roche and from the narcophin manufactured by Boehringer Söhne, since these were the preparations Siegel recommended. The solutions were made so that 1 c.c. of the one contained 0.0003 gm. scopolamin, and 1 c.c. of the other 0.03 gm. narcophin. At any one time only small quantities of the solution were prepared, for it is most important that fresh solutions be used. With age they deteriorate and become inef-

fective, or on the other hand decompose, giving rise to toxic substances. If a white flocculent precipitate appears in the scopolamin solution, it should be thrown away. Following the use of such a mixture, Gauss observed severe postpartum hemorrhage and deep asphyxia of the infant.

The drugs were administered with an ordinary hypodermic syringe. At the time when the required dose included both scopolamin and narcophin, the solutions were mixed in the syringe. The site of injection was the upper arm; first one and then the other was utilized. A subsequent local reaction was noticed in one case but this was negligible. The average number of doses of scopolamin administered was from five to six; the largest number was thirteen and the smallest two.

Except in five cases, chloroform inhalations were employed toward the conclusion of the second stage of labor. These exceptions were made in order to learn what conditions prevailed if scopolamin-narcophin narcosis alone was employed, as the head passed through the vulva. These patients were multiparas and, although they remembered nothing of the delivery, I believe that aseptic measures can be better carried out if chloroform is administered.

Our cases included eighteen primiparous and seventeen multiparous women. As has been frequently noted, patients differ in their susceptibility to the drugs in question, and such differences bear no relation to parity. Approximately 17 per cent. of our cases (six instances) not only experienced pain and remembered it, but also remembered other things which happened while they were in labor.

In a typical successful case the first effects appear about fifteen minutes after the initial dose. The patient experiences a "heavy feeling" in her head, and becomes drowsy; later she falls asleep to awaken with each painful uterine contraction. Generally, when an attendant enters the room the patient will pay no attention and, if questions are asked, she may seem unable to comprehend their meaning. Muscular twitchings were noted in twenty-three instances. Similarly, in about two-thirds of the cases thirst was a conspicuous symptom.

Not infrequently circulatory disturbances were observed, but these have never been of an alarming character; and it is difficult to decide to what extent these symptoms should be attributed to the treatment. Some of them are familiar during the normal course of labor as, for example, flushing of the face, which in this series appeared twenty-four times. Marked injection of the conjunctivae occurred four times.

Variations in the pulse rate were not uncommon during the early part of the narcosis. The most extreme effect of this sort was exhibited by a patient whose pulse varied between 64 and 140. Arrhythmia also was occasionally observed. A slight acceleration of the pulse occurred in half our cases, most frequently after the second or third injection. Subsequently, there was a tendency for the count to become normal; but in seven cases the pulse rate varied notably during the whole course of labor. On the other hand, respiration was not affected by the dosage we have used.

Generally, as the narcosis became more and more profound, the patient was inclined to sleep, or at least remained quiet and unconcerned. As a rule, when aroused and given instructions she obeyed (thirty

8. Knipe: The Freiburg Method of Dammerschlaf or Twilight Sleep, *Am. Jour. Obst.*, 1914, lxx, No. 6, p. 884.

cases), but in two instances while the directions seemed to be understood, the patient would make no effort to bear down. Occasionally toward the end of the second stage of labor, patients became excited, even violent, and almost unmanageable. This complication occurred in three instances (about 8.5 per cent.); according to other observers, its frequency is as follows: Gauss 1.4 per cent., Preller⁹ 1.7 per cent., Hocheisen 10 per cent., Steffen¹⁰ 13 per cent., and Mayer¹¹ 26 per cent.

A prolongation of labor due to the use of scopolamin and an opiate has always been admitted, and may occur in a fourth of the cases (Hocheisen, Steffen, Avarffy¹²). Strong advocates of the treatment estimate the amount of prolongation as something less than we have found. From our observations it appears that labor may be prolonged three or four hours in the case of primiparas. In multiparous women there is an average delay of an hour. Thus, the average duration of the first and second stages in this series was twenty-one hours in the case of primiparas and twelve hours in the case of multiparas. The corresponding figures for normal cases are eighteen and eleven hours, respectively.

In the first stage of labor the contractions may or may not be impaired. Approximately four fifths of our patients were unaffected, but in the remaining cases the contractions became weaker and the interval between them longer. In two instances, contractions ceased completely after three doses; there was an interval of two hours in one instance and three in the other before they were reestablished. With both these patients the treatment was begun early in labor, and evidently it is exceedingly important that the "pains" become regular, and at least ten minutes apart before the initial dose is administered.

Unless frequent examinations are made, it becomes difficult to determine when the first stage ends. Generally, we have employed rectal examinations, and have based our estimates on those findings. However, it is noteworthy that as a rule, patients who have been quiet become restless when they enter on the second stage of labor. This observation has a practical significance, for, if seminarcois is employed, the obstetrician must learn when the cervix is fully dilated in order to instruct the patient to bring voluntary effort into play. If not told to do so, while under the influence of scopolamin and narcophin, she will not assist the expulsion of the fetus. Generally the response to advice is prompt and satisfactory; otherwise pushing down on the fundus or grasping the hands and pulling on the arms of the patient at the proper moment usually arouses her to employ her abdominal muscles. Once the idea is grasped, there is no trouble in securing continued cooperation. The retardation of the second stage of labor chiefly depends on the difficulty of getting the patient to bear down.

Pituitary extract was given in nine cases and was effective in only three. But in no case was more than one dose administered. It is pertinent that in two instances in which the pituitary extract had no effect there was also no narcotic influence from the scopolamin and narcophin, although in one case eight doses had been given according to Siegel's schedule, and in the other case eleven doses. We have found that pituitary extract does not stimulate patients in seminarcois to employ their abdominal muscles.

There was a frank indication for the use of forceps—usually after pituitary extract had failed—in six cases in this series, four primiparas and two multiparas. Twice the operation was a mid and four times a low forceps. In all these cases, although the patient had been in the second stage two hours, there was no advance. The failure to progress was explained more frequently by the patient's lack of inclination to assist herself than by inefficient uterine contraction. Two patients who required the use of forceps were unmanageable in the second stage, and after the lapse of two hours were delivered under chloroform anesthesia. In another case no effect had been secured from scopolamin and narcophin, and forceps were employed on account of a rigid perineum. Excluding the last instance, the frequency of forceps operation (14 per cent.) remains greater than we have previously been accustomed to. And our experience accords with that of Fehling, who considers that if scopolamin is used, the frequency of operations is approximately doubled.

The third stage of labor was uninfluenced by the administration of scopolamin and narcophin. In one instance an hour after the patient was delivered a moderate postpartum hemorrhage occurred, but this was due to temporary atony such as we encounter once in every forty or fifty multiparous patients, even though delivered without any anesthetic. Massage and pituitary extract were promptly effective, and the excessive bleeding did not recur.

Following labor the narcosis passed away in from two to four hours. The return to normal mental conditions, however, depends on a number of factors, as the amount of the drugs administered and the extent to which the patient is aroused by her attendants and surroundings. The puerperal convalescence is uninfluenced; as one makes rounds of the wards he cannot distinguish patients who have received scopolamin and narcophin during labor from those who have not.

Obviously, the effect of scopolamin and narcophin seminarcois on the fetus is a matter of prime importance. During the labor the fetal heart sounds were observed as a routine every half hour, and in some cases more frequently. In no instance was there an appreciable effect on the character of the sounds, and also the effect on the rate has been negligible. The lowest fetal heart rate was 116, and the highest 176. Naturally, in individual cases there has been some variation between the counts made at different times, but again here we have not noted anything unphysiologic. The difference between the highest and the lowest counts averaged 17 beats to the minute.

While delivery was taking place, meconium was passed in four instances, but none of these infants was deeply asphyxiated, and two cried as soon as they were born.

The establishment of respiration in the new-born infant is frequently delayed when the mother receives scopolamin and narcophin during labor, and in these circumstances the delay depends on the narcotized state of the infant. Slight asphyxia (oligo-apnea) was present in six instances; but in these cases there was no cause for anxiety, for a few slaps on the back promptly made the infant cry. Deep asphyxia (apnea) also

9. Preller: Zur Anwendung von Skopolamin-Morphium in der Geburtshilfe, München. med. Wchnschr., 1907, liv, 161.

10. Steffen: Zur Skopolamin-Morphium Wirkung bei Geburten, Arch. f. Gynäk., 1907, lxxxi, 451.

11. Mayer: Skopolamin-Morphium bei Geburten, Zentralbl. f. Gynäk., 1908, xxxii, 689.

12. Avarffy: Der Skopolamin-Morphium Dammerschlaf in der Geburtshilfe, Gyn. Rundschau, 1909, iii, 338.

occurred in six cases (17 per cent.), and although all these infants were resuscitated, vigorous measures were required for a period of fifteen or twenty minutes. Most of the cases of apnea occurred early in our experience. It is also noteworthy that deep asphyxia appeared most frequently when the mother received only a few doses of the treatment. This fact, we believe, is explained by the relatively larger dosage of narcophin at the beginning than toward the end of Siegel's schedule. Acting on this conviction, whenever the first stage of labor was well advanced before the treatment was begun, we have made it a rule to give only the initial dose of narcophin. Moreover, in all cases the administration of the opiate should be guided by the requirements of the individual patient—not by a time schedule. Since we adopted these precautions, cases of asphyxia have become less frequent. But our experience teaches that narcophin is open to the same objection as morphin, and its use offers no advantage over that of morphin.

Another precaution of no slight importance consists in making the infant cry lustily as soon as it is born. If the physician is content that regular respirations have become established, and before the baby cries entrusts its supervision to a nurse, he may later be notified that the baby has collapsed. In a case of this kind, although only a few minutes had passed since the infant was handed to the nurse, we had considerable difficulty in reviving it, and half an hour elapsed before we were successful. In any case, if scopolamin and an opiate have been used, the infant should be carefully watched for at least an hour and sometimes longer, for the drugs are transmitted through the placenta, and a smaller or larger amount of them is present in the fetal circulation at the time of birth.

None of the infants in our series died as a result of the use of the drugs in question. However, there was one fetal death which occurred on the second day after birth. Clinically the diagnosis was malformation of the heart, and the necropsy revealed a perforate interventricular septum, stenosis of the pulmonary valves, and marked dilatation of the pulmonary artery. Evidently these lesions were congenital.

After the first day of life, the effect of scopolamin and narcophin on the infant may be disregarded. In their development, the infants whose mothers have received this treatment behave like others. There is the customary initial loss of weight, and this is not exaggerated. The birth weight is regained toward the tenth day, as in other cases. Furthermore, this method of narcosis exerts no baneful influence on lactation.

It is the difficulty occasionally encountered in resuscitating the infant which provides the chief objection to the use of scopolamin and an opiate during labor. And while we have met no case in which resuscitative measures failed, the prolonged efforts occasionally required enable us to understand that fetal deaths may result from the treatment. In Chrobak's clinic, one fetal death in 107 cases seemed chargeable to scopolamin and morphin, and Avarffy recorded one fetal death in fifty cases.

On the other hand, we are strongly encouraged by the testimony of mothers to continue the use of scopolamin and narcophin seminarcosis in obstetric cases. In those which we have observed, approximately four fifths (twenty-nine patients) remembered nothing which happened after they were under the influence of the drugs, and were unaware that the baby was born

until they were told; therefore, these may be counted successful cases. Patients always have a clear recollection of the first dose, frequently of the second and sometimes of the third. As a rule, satisfactory narcosis is secured between the second and third doses, about two hours after the treatment is begun.

In two instances—so-called partial successes—there was a clear memory of everything which happened during labor, but these patients considered that the treatment had modified their suffering. In four instances the treatment had no effect whatever on the mother. Therefore, our experience teaches that once in six or seven cases (17 per cent.) scopolamin and narcophin will not have the effect for which they are administered. Siegel also admits 12 per cent. of failures. Similar results are observed if morphin is used in place of narcophin. Thus, Tischauer,¹³ who collected 2,270 cases, found that the frequency of failures, in the reports of observers outside of Freiburg varied from 20 to 54 per cent.

No injurious effect on the mother was encountered in our experience, but it must not be forgotten that we have rejected cases in which complications of labor were anticipated. With this caution, and if the patient understands that some difficulty occasionally arises in reviving the child, her wish to receive scopolamin and morphin or narcophin seminarcosis during labor may be complied with. However, physicians must recognize that the method has not reached the perfection which warrants indiscriminate use. For example, even moderate degrees of pelvic contraction make it inadvisable to employ seminarcosis, for in these circumstances its effects may diminish the chances for spontaneous delivery and occasionally necessitate the performance even of major obstetric operations. Similarly, the primary inertia not infrequent in the case of elderly primiparas constitutes a contraindication to the use of scopolamin. For the present, therefore, it would seem advisable to employ this drug only when there is every indication that the patient will pass through a normal confinement.

An intimate knowledge of obstetrics is required if physicians wish to administer seminarcosis successfully, for sound judgment must be exercised not only in the selection of cases but also in the management of labor. The supervision of patients who are under the influence of scopolamin and an opiate requires competent assistants. For this reason, and also because the frequency of operative procedures is increased, good hospital facilities are desirable. However, such precautions do not mean that the method is impracticable and that it ought to be discarded. On the contrary, the very satisfactory results in the majority of cases provides the stimulus to secure further improvements in the method which will broaden its field of application and remove its objectionable effect upon the new-born infant.¹⁴

13. Tischauer: *Das Skopolamin-Morphium in der Geburtshilfe*, Inaug. Diss., Freiburg, 1911.

14. In addition to the references already given, the following will be found of interest:

Bass: (Chrobak's clinic): *Hundert und sieben Geburten in Skopolamin-Morphin Halbnarkose*, München. med. Wchnschr., 1907, p. 519.

Fehling: *Die Geburt im Dammerschlaf: Frühaufstehen im Wochenbett*, Strassb. Med. Ztg., 1909, vi, 14.

Prognosis.—I suppose prognosis is more difficult than diagnosis, because in the latter one still has Nature in consultation; when it comes to a question of prophecy, the doctor is pitting his opinion against that of the Senior Practitioner. —Adolphe Abrahams, *Practitioner*, March, 1915.

MECHANICS AND PATHOLOGY OF TUBERCULOUS HIP-DISEASE IN THEIR RELATION TO ITS DIAGNOSIS AND TREATMENT

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Some years ago, when I began a study of the cases of hip-disease which were then, and had been treated at the Hospital for Ruptured and Crippled, I began, at the same time, to study the literature on this subject. I soon discovered that there existed a great diversity of opinion regarding the treatment of this condition.

It was admitted on all sides that we were dealing with a disease for which we had no specific remedy, and that our only resource was to treat the condition from a purely mechanical point of view. As usually stated, the idea was to maintain the affected limb at rest in order to allay the inflammatory reaction; it was to be held in a manner which would permit of locomotion, so that the patient might obtain the benefit of fresh air and exercise; and finally the brace or apparatus to be used for this purpose should be so constructed that the limb would be in the best possible position for locomotion when the disease was cured or arrested.

In a word, the treatment for tuberculous hip-disease was, and, for that matter, still remains, a question of mechanics.

Now mechanics, as is well known, is a mathematical science. Such being the case, there should not be a diversity of opinion as to the mechanical requirements or the methods of fulfilling them. Given similar conditions, the indications must be similar. Hence, with a diversity of opinion as to the methods, it must be assumed that some or all of the methods in use for the treatment of hip-disease are inadequate.

It was in order to discover, if possible, the exact mechanical requirements to be fulfilled in the treatment of hip-disease, that I then began the study of the anatomic mechanics of the normal, as well as the tuberculous hip-joint, in connection with my clinical studies. The results of these studies cannot be presented in their entirety at present. I feel, however, that the importance of the subject justifies the presentation of some of the conclusions, though there can be only a brief allusion to the details of the work on which they are founded.

I shall call attention only to the few anatomic and mechanical details which bear directly on the questions to be discussed.

Of all the organic joints, the bones of the human hip-joint most closely resemble ideal geometrical figures. The head of the femur is part of an almost perfect sphere; it is, during life, closely embraced by the acetabulum and the cotyloid ligament; and these together form an almost perfect ball and socket joint. Hence this joint is in every way comparable to the inorganic ball and socket joint of the technician, and as such, is subject to the same mechanical laws and advantages.

Unfortunately, with the advantages which this perfect mechanical form brings, there exists the disadvantage, that slight incongruities of the articulating surfaces lead to marked impairment of function. It is for this reason that conditions which in other joints, would cause only a slight impairment of function, that

in time might be compensated for, lead to marked and often permanent damage in the hip-joint.

The extent of motion in the hip is considerably augmented by the length and slenderness of the neck. Here again the mechanical advantages of the structure are in a measure offset by the disadvantages which arise from this form; namely, great liability to distortion and consequent impairment of function under pathologic conditions.

In by far the majority of cases of tuberculous hip-disease, the lesion lies in the articulating bones. Roentgenoscopy in a large number of cases has borne out the pathologic investigations of the older writers in this respect. My own investigations have led me to believe that not only are the bones practically always affected, but that, in the majority of cases, the bone lesion is the primary one.

In a small percentage of cases the lesions may be in the neck outside of the capsule or in the trochanter, and, remaining so, the joint does not become involved. When this is the case the patient of course recovers with perfect joint function.

In by far the greater number of cases, the bones within the articulation are affected. In my own cases, the neck, the head, and the acetabulum were primarily affected in about the same proportions.

No matter where the disease begins it rarely remains focal. Not only does the actual focus extend, but surrounding it for some distance is an area of inflammatory atrophy, which, in the milder cases, may be moderate and more or less limited in extent. In the average case the inflammatory atrophy is marked and extensive; and in the severe ones, it leads to extensive bone absorption; separation or absorption of the head; complete absorption of both the head and neck, deepening or enlargement of the acetabulum alone, or in combination with the previously mentioned changes in the femur.

These changes depend on the character of the pathologic condition. I have seen them occur in cases treated by all known procedures. Braces, bed extensions, plaster spicas long and short, are powerless to prevent them.

Any one who will follow a large series of cases, treated according to any method will find this to be true. I have roentgenograms of a number of cases treated by means of the long-extension hip-brace (which is supposed to prevent absorption and destruction) which illustrates the usual course of events.

Hence, it is evident that not only have we no specific remedy, but we have not even the means to prevent or check the mechanical damage induced by the pathologic process.

This being true, what is the ultimate outcome of the condition? As we have no apparatus which will prevent atrophy and absorption, can we by the use of an apparatus retain the parts in their normal relations until some reparative process will restore, in a measure, the normal density, contour and relation of the affected parts? My experience leads me to believe, that restorative processes in hip-disease are practically absent.

If one follows the course of a number of cases of hip-disease, making frequent careful clinical and roentgenographic examinations it will be found that the course and final outcome will only vary within certain limits.

All the cases seen during the early stages will present nothing more than the symptoms of hip irritation;

that is, the same reaction which any inflammatory or irritative condition in or near the joint will induce. The hip-joint, depending on the degree of the irritation, will be held more or less firmly in a position of flexion, abduction and slight external rotation. It is held in this position not because there is a specific irritation of the muscles which maintain this position, but because this position produces the most complete relaxation of the hip under the existing mechanical conditions. Because of the course of the muscles which surround the hip-joint and the peculiar construction of the capsule and its accessory ligaments, this position must be assumed in order to produce relaxation. Whether the position assumed is voluntary or involuntary is beside the question.

At this stage it is impossible to make a positive diagnosis of tuberculous hip-disease, for the same symptoms will be present in all forms of inflammation in the joint or its neighborhood. In my own cases, I consider that I am not dealing with tuberculous disease when patients presenting these symptoms get well with perfect function, unless I can demonstrate an extra-articular focus by means of the roentgenogram.

Even when, as the subsequent course of the disease demonstrates, we are dealing with tuberculosis, roentgenoscopy shows definite changes in only a small percentage of cases at this time. I have rarely been able to demonstrate an actual focus during the early stages.

After a variable length of time, a symptom-complex occurs, which the older writers describe as the second stage of the disease. It has been the practice of late years to ridicule this division of the disease into two stages; yet, though the transition is gradual and the two stages of the disease cannot always be definitely separated clinically, what has been called the second stage of hip-disease undoubtedly corresponds more or less closely to certain definite pathologic and mechanical conditions.

It is at this stage that the bone atrophy and bone absorption with the consequent deformation begin. The course from now onward can be traced by roentgenoscopy. We are by this means enabled to say definitely whether or not we have femoral or acetabular disease or both.

Clinically, both these conditions manifest themselves in the same way so far as the deformity is concerned. That is, in both these conditions the result is adduction deformity.¹

The adduction like the abduction deformity is due, not to the specific nature of the disease, but to mechanical conditions. As has been said, the abduction is assumed to relax the hip-joint. That this position cannot be retained by muscular action alone, irrespective of other conditions, must be self-evident to every one with a knowledge of muscle physiology and mechanics.

Whether the muscular contraction which holds the hip in the abducted position is caused by so-called muscular spasm or is voluntary, the power of the muscles engaged in producing this position is entirely inadequate to retain it for any great length of time. The force of gravity soon overcomes it, and when there is no deformation, (for instance, in synovial conditions which, by the way, are much more uncommon in the hip than in the knee) the limb will fall and will finally become adducted, unless prevented from doing so by some external force.

When there is no deformation of the bones the cause of the adduction deformity lies in the efforts of the patient to save the leg from weight-bearing. Unable to retain the abducted position to relax the hip, the patient tilts the pelvis on the other hip so that the foot of the affected limb barely touches the ground. This position becomes permanent, that is, we have what is known as adductor contracture; not because the adductor muscles contract actively, but because the distance between the origin and insertion of the adductors is lessened, and according to physiologic laws these muscles accommodate themselves to this distance. When there is deformation of either the femoral or acetabular part of the articulation, the normal angle between the neck and shaft of the femur or the normal angle between the mechanical long axis of the limb and that of the shaft of the femur is so changed that mechanically the limb must become adducted.

The position of adduction will occur either during or after treatment in practically all cases of hip-disease, unless the limb becomes firmly ankylosed in the abducted position. If the patient has been on a brace, the brace sometimes, certainly not always, will hold the limb in a straight line for the time being. As soon as the patient begins to walk, however, he acquires an adduction deformity. Cutting the adductors, stretching and even osteotomy of the femur will not prevent its recurrence.

It is needless to discuss the disadvantages of this position. Yet disabling as this deformity is known to be, it does not approach the disability caused by acetabular disease. In this case the femoral head is gradually pushed upward as soon as there is weight-bearing, until it becomes subluxated or completely dislocated. Such patients not only have an adduction deformity but must bear the weight of the limb on the more or less completely destroyed capsule and the gluteal muscles. The result is that these patients not only walk badly, but are exceedingly subject to hip-strain.

In all cases of recovery from hip-disease with distortion and motion, the final functional result, that is, the result in adult life (which is the only result to be considered), is poor in every respect.

Thus from a careful consideration of the anatomy, the physiology and the mechanics, I have been led to exactly the same conclusion as that arrived at by Lorenz empirically. That is, to judge from the pathologic and mechanical conditions, I believe that the only result which can give the patient a really useful limb in adult life is one with bony ankylosis.

Whether or not we can attain this result by means of the short spica is another question. There can be no doubt that the ultimate mechanical requirements are much more likely to be fulfilled when the limb is held in the most advantageous position with regard to weight-bearing, than with any of the methods of

1. The location of the disease, when it is not so acute that the patient resists all attempts to move the joint, can in a measure be ascertained by physical signs. From the examination of many cases, comparing the joint symptoms with the roentgenogram and what the mechanics of the condition would lead one to expect, I have learned to locate the site of the disease even without roentgenoscopy. For example, a high trochanter with limitation in abduction, the other movements being free, is indicative of acetabular disease. When all motions are limited except flexion and extension (rare in tuberculous hip-disease but not so uncommon in senile osteo-arthritis of the hip), there is central acetabulum disease leading to intrapelvic displacement of the head of the femur; when the neck alone is involved the objective signs closely resemble those of coxa vara, though in tuberculous hip-disease there is more general limitation of motion. A high trochanter with limitation of motion in all directions is indicative of marked deformation of the head of the femur. It must be remembered, however, that these differential signs can only be made out after the acute irritative symptoms (because the joint has been immobilized or the disease is arrested) have subsided.

treatment at our disposal at present. The tuberculous process in the bones is attended by a minimum of inflammatory reaction. It is only by weight-bearing or motion that we can stimulate the reaction processes to bone formation and thus increase the prospects for bony ankylosis.

Even when the treatment with the spica and weight-bearing is conscientiously carried out, unfortunately we do not always succeed in securing an ankylosis. I firmly believe that we should seek to produce ankylosis in all cases in which there is deformation or much atrophy, by operative measures as soon as the disease has become quiescent.

As all who have attempted to operate on these patients know, the conditions for operation are unfavorable in adult life. The exposure is difficult, the tissues are resistant and the adult does not withstand the operative measures nearly so well as do children. In children, on the contrary, the exposure is easy, the tissues are elastic and the operative risk is practically nil. Moreover, I think it a mistake to attempt to save atrophied bone. Healthy bone-surfaces should be brought into apposition, and weight-bearing, with the proper precautions, should be encouraged as soon as possible after the operation. It is of course ridiculous to expect stumps of atrophied bone to bear the weight of the body; they should be removed and if necessary the trochanter should be brought into contact with the denuded acetabulum.

Concerning the plaster spica treatment, the hip should be retained as nearly as possible in the middle position, that is, slightly flexed, abducted and only slightly rotated out. Eversion is a disabling deformity and should be scrupulously avoided. The spica, except when it is applied for the relief of irritative symptoms, need not, nor will it when it extends only to the knee, completely immobilize the hip.

It is, of course, impossible to give details; when a patient should be in bed, and when he should be up, will depend on the circumstances. Above all it should be remembered that there can be no invariable rules; for in every case the mechanical and pathologic conditions must be met as they appear in that particular instance. So, for instance, in the isolated acetabular cases, with enlargement of the acetabulum, it is often difficult to attain bony ankylosis, and sometimes impossible to prevent subluxation or dislocation even when the spica is worn constantly. In such a case I have used a Thomas knee-brace, so modified that there is a sole plate instead of extension rods and a snap joint at the knee, when the condition has become quiescent. In a number of cases so treated, I have been successful in preventing luxation for some years, even after the brace was removed. As none of these individuals have as yet attained their full height and weight, however, I do not know whether or not the result is permanent.

The conclusions here presented are based on a study of about two hundred cases. Particular attention was given to final results. By final results I do not mean that the condition at the time the patient was discharged with the disease supposedly arrested or cured, but the condition after such an individual had used his affected hip during adult life. I place absolutely no reliance on statistics, particularly those obtained by letter from patients or their family physicians who live at a distance.

The results of the study here presented in a somewhat general way may be summarized as follows:

Tuberculosis of the hip is a destructive disease, which practically always leads to marked impairment of the joint structures. So far as we know, there is no treatment which will prevent or limit the destructive process and we have not, therefore, a method which will prevent permanent impairment of joint function.

Such being the case, it must be admitted that we have no adequate treatment for hip-disease. For the present, we must be content to choose the method which will give the patient the strongest limb to stand and walk on, irrespective of joint motion or shortening.

At present the treatment with the short plaster-of-Paris spica, with all its shortcomings, is better than any other heretofore in use, provided it is scientifically carried out.

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BENZOL IN LEUKEMIA

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Last year I described two cases of leukemia treated with benzol (benzene, C_6H_6) after the plan of Koryanyi. This article¹ is so recent that it will not be reviewed here. The extensive bibliography on the subject is also omitted; it was reviewed then, and Sappington and Pearson² have given a list of the articles on the subject to the date of their own.

Suffice it to say now that the patient with lymphatic leukemia referred to has since died. As suggested, benzol was discontinued shortly after the paper was printed because it seemed to have no effect on the leukemic process. So far as we could see, benzol neither helped nor harmed the patient.

The second case, one of the splenomyelogenous type, has been under observation almost continuously since Aug. 23, 1913, nineteen months. The length of treatment exceeds any that I have seen recorded, itself a matter of interest. The case is interesting, furthermore, because of the confirmation of some of my impressions expressed a year ago: until now certain fixed opinions relative to the worth of the drug and its dangers have been arrived at.

The mass of data accumulating in so many months may be omitted; that part of them which seems to have a bearing is given in the accompanying table.

The several features of this table stand out almost without the need of comment. What I shall have to say is more in the way of the conclusions to which they seem to lead.

A year ago I expressed the opinion that "benzol is a remedy of remarkable potency in myeloid leukemia." In spite of all that follows which may seem to argue to the contrary, I am convinced that it is the most helpful of all known agents in the treatment of leukemia of this type. When it is recalled that the patient under consideration was a boy of 13 years when the treatment was started; that his spleen then occupied about four fifths of the abdominal cavity, and that the leukocytes numbered 499,000, one is justified in expressing surprise that he is still living.

1. Smith, F. H.: Benzol Treatment in Two Cases of Leukemia, *THE JOURNAL A. M. A.*, March 21, 1914, p. 921.

2. Sappington, S. W., and Pearson, W. A.: The Leukemias under Benzol, *THE JOURNAL A. M. A.*, July 11, 1914, p. 143.

Such a case in an adolescent would have been generally conceded to be hopeless prior to the benzol treatment. "There is no known remedy that seems even to stay the course of the disease. Once the diagnosis is positive, the case is hopless."³ Yet this boy is still living, is attending to his school duties, expresses himself as being entirely well, and on casual observation would seem so.

That the result is due to benzol cannot be reasonably questioned. There has been no other treatment than that indicated in the table. Even a casual inspection of the table will force the conclusion that the

dose may in course of time become actually stimulating to leukocytic generation. Larger doses have so far not been necessary, and as with all potent drugs, one's desire should be to keep the dose within the limits of potency on the one hand, and of safety on the other.

A second statement of a year ago is also amply confirmed: "Beyond a doubt, 'benzol is a two-edged sword.'" There is nothing more certain in benzol therapy than this: the practitioner who prescribes the drug without making frequent blood counts is courting disaster. We have only to point to the blood

COURSE IN A CASE OF SPLENOMYELOGENOUS LEUKEMIA

Date	W. B. C.	Differential	R. B. C.	Hgb.	Spleen	Medication, Drops
8/18/13	372,000	Many myelocytes.....	3,072,000	55	4-5 of cavity.....	None.
8/23/13	.....	.....	.....	.....	.....	Benzol, 5, t. i. d.
8/25/13	499,000	.....	.....	.....	Slight change.....	Benzol, 10, t. i. d.
9/ 1/13	428,000	.....	3,172,000	52	Girth 28.5 in.....	Benzol, 15, t. i. d.
9/13/13	349,000	.....	3,180,000	53	.....	Benzol, 20, t. i. d.
9/19/13	185,000	.....	.....	.....	Diminished	Benzol, 22, t. i. d.
9/24/13	122,000	Myelocytes fewer.....	.....	.....	.....	Benzol, 22, t. i. d.
9/27/13	128,000	.....	.....	.....	.....	Benzol, 24, t. i. d.
10/ 4/13	41,000	.....	.....	.....	Right abdomen clear.....	Benzol, 24, t. i. d.
10/11/13	10,600	.....	.....	.....	Left side 1.5 in below navel	Benzol, 20, t. i. d.
10/18/13	6,600	.....	.....	.....	Barely felt lt. costal margin	None.
10/25/13	8,400	Few myelocytes.....	5,608,000	.....	1 in. below ribs.....	Benzol, 10, t. i. d.
11/ 1/13	9,750	.....	5,888,000	67	Same	Benzol, 12, t. i. d.
11/ 8/13	9,000	P., 71; S., 18; L., 3; My., 4; Mz., 3; E., 1.	5,608,000	60	Rib margin	Blaud's pill, t. i. d.
11/15/13	10,800	.....	.....	.....	1.5 in. below ribs.....	Blaud's pill, t. i. d.
12/ 6/13	9,600	P., 76; S., 18; L., 1; E., 1; Mz., 2; My., 2.	.....	.....	0.5 in. above navel.....	Blaud's pill, t. i. d.
12/20/13	10,400	.....	.....	.....	1 inch below ribs.....	Blaud's pill, t. i. d.
1/17/14	16,200	P., 56; S., 20; L., 8; E., 5; My., 9; Mz., 2.	.....	.....	Half way to navel.....	Benzol, 10, t. i. d.
2/14/14	22,000	.....	.....	.....	½ in. above navel.....	Benzol, 25, t. i. d.
3/ 7/14	28,400	.....	.....	.....	Half-way to navel.....	Benzol, 20, t. i. d.
3/14/14	33,200	.....	.....	.....	.....	Benzol, 20, t. i. d.
3/28/14	14,800	.....	.....	.....	.....	Benzol, 20, t. i. d.
4/11/14	27,800	.....	.....	.....	.....	Benzol, 25, t. i. d.
4/18/14	13,200	.....	.....	.....	.....	Benzol, 20, t. i. d.
4/25/14	24,200	P., 59; S., 20; L., 3; E., 5; Mz., 3; My., 10.	.....	.....	1 in. above navel.....	Benzol, 25, t. i. d.
5/16/14	22,800	.....	.....	.....	.....	Benzol, 27, t. i. d.
5/25/14	15,200	P., 61; S., 24; L., 7; E., 4; My., 4.	.....	.....	.....	Benzol, 27, t. i. d.
6/ 8/14	24,400	P., 66; S., 23; L., 4; E., 1; Mz., 8; My., 2.	.....	.....	.....	Fowler's solution, 4.
6/15/14	16,200	.....	.....	.....	.....	Fowler's solution, 4.
6/22/14	6,800	P., 66; S., 28; L., 3; E., 1; My., 2.	.....	60	.....	Fowler's solution, 4.
7/ 6/14	6,700	.....	.....	.....	.....	Blaud's pill, t. i. d.
8/ 3/14	24,000	P., 75; S., 6; L., 8; E., 2; Mz., 1; My., 8.	.....	.....	.....	Blaud's pill, t. i. d.
8/10/14	36,800	.....	.....	.....	.....	Benzol, 20, t. i. d.
8/17/14	26,400	P., 72; S., 10; L., 8; E., 1; Mz., 3; My., 6.	.....	.....	.....	Benzol, 20, t. i. d.
8/31/14	13,600	.....	5,384,000	.....	Fills upper rt. quadrant...	Benzol, 20, t. i. d.
9/19/14	15,000	P., 57; S., 24; L., 10; My., 7; Mz., 2.	.....	.....	.....	Benzol, 20, t. i. d.
10/ 3/14	8,200	.....	.....	.....	.....	No medication.
10/31/14	16,400	.....	.....	.....	.....	None.
12/12/14	22,000	P., 52; S., 21; L., 14; E., 1; Mz., 2; My., 10.	6,448,000	84	Fills upper quadrant.....	Benzol, 20, t. i. d.
1/23/15	18,400	P., 61; S., 16; L., 12; E., 1; Mz., 1; My., 9.	.....	.....	.....	Benzol, 20, t. i. d.
2/20/15	29,200	.....	.....	.....	.....	Benzol, 24, t. i. d.
3/ 6/15	6,600	P., 50; S., 30; L., 15; E., 1; Mz., 1; My., 3.	Two normoblasts in count of 100 white cells	.....	.....	None.
3/13/15	4,400	.....	5,120,000	65	½ in. below navel.....	None.
3/27/15	13,800	.....	.....	.....	.....	Blaud's pill, t. i. d.

drop in the leukocytic count is directly dependent on the exhibition of the chemical in sufficient dosage.

The effectual range of dosage has also been fixed for this individual case. One notes that only once has a dose of 25 drops three times daily been exceeded; that results have followed a dose of from 20 to 25 drops three times daily (4 to 5 gm. approximately a day). Any less dose seems worse than useless, as this case in one of its phases suggests that the leukopoietic system becomes immune in time to a dose which was leukotoxic perhaps but a short time before. If such a conclusion be true, then the smaller than effective

picture of the table to justify the statement that there is no possible way of guessing what the count will be on the basis of the last; and, therefore, of judging whether the dose should be held stationary, increased, decreased or stopped altogether. I am firmly convinced that such judgment must be constantly exercised, under the threat of having the disease jump out of bounds on the one hand, or of producing disaster on the other.

One can guess that the rise of the count after a fall will be slower and more gradual than a drop. This is illustrated several times in the table. Nothing in it is more striking than the abrupt way in which the count drops from a point around 30,000 to 6,000 or

3. Cheney, W. F.: Leukemia in Childhood, Am. Jour. Med. Sc., 1912, cxliii, 22.

7,000. If the blood curve were ruled graphically, the chart would resemble a fever chart of a disease full of crises: it is a series of blood crises. In other words, the leukocytes have all along *stepped up* and *fallen down*. Just how gradual will be the step upwards cannot be calculated: one time in two weeks, another, in eight weeks, perhaps. The drop comes abruptly, but what is more important, "when we least expect it," if such an expression can be allowed.

Nowhere can the last sentence be better illustrated, nor can the potential dangers of the drug be better emphasized, than in the happenings recorded as of between June 1 and July 20, 1914. The patient had been getting the largest doses of benzol he had ever had, and at the end of a course extending over four months, it seemed to be making no impression on the leukocytic curve. So it was stopped, for the double reason that the treatment seemed at last ineffectual, and because I was afraid to continue such large doses. My surprise and interest was keen, then, to note a drop from 24,000 to below 7,000. The cells remained at or near this point on no benzol at all for six weeks. There seems but one explanation available, and that just now suggested: After an indefinite time and after an uncertain degree of saturation has been reached, the leukopoietic tissues seem not only to become immune to benzol, but are actually stimulated by it.

The effect of this experience is to cause doubt as to how to handle the drug when the count stays high when we are pushing it. Shall we stop, or shall we continue? I feel that if the patient has already been taking benzol for several weeks and the curve is still ascending, or even at a standstill, the safest plan is to stop it for awhile. The drop may come then. At any rate, one cannot get away from the reported cases in which, under benzol, the leukemia assumed a fulminant form, and the patient rapidly succumbed. Whether or not these flare-ups are due to the benzol is not clear; but there is a type of benzol poisoning which is certain: a practical loss of leukocytes with aplastic anemia superadded.

The leukocytes in stained smear are interesting. The appearance of the white cells indicates degeneration. It is hard to make a satisfactory count; transition forms, difficult to classify, are frequent. This, I believe, is a direct result of the benzol therapy. At least, I have never noted just this difficulty before. At any rate, myelocytes have been present in every smear examined. The red-blood-making tissue has never suffered objectively, unless it be in the last crisis, when for the first time a rare normoblast was found. Yet one must always sense the lurking danger.

Myers and Jenkins'⁴ observation of the fluctuation of the size of the spleen, without any regular relation to the fluctuations in the blood count, has ample confirmation in my case. One cannot argue that because the count is normal, the spleen is not palpable, or the reverse.

From my experience I believe that benzol poisoning will be first indicated in the blood in some one of its phases. Though I have been constantly on the watch for other toxic manifestations, I have seen none. It is curious to relate that this boy has seemed for one and one-half years to be normal subjectively. He has never complained, except of frequent "head" and bronchial "colds." These have been as frequent when

off as when on benzol. Otherwise his general condition does not seem to vary, whether his leukocyte count is high or low, whether he is taking benzol or not. We still have no proof that benzol is specific. Of one thing I feel certain: it has not, and it will not "cure" in this case. One may doubt whether such dogmatism is ever proper. Suppose the dose were raised? I believe that benzol poisoning would follow, nor is there reason to believe the case would be any nearer a cure for the risk. There is not the constant decrease of the size of the spleen, nor the constant falling off, to disappearance, of the myelocytes that would be expected were the drug's specificity dependent on a higher dose than any I have ventured.

In doubting its specific properties I admit a great disappointment. I had hoped that one more of the number of incurable diseases was soon to give way before specific therapy. Instead of this hope, I am confidently looking forward to the time when in spite of, if not because of, benzol, this patient's leukemia will assume one of three forms: a chronic progression upward of the leukocyte curve, a constant enlargement of the spleen, and ultimate death, just as if there had been no staying treatment, or an acute fulminant picture, in which the increase of the leukocytes will be by leaps and bounds to a high figure; or, on the other hand, a drop in the leukocyte curve will come, will not stop at the normal line, but will continue downward to 500 or thereabouts, with all the other evidences of aplastic anemia.

When all is said, however, concerning the disappointment in train of this experience, and of the dangers that lurk in its unguarded and largely empiric use, the chemical has a most remarkable *inhibiting influence* on the course of the disease. There is no exact analogy that I can think of. Like digitalis, however, benzol may have a distinct place in therapy, even if its action prove short of specific, and merely symptomatic, staying or inhibitory.

The Scope of Embryology.—The development of the egg has always cast a peculiar spell on the scientific imagination. As we follow it hour by hour in the living object we witness a spectacular exhibition that seems to bring us very close to the secrets of animal life. It awakens an irrepressible desire to look below the surface of the phenomena, to penetrate the mystery of development. The singular fact nevertheless is that during the phylogenetic period of embryological research this great problem, though always before our eyes, seemed almost to be forgotten in our preoccupation with purely historical questions—such as the origin of vertebrates or of annelids, the homologies of germ-layers, gill-slits or nephridia, and a hundred others of the same type. Now, these questions are and always will remain of great interest; but embryology, as at last we came to see, is but indirectly connected with historical problems of this type. The embryologist seeks first of all to attain to some understanding of development. It was therefore a notable event when, in the later eighties, a small group of embryologists headed by Wilhelm Roux turned away from the historical aspects of embryology and addressed themselves to experiments designed solely to throw light upon the mechanism of development. The full significance of this step first came home to us in the early nineties with Driesch's memorable discovery that by a simple mechanical operation we can at will cause one egg to produce two, or even more than two, perfect embryos. I will not pause to inquire why this result should have seemed so revolutionary. It was as if the scales had fallen from our eyes. With almost a feeling of shock we took the measure of our ignorance and saw the whole problem of development opened.—Edmund B. Wilson, *Science*.

4. Myers, J., and Jenkins, T.: Benzol in the Treatment of Leukemia, abstr., THE JOURNAL A. M. A., May 17, 1913, p. 1575.

GASTRO-INTESTINAL STUDIES

V. THE PROTEIN CURVE OF GASTRIC DIGESTION
IN NORMAL AND PATHOLOGIC CASES*

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AND

MARTIN E. REHFUSS, M.D.

PHILADELPHIA

TECHNIC OF THE REACTION AND FALLACIES OF
THE TEST

Within recent years considerable interest has been shown in the study of the protein content of the gastric juice owing to the application of methods for the determination of this content in arriving at a differential diagnosis of carcinoma of the stomach and benign achylia. But little interest was manifested in the importance of the protein content in other conditions in which the acidity was present or pronounced. Furthermore, all methods which were evolved toward a solution of this problem considered the protein content merely from the point of view of a single phase in the gastric cycle. By means of a method recently devised by one of us, it has been possible to study the protein content systematically in every phase of digestion and to obtain data of importance. We have made a study of the principles underlying the reaction and shall endeavor to point out the fallacies connected with the ordinary method of examination. The regular Wolff technic¹ was used with slight modifications, but instead of testing the protein content at the one-hour interval, we tested specimens² throughout the entire period of digestion.

Readings were immediately made and the tube giving a ring at the greatest dilution of gastric juice was recorded.³ In every instance it was desirable to perform the test under conditions which were as constant as possible, and for that reason readings were always made against a dark background. If the tubes were left standing for fifteen minutes or longer it was remarked that solutions of even greater dilution than the one recorded were capable of giving a ring. The importance of immediate examination is therefore insisted on. A second point should be brought out.

* From the Laboratory of Physiological Chemistry of the Jefferson Medical College.

1. Wolff: Magen und Darmkrankheiten, Berlin, 1912, p. 217.

2. These specimens were obtained by means of the fractional tube which one of us (Rehfuß: Am. Jour. Med. Sc., June, 1914, p. 848; New York Med. Jour., Aug. 22, 1914. Rehfuß, Bergeim and Hawk, THE JOURNAL A. M. A., Sept. 12, 1914, p. 909) devised. Specimens were obtained in this way at fifteen-minute intervals, and at five-minute intervals during the first fifteen minutes. One c.c. of the filtered juice was then diluted with 9 c.c. of water representing a dilution of 1:10; 5 c.c. of this mixture was again added to 5 c.c. of distilled water and a dilution of 1:20 obtained; this was again repeated, using 5 c.c. of the mixture last obtained and 5 c.c. of distilled water, and the dilutions were kept up until a series was obtained representing 1:10, 1:20, 1:40, 1:80, 1:160, 1:320, and if necessary 1:640 or more. They were then stratified with approximately 1 c.c. of the Wolff phosphotungstic acid reagent, care being taken that the liquids did not mix.

3. This reagent consists of phosphotungstic acid, 0.3 c.c.; conc. hydrochloric acid, 1.0 c.c.; alcohol, 95 per cent., 20.0 c.c.; distilled water q. s., 100.0 c.c.

The stomach should be empty. One of us⁴ pointed out elsewhere that even normally a large residue is often found which may in certain pathologic cases assume exaggerated proportions.

In certain experiments (which one of us performed with Drs. Bergeim and Hawk) made in this laboratory, it was remarked that even relatively simple articles of diet such as eggs, combined with cereals and milk, may remain for relatively long periods in the healthy stomach. To commence a test five hours after such a diet will show, even in a certain number of normal individuals, an initial high protein content owing to the dissolved proteins still remaining in the stomach.

Case 23, for instance, demonstrates the results obtained when the test was performed too soon after the individual had ingested a meal of fish and vegetables. In this case the test was purposely performed at that time and the resulting figures show the unmistakable presence of protein residue. *If, therefore, high figures are obtained when the stomach should be empty, in the absence of other factors which we shall point out, an initial very high point is indicative of protein retention.*

Another point is worthy of consideration. The patient is warned to be particularly careful about swallowing oral and bronchial secretions.

An estimation of the protein content of saliva in six normal individuals showed that it gave a reaction in five cases at 1:80 and in one case for some unknown reason at 1:160. These figures can be greatly surpassed in the sputum encountered in certain pulmonary cases, and it is an everyday observation that these individuals swallow much of their sputum.

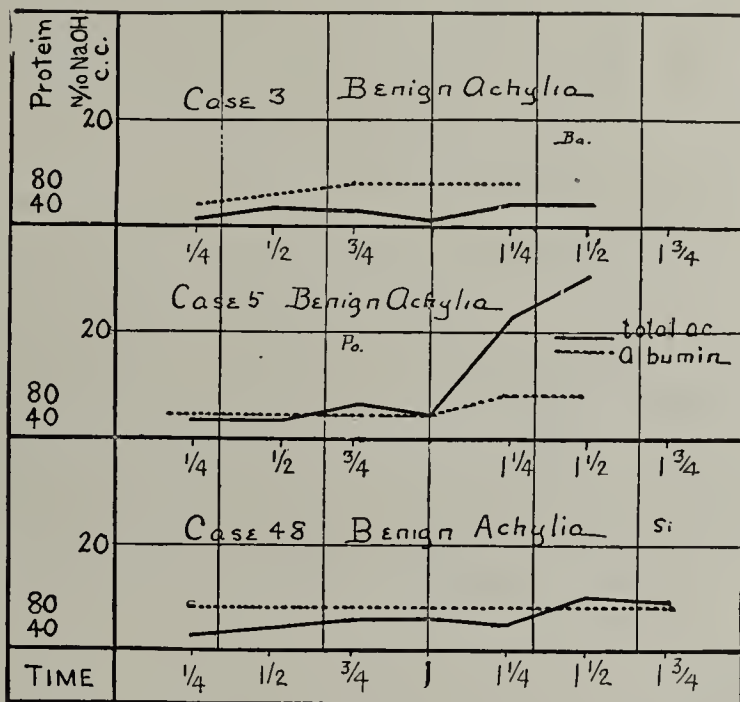


Chart 1.—Total acidity and albumin curves in three cases of benign achylia.

NATURE OF THE PROTEIN REVEALED BY THIS
METHOD

The protein on various occasions found in the gastric juice must come from a variety of sources. Briefly enumerated it may come from food ingested, saliva or bronchial secretions swallowed, bleeding owing to an ulcerative lesion, regurgitation of intestinal contents, and finally in cases in which there is a gastric lesion, from specific protein products derived from the lesion itself.

That the pure gastric juice derived from normal individuals contains but little protein must be evident from the fact that on various occasions the juice obtained from normal individuals after the administration of a water meal (a test meal consisting of 200 c.c. of water which is aspirated at intervals) never showed a protein content exceeding 1:40. This is significant inasmuch as it indicates that the pure normal juice has a very low protein content, any increase of which must

4. Rehfuß, Martin E., Bergeim, Olaf, and Hawk, Philip B.: The Question of the Residuum Found in the Empty Stomach, THE JOURNAL A. M. A., July 4, 1914, p. 11.

be of pathologic importance. But the customary Wolff test is performed by administering the ordinary Ewald test-meal and testing at the one-hour interval. Concerning this method we have some data from Wolff,⁵ Einstein,⁶ and Rolph⁷; the results, however, of testing merely one phase of the digestive curve is obviously wrong. It merely registers a single point in the whole mechanism of gastric digestion and gives no information regarding the elaboration of the protein, a point not without importance.

We therefore made studies (1) to determine if possible the actual content of the test meal and its fluctuation during digestion, and (2) the modification of this curve in normal and pathologic cases. These latter are recorded merely in the hope that a possible interpretation may be obtained for some of the curious phenomena recorded.

We found that tea alone gave no reaction even at a dilution of 1:10, and that a regular Ewald meal consisting of 8 ounces of tea and two pieces of toast gave a reaction at 1:20, immediately after thorough maceration. After standing for fifteen hours in the incubator at 38 C. (100.4 F.) a reaction of 1:40 was obtained showing that there was practically no autodigestion. A solution of pepsin without hydrochloric acid gave no protein reaction whatever.

We then performed experiments to study the action of the artificial gastric juice in vitro. The macerated Ewald meal was treated by an artificial gastric juice made by dissolving 0.5 gm. of pepsin in 0.2 per cent. hydrochloric acid. The artificial juice failed to give a reaction at 1:10. This mixture was then put in the incubator at 38 C. and samples were taken at the same time intervals as were employed in taking specimens from the stomach with the fractional tube. The following results were typical of those obtained on three separate occasions:

5 minutes.....	1:40
10 minutes.....	1:80
15 minutes.....	1:80
30 minutes.....	1:160
45 minutes.....	1:160
60 minutes.....	1:160
75 minutes.....	1:320
90 minutes.....	1:320
105 minutes.....	1:320
120 minutes.....	1:320
18 hours.....	1:1,080

Therefore we see that using this method we obtain a protein in gradually increasing quantities more or less directly proportional to the strength of the acid and the duration of the reaction and directly dependent on the soluble intermediate protein bodies formed through the action of the artificial gastric juice on the proteins of the bread. In each case there was a gradual rise as the continued action of the gastric juice made itself felt on the bread proteins. *If, therefore, the gastric mucous membrane is absolutely normal and there are no extrinsic sources of albumin, the pro-*

tein curve should follow the acid curve and in the absence of acid should remain very low. In other words, depending on the elaboration of acid, there should be a definite elaboration of soluble protein.

DIAGNOSIS OF CANCER FROM BENIGN ACHYLIA BY THIS METHOD

In an ordinary benign achylia, as seen in Case 5 and in Cases 24, 48 and 49, the albumin curve runs more or less parallel to the acid curve. Even in the subacidities due to benign causes the same rule holds true, and the albumin content remains comparatively low. Smithies,⁸ Wolff⁵ and others found that figures of

1:100 were suspicious and above this, point out positive evidence of neoplasm, but the actual evolution of the albumin curve was not worked out. We found that in carcinoma the protein curve diverges from the acid curve, and as digestion progresses this disproportion increases so that there is a marked separation of the curves. This is seen in the cases recorded (Cases 22, 26, 30 and 27) in which there was practically an achylia and in which in every instance, subsequent events

and roentgenoscopy confirmed the diagnosis that the protein curve was entirely disproportionate to the acid curve. Secondly, that this increase in albumin concentration occurred as digestion proceeded suggested that there was an elaboration of protein on the part of the neoplasm per se. In other cases in which the neoplasm was accompanied by a demonstrable acidity, the protein was generally high with a tendency to become higher as digestion proceeded. Protein retention will result in high initial figures, but if the precaution is taken to empty the stomach before testing, this factor is disposed of. In the question of the

differential diagnosis between cancer and benign achylia we wish to report two cases of considerable interest, which show how important it is to interpret the findings correctly.

CASE 12.—A man, aged 44, suffering from gastric disturbances for many years, showed in the last few months before admission rather marked anorexia, profound anemia, a tendency to daily vomiting of yellowish

material and mucus. He has lost distinctly in weight, and his anemia left him very weak, with paresthesias of the hands and feet. With the exception of intervals of mucus colitis, he has had rather marked constipation. The expectoration, which is pronounced, is free from tubercle bacilli, but contains many staphylococci, *Micrococcus catarrhalis* and a streptococcus. Physical examination as well as roentgenography fail to reveal anything in the lungs except a little thickening of the hilus of the right lung. From the character of the sputum, its persistence and the physical findings, we still thought (with Dr. Beardsley and Dr. Tracey of Beverley, to whom we were indebted for the case) that there must be bronchiectasis. Examination of the blood showed profound

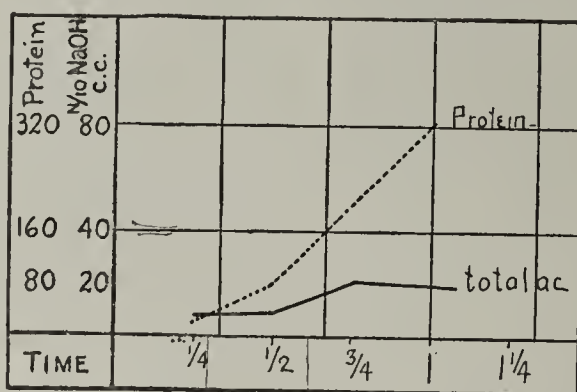


Chart 2.—Protein and total acidity curves in a case of gastric carcinoma.

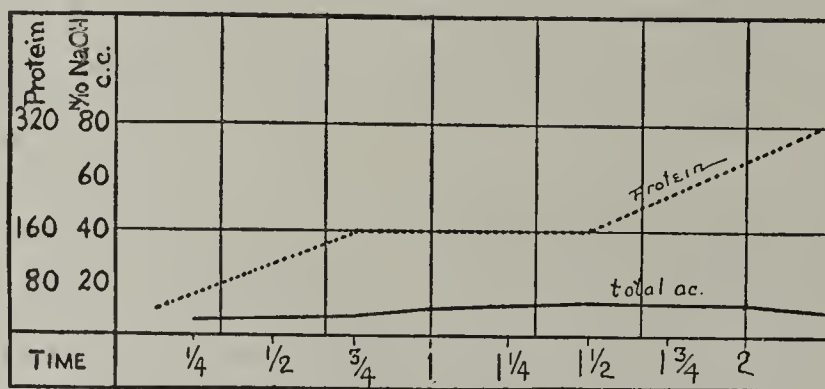


Chart 3.—Protein and total acidity curves in a case of gastric carcinoma.

5. Wolff: Berl. klin. Wehnschr., May 29, 1911; March 18, 1912.

6. Einstein: Med. Klin., March 24, 1912.

7. Rolph: Med. Rec., May 10, 1913, p. 848.

8. Smithies: Am. Jour. Med. Sc., May, 1914, p. 713.

Results in Minutes

Case	Diagnosis	5			10			15			30			45			60			75			90			105			120			135		
		Gm.	Tot. Ac.	Free Ac.	Gm.	Tot. Ac.	Free Ac.	Gm.	Tot. Ac.	Free Ac.	Gm.	Tot. Ac.	Free Ac.	Gm.	Tot. Ac.	Free Ac.	Gm.	Tot. Ac.	Free Ac.	Gm.	Tot. Ac.	Free Ac.	Gm.	Tot. Ac.	Free Ac.	Gm.	Tot. Ac.	Free Ac.						
	Control: Bread																																	
	Digestion in vitro.....	40	....	....	80	....	....	160	....	....	320	....	....	640	....	....	80	....	....	160	....	....	320	....	....	640	....	....	80
1	Mg. Atony.....	40	1.5	0.0	80	4.0	0.0	160	18.0	9.0	320	27.5	15.5	640	40.5	20.0	80	65.5	47.5	80	....	....	320	....	....	640	....	....	80
2	Bk. Gastropsis, intestinal adhesions	10	15.5	5.5	10	9.0	4.5	...	15.5	...	...	...	12.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3	Ba. Benign achylia.....	...	....	....	40	1.0	0.0	...	3.0	0.0	80	1.0	0.0	...	4.0	0.0	...	4.0	0.0	...	4.0	0.0	...	...	...	...	...	...	...
4	Co. Pulmon. tuberculosis.....	320	2.4	1.8	320	13.0	10.5	160	21.0	20.0?	...	31.0	19.0	40	32.0	20.0	40	32.0	20.0	...	...	...	...	...	...	...	...	...	...
5	Po. Benign achylia.....	40	0.0	0.0	...	3.0	0.0	40	3.0	0.0	80	4.0	0.0	40	6.0	0.0	80	23.0	0.0	80	31.0	Tr.	...	...	...	...	...	...	...
6	Wa. Chlorotic ulcer.....	80	2.0	0.0	160	4.0	0.0	80	4.5	0.0	80	11.0	4.0	80	20.0	8.0	80	13.1	8.2	80	10.5	8.0	...	...	...	...	...	...	...
7	Id. Gastric ulcer.....	160	10.5	6.0	160	19.5	10.5	...	23.0	20.5	...	47.0	30.0	...	47.0	...	320	43.0	32.0	...	41.0	29.0	...	...	...	...	...	...	...
8	Co. Hyperacidity, lead colic.....	10	2.0	0.0	40	33.5	25.5	80	53.0	44.5	160	68.5	61.0	80	100.0	91.0	80	102.0	85.0	40	62.0	56.0	40	22.0	15.5	...	...	...			
9	Duodenal ulcer.....	20	11.0	4.0	160	32.0	25.0	...	53.0	...	...	...	...	...	101.5	70.0	...	83.0	73.0	...	80.5	72.0	...	...	...	...	...	...	...
10	Ga. Atony.....	...	3.0	0.0	80	15.0	6.0	...	47.0	32.0	80	...	...	...	71.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...
11	Kc. Gastric ulcer.....	40	18.0	...	160	32.5	...	...	...	...	80	45.5	...	40	60.5	...	80	53.0	...	40	37.0	...	...	...	...	...	...	...	...
12	Ka. Achlorhydria, hemorrhagic gastrica	...	1.0	0.0	40	1.0	0.0	...	1.5	0.0	320	4.0	0.0	...	4.0	0.0	...	5.0	...	...	...	...	...	...	...	...	...	...	...
13	After treatment.....	...	....	....	160	11.0	0.0	160	33.0	0.0	160	...	...	...	55.0	Tr.	...	...	...	...	...	...	...	...	...	...	...	...	...
14	Wt. Gastric ulcer.....	80	14.5	0.0	320	24.6	16.0	320	24.7	17.0	320	34.9	19.0	...	...	...	160	30.0	27.0	80	30.0	20.0	...	...	...	...	...	...	...
15	De. Gastric ulcer.....	160	...	...	160	...	...	320	...	...	320	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
16	Far. Gastric ulcer.....	160	19.0	11.0	160	33.0	20.5	...	51.5	...	...	...	...	...	...	...	...	72.0	...	...	...	...	160	...	...	...	...	...	...
17	K. Ptois, spastic constipation..	40	7.0	2.0	80	10.5	6.0	160	32.0	19.5	...	47.0	30.0	...	56.0	39.5	...	64.0	37.0	320	57.0	42.5	...	...	...	...	...	...	...
18	K2. Gastric ulcer.....	320	...	...	320	35.0	27.0	320	36.0	...	320	57.5	34.0	320	71.5	45.5	320	88.0	68.5	160	90.0	...	...	...	...	...	...	...	...
19	Sch. Duodenal ulcer.....	20	9.0	7.0	40	10.0	7.5	160	29.5	17.5	320	78.5	59.0	160	85.0	64.0	...	...	...	...	...	...	...	...	...	...	...	...	...
20	Wal. Chronic gastric ulcer.....	...	4.5	3.0	160	19.5	12.0	160	61.5	40.0	320	62.5	44.0	160	33.0	24.0	...	65.0	48.0	160	54.0	44.0	...	...	...	...	...	...	...
21	Sy. Chronic catarrh, nephritis..	...	...	...	80	3.5	0.0	160	24.3	0.0	160	23.7	0.0	160	10.0	0.0	160	19.2	0.0	160	15.3	0.0	80	21.5	0.0	80	18.5	0.0	80		
22	Ch. Carcinoma.....	80	4.0	0.0	80	7.0	0.0	80	9.0	0.0	80	9.0	0.0	160	10.0	0.0	160	10.0	0.0	160	15.3	0.0	...	...	...	...	...	...	...
23	Gi. After fish meal.....	...	4.0	0.0	320	29.4	8.7	...	29.1	...	...	16.2	5.4	160	25.0	5.2	...	30.0	2.0	...	6.0	...	...	...	...	...	...	...	...
24	Mrs. Hi. Chronic gastritis.....	...	4.0	0.0	20	5.0	0.0	...	7.0	2.0	40	11.0	2.0	80	29.0	6.0	...	30.0	2.0	...	6.0	...	...	...	...	...	...	...	...
25	Hy. Cardiac ulcer.....	40	1.4	0.0	320	20.5	0.0	...	43.0	9.2	320	75.0	44.3	320	77.5	47.0	320	80.0	59.7	...	...	...	...	...	...	...	...	...	...
26	Br. Achylia.....	40	11.7	0.0	40	13.7	0.0	40	13.7	0.0	40	13.7	0.0	40	13.7	0.0	40	13.7	0.0	40	13.7	0.0	...	...	...	...	...	...	...
27	Al. Carcinoma.....	80	13.5	0.0	...	20	4.0	...	20	4.0	...	20	4.0	...	20	4.0	...	20	4.0	...	20	4.0	...	...	...	...	...	...	...
28	Ri. Nephritis, subacid gastritis..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
29	Cl. Gastroptosis, duodenitis...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
30	Fa. Carcinoma of pylorus.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
31	Gy. Stomach adhesions, operation	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
32	El. Pyloric obstruction, benign..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
33	Ca. Probable carcinoma.....	40	10.5	4.3	40	9.0	6.0	40	12.9	11.5	80	14.1	9.3	160	26.9	13.0	320	46.5	22.0	320	58.5	23.5	...	...	...	...	...	...	...
34	McE. Duodenal ulcer.....	160	33.0	17.7	320	42.0	14.5	640	60.5	19.5	640	96.5	42.5	320	118.5	57.5	...	56.0	18.5	hypersecretion	hypersecretion	hypersecretion	hypersecretion	hypersecretion	hypersecretion	hypersecretion	hypersecretion	hypersecretion	hypersecretion					
35	Du. Infected gastritis purpura...	20	5.5	0.0	...	7.5	0.0	80	8.0	0.0	80	8.0	0.0	160	11.0	0.0	320	14.1	0.0	640	11.9	0.0	...	...	...	...	...	...	...
36	Pb. Duod. ulcer with probable adhesions	80	16.8	10.2	160	21.8	9.0	...	27.3	12.2	...	...	...	...	...	...	...	35.5	21.0	...	...	...	...	...	...	...	...	...	...
37	Fo. Susp. but Neg. Gas. Carcin..	80	12.5	6.0	160	17.7	7.0	160	25.3	18.5	160	36.3	14.7	160	31.4	17.3	...	...	...	...	...	...	...	...	...	...	...	...	...
38	McF. Catarrhal jaundice.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
39	Ha. Duodenal ulcer.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
40	Wx. Adhesions.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
41	Bi. Ulcer, carcinoma.....	160	4.5	0.0	160	6.0	0.0	320	12.0	0.0	640	58.3	18.5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
42	Lo. Hyperacid gastritis.....	80	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
43	Bs. No diagnosis.....	80	1.0	2.0	...	320	30.0	8.7	320	27.8	9.1	640	41.2	14.7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
44	Rg. Susp. Carcin., not proved...	...	30.2	9.4	...	320	42.8	19.7	320	53.6	16.5	320	51.2	20.4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
45	St. Cholelithiasis.....	160	28.2	13.2	...	160	23.8	13.2	...	37.5	19.1	...	52.5	26.3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
46	Pr. Duodenal ulcer.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
47	Ka. Carcinoma.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
48	Si. Pericholecystitis.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
49	Ba. Benign achylia.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

anemia, but none of the true findings of pernicious anemia. An analysis of the gastric juice showed a total achylia persisting throughout the entire digestive cycle and absolutely no ferment response, occult blood positive, many smaller micro-organisms, but no lactic acid and no Oppler-Boas bacilli. The protein result is shown in No. 12 in the table. The sudden jump was synchronous with the appearance of bleeding and therefore was not due to the elaboration of the protein through a specific neoplasm, but to the protein in the blood exuded. Two things decided us against the diagnosis of neoplasm—first, the long duration of the case; secondly, the absence of any Roentgen-ray or palpatory evidence in the face of such a pronounced gastric finding. The case, which will be reported, is of the greatest interest. Suffice it to say, that by means of intragastric, dietetic and certain internal glandular medication, there was steady improvement with a disappearance of the gastric symptoms. A vaccine was made for the expectoration, and at this writing, after the fifth administration of the vaccine, the expectoration has disappeared, and the patient is 3 pounds over his best weight.

This case demonstrates forcibly the danger of taking the protein content at a given point and deciding for or against carcinoma of the stomach. Case 35 is similar, a direct infection of the stomach in a subject with purpura hemorrhagica, in which the presence of blood has caused a marked increase in the protein content. But in carcinoma, the protein continues to increase until the end of digestion. Case 22 is one in which there was a large inoperable carcinoma in the wall of the stomach. Case 27 is a similar case showing a gradual, steady and exaggerated rise in protein content. Case 30 shows to what extent this might go in carcinoma of the pylorus. In this case the retention liquid in the empty stomach was filled with a purée of leukocytes amounting to diluted pus; this was undoubtedly due to the ulceration of the neoplasm.

DIAGNOSTIC VALUE OF THE PROTEIN CONTENT IN ULCERATIVE CONDITIONS OF THE STOMACH

We made a series of protein determinations on cases of clinically diagnosable ulcer, all of which had been submitted to careful physical examination and in most cases, roentgenoscopy. We found an altogether unusual protein curve in these cases, namely, a rapid rise in the protein concentration out of all proportion to the protein elaborated by the action of any juice in this period of time, arguing, therefore, for an extrinsic cause for the protein. This is to be seen in practically all cases on this list in which the diagnosis of ulcer was made, and the type of the protein curve in contrast to the acid curve is striking. Case 6 shows the very early initial rise. This was an undoubted case of gastric ulcer, showing the characteristic tender point, pain, and occult blood in both gastric contents and feces, and marked secondary anemia. The presence of the occult blood may be the cause for the phenomenon. In Case 8, which several clinicians thought one of gastric ulcer, the absence of characteristic symptoms, the absence of the minutest traces of bleeding, and the character of the curve enabled us to rule out ulcer. This was justified by the subsequent course of the case.

Case 11, although the data are not complete, is in all probability one of ulcer, there being occult blood at times in the movements on a meat-free diet. Case 14 shows the recurrent pain, characteristic tender point, slight tendency to rigidity of the upper right rectus, persistent history of ulcer, and alimentary hypersecretion. Case 15 shows the persistently high protein content from a case of bleeding ulcer. The history is of long duration, characteristic pain, hematemesis, tender point, occult blood in the gastric contents and stools, and the early symptoms of gastric retention. Hypersecretion followed the meal and was pronounced. This liquid, which was found free from food residues, showed a protein content of 1:160, entirely different from the normal gastric juice. This was salted out with ammonium sulphate and filtered, and the albumin content dropped to 1:40, suggesting very strongly serum albumin probably derived from blood, as the cause of the high content. Case 16 was a typical case of ulcer with two severe attacks of hematemesis very large in amount, characteristic pain, both alimentary and continued hypersecretion, a tender point, and profound anemia from hemorrhage. Case 18 is one of

pyloric ulcer with obstruction and retention, showing the very high point from the very first sample, undoubtedly due to protein retention. Cases 9 and 19 were cases of duodenal ulcer. Case 20 alone was puzzling, characteristic ulcer symptoms alternating with periods of relief. The case was most likely ulcer, high acid figures and hypersecretion playing an important part, although the evidence here renders the diagnosis uncertain. These cases are merely presented as showing a striking protein curve in

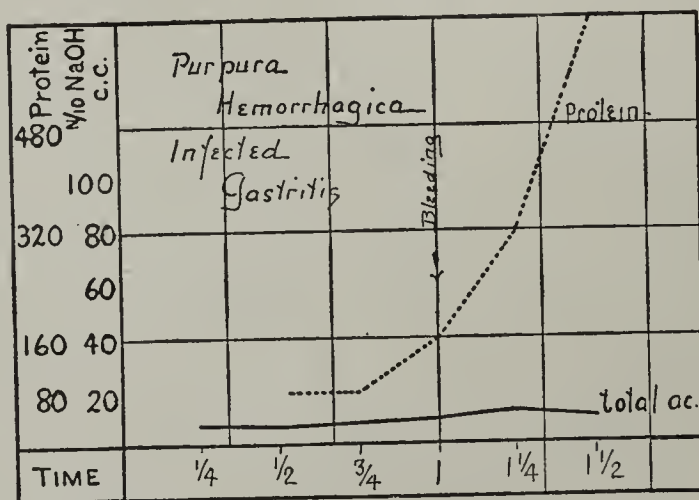


Chart 4.—Protein and total acidity curves in a case of purpura hemorrhagica.

cases of ulcer. Whether this is a constant finding, we are not prepared to state. We merely wish to submit these results for further investigation, believing that the high protein curve which does not occur in ordinary cases suggests the possibility of ulcer. As to the cause of this rise, whether it is due to bleeding, or hypothetically to exudation of protein products from the ulcer region, or to the action of the corrosive juice on the ulcer, we cannot say. Some further results seem to show that while the high protein content remains sustained in gastric ulcer, in duodenal ulcer there is an initial rise which apparently falls off more rapidly, possibly owing to the hypermotility encountered in a certain proportion of the cases of the latter disease. As yet we have insufficient data to make a definite statement, but in those cases in which the diagnosis was made the rise of the curve to its high point was slower.

METHOD OF INTERPRETATION OF THE RESULTS OF THE REACTION

In interpreting any protein curve, the question arises as to the quantity and source of the protein. We have pointed out that, normally, in the absence of any extrinsic factor, the quantity of dissolved protein runs more or less parallel to the duration of time in the stomach and the acidity. Any marked deviation must

therefore be accounted for. On the basis of this finding rests the value of the test for diagnostic purposes. If the protein curve simply follows the acid curve, it merely represents the action of the gastric juice on the bread ingested, and may be taken as an index of gastric function. This is already given in the acid curve. But abnormal or pathologic possibilities exaggerate the curve out of all proportion to the acid curve, either in the very beginning, during, or at the termination of the curve. Therefore, if bread alone can only give us a definite amount of protein within a definite time, an exaggerated quantity or the presence of high figures must mean that the protein comes from other sources than bread. In the present work, the separation and recognition of the different forms of protein has not seemed practical for routine work. The method of interpretation has been based on a comparison of the acid and protein curves. It is therefore perfectly evident that a certain protein concentration in a given time can be produced from a standard meal. What are the extrinsic sources of protein? These may be (1) blood; (2) the presence of pus either intragastric in origin or swallowed; (3) the end-products of protein digestion still in the stomach through atony or obstruction; therefore stasis, lack of motor tone or actual obstruction may unduly increase the protein concentration, all of which are removed by emptying the stomach before administering the meal; (4) a possible exudation of lymph or serum from ulcer; (5) the exudation from a malignant lesion. These factors should be borne in mind in interpreting the findings. In Cases 2, 8, 1, 10, 13, the findings indicated the absence of ulceration, and the subsequent course of the cases demonstrated the correctness of our diagnosis. In Case 14 the curve indicated strongly the presence of ulcer which would cover all the symptoms of the case. In Case 24, the diagnosis of neoplasm was definitely eliminated on that finding and subsequent events justified the diagnosis. In Case 27, it is evident that an achylia could not produce such a curve unless an added factor such as the ulceration of a neoplasm came into play. In conclusion, we may state that while we do not claim any pathognomonic value for the test, we do believe that it will add another link to the chain of evidence which may decide for or against a given diagnosis.

CONCLUSIONS

1. The gastric juice in health shows definitely a protein content of very low degree.

2. This content is increased in disease by the addition of an exudation of protein material from inflammatory, ulcerous, or carcinomatous mucous membranes, or by the addition of partially digested and retained

food residues, or the swallowing of protein material such as certain forms of sputum.

3. Bread and tea alone, following the composition of the Ewald meal, will show in the absence of any pathologic factor a definite amount of protein corresponding to the curve or the digestive power of the juice secreted. A mixture or maceration of bread in tea will show a protein content on 1:20-1:40; if the mixture is acted on by an artificial gastric juice in vitro the protein content of the juice rises steadily within the next two hours and may reach 1:320 in seventy-five minutes. In other words, there is a transformation and liberation of soluble protein which may be demonstrated by the Wolff technic.

4. The pathologic significance arises when a curve shows any marked deviation from this recognized standard, that is to say, when there is an undue concentration of protein out of all proportion to that normally found at that particular phase in digestion. If

therefore a marked increase in protein does not conform in a general way to the acid curve it can be definitely stated that the protein is coming from other sources than the proteins of the bread.

5. An analysis of the protein would seem to demonstrate that normally it is of the nature of a proteose, but in inflammatory or ulcerative conditions it is probably serum protein removed to a large extent by saturation with ammonium sulphate.

6. We could call attention to the interesting curves found in ulcer, many of which showed traces of blood, several of which can be explained on the basis of protein retention, some of which must be explained on the basis of hypothetic exudation.

7. In the differentiation of achylia and carcinoma, we pointed out that the test was of value in direct proportion as the case approached a true achylia and the added factors (extrinsic) such as swallowed pus, bleeding and protein residues could be ruled out. We likewise pointed out that the one-hour point was insufficient for examination and that the characteristic for carcinoma in these cases is a divergence of the protein curve out of all proportion to the acid curve. Infected catarrh, hemorrhagic erosions, achlorhydria, hemorrhagica gastrica, may give high findings, but they do not have the tendency to give a steadily increasing protein content.

8. We believe that a study of the protein curve may yield information of the greatest value, provided that all the precautions have been observed.

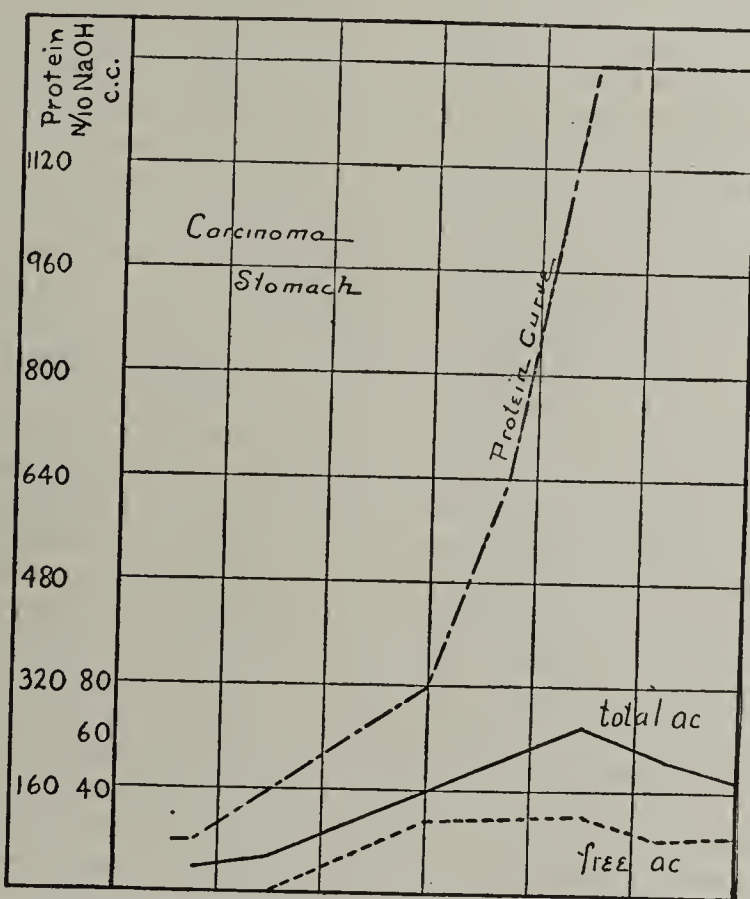


Chart 5.—Protein, total acidity and free acid curves in case of gastric carcinoma.

Spring Tonics.—The idea that a "tonic" is needed in the springtime is a mere tradition. Most of such tonics sold to the public are strongly alcoholic, and may prove distinctly harmful.—Health Letter, Life Extension Institute.

THE DIAGNOSIS AND TREATMENT OF
INFECTIOUS ENDOCARDITIS

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Since the researches of Poynton and Paine about fifteen years ago which resulted in the isolation of an infectious agent of acute rheumatism, much has been accomplished to elucidate the etiology of infections of the endocardium. Particular interest attaches to the work of Billings, who in 1909 isolated what appeared to be an attenuated pneumococcus in slow endocarditis. Schottmüller,¹ in March, 1910, gave the name of endocarditis lenta to a group of cases which appear to be the same as those described the year before by Billings as due to an organism to which he gave the name of *Streptococcus viridans* on account of its growing with a greenish color on agar. Publications by Libman and Cellar in March of the same year added further interest to this type of endocarditis and it remained for Rosenow² to harmonize the bacteriology of the subject by demonstrating that by varying the oxygen pressure in culture mediums the organisms which are frequently the cause of arthritis and endocarditis may be changed culturally and morphologically from one to the other. Rosenow³ describes three strains of organisms which he changes one from the other, each of which has a marked affinity for certain structures, one hemolytic streptococcus with affinity for the joints, *S. viridans* with affinity for the heart valves, and *S. rheumaticus* which again has a predilection for the joints.

Weight of authority now compels the recognition of that form of chronic infectious endocarditis due to the viridans group as a distinct entity of which there are three types.⁴ First, that in which patients develop nephritis and die of uremia. Secondly, that in which is recognized chronic endocarditis with fever, the patients having large valvular lesions, occasional petechiae of the skin and other embolisms, joint symptoms, more or less anemia with a pale skin or more or less pigmentation. Thirdly, that in which the striking feature is a diffuse brown, sometimes quite dark color of the face and some pigmentation on the rest of the body, with more or less anemia, usually palpable spleen and tenderness of the sternum. Baehr⁵ describes as characteristic of endocarditis lenta, lesions of the kidney due to septic emboli giving a distinct pathologic picture.

In addition to the viridans group other bacteria may cause endocarditis. Staphylococcus infections⁶ may be usually traced to some skin infection—furuncles or felon or some injury to the mucosa as in catheter fever; suppurative metastases are common. Pneumococcus endocarditis may occur with pneumonia; gonorrheal endocarditis is not uncommon. Endocarditis due to influenza has been described by McPhedran⁶ and others. Endocarditis may be caused⁷

by the meningococcus as a primary lesion. Nankivell⁸ describes a case in which he isolated a diplococcus not elsewhere described as a cause of endocarditis. A capsulated Gram-staining diplococcus occurring in chains was isolated by W. H. Smith.⁹ Lamb and Paton¹⁰ reported a case of vegetative endocarditis caused by a spirillum. It is to be observed that children under 4 years of age are apparently immune to chronic infectious endocarditis.¹¹

Endocarditis may be secondary to articular rheumatism, tonsillitis, pyorrhea, septic endometritis, pyogenic inflammation of the skin and mucous membranes. Experimental appendicitis having been produced with the Poynton and Paine organism would make it appear possible that appendiceal inflammations may figure as a precursor to endocarditis. Endocarditis may follow an acute gastro-intestinal infection. It is, however, difficult in some cases to say whether the cardiac inflammation is secondary to enteritis or whether the abdominal symptoms are not purely toxic in nature from a primary endocardial invasion. There remain further many instances of acute endocarditis in which no discernible lesion has preceded the involvement of the endocardium.

It has been shown in the chronic infectious type of endocarditis¹² that the beginning lesions are subendothelial bacterial embolisms. The valve leaflets being relatively poor in vascularity, the bacteria may grow faster than the leukocytes are able to cause their destruction; there results hemorrhage and the formation of vegetations going on to ulceration. There must be recognized the possibility of resolution before the stage of advanced vegetation formation is reached, as Libman described hearts in which there may be seen areas of active inflammation with other areas where inflammation has subsided with resulting scars. There is no doubt that in fortunate instances, such an inflammation of the valves as may give rise to very definite physical signs may still recover without such scars as result in the impairment of the valve function and, sooner or later, cardiac decompensation.

Leukocytosis, as a rule, will not be found before the stage of ulceration and may not be present when large numbers of bacteria are in the blood.¹³ While there may be sufficient inflammation to cause fever and sufficient symptoms to render the patient ill and sufficient endocardial change to give rise to definite physical findings, there may still not be great enough intoxication to call forth a leukocytosis.¹³

It is to be recognized that simple endocarditis differs only in degree from malignant endocarditis, both being of an infectious nature, and that a mild endocarditis may of course become malignant. When such a series of hearts is considered as those which Libman demonstrated in which healing of quite considerable endocardial inflammation has taken place, much encouragement is afforded in the treatment of rather well-marked cardiac inflammations, in which, however, ulceration has not yet taken place nor can bacteria be demonstrated in the blood stream. The following cases are illustrations in point.

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4. Libman, E.: Clinical and Pathological Observations on Subacute Bacterial Endocarditis, abstr., THE JOURNAL A. M. A., July 13, 1912, p. 138.
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13. Rosenow, E. C.: Autogenous Vaccine Therapy in Endocarditis, THE JOURNAL A. M. A., Nov. 12, 1910, p. 1719.

CASE 1.—A previously healthy child, 7 years old, of good family history, complained on the completion of a transcontinental journey, of a slight fever and indisposition. She was seen first two days later after the fever had disappeared, the child not having regained her wonted spirits. On examination she appeared rather pale and apathetic. Physical examination showed normal conditions except the heart; its action was forcible and rapid, pulse rate 120 a minute, regular, no cardiac enlargement, left margin extending to the left of the nipple line. There was a soft systolic murmur with the sound at the apex, and a soft systolic murmur at the pulmonic area. The throat, skin, mucous membranes and joints were normal, leukocytes 4,000, red cells 5,000,000, the urine was normal, no red cells.

The following day the heart had dilated so that the left margin was $1\frac{1}{2}$ inches outside the left nipple line, the pulse rate had dropped from 120 to 82 a minute with marked irregularity due apparently to extraventricular systoles. Every second, third, fourth, fifth, eighth and tenth successive impulse the beat would be missed at the wrist, the average being a dropped beat for every fourth impulse. This irregularity continued with gradual improvement so that by the end of the next forty-eight hours the left margin of the heart was only $\frac{1}{4}$ inch outside the left nipple line and the pulse at times was regular. By the end of four weeks with gradual improvement the pulse was practically regular. During the next two weeks, however, skipped beats occurred about half the time. During the fifth week irregularity occurred again, the average being five beats dropped in a minute, then regular again for three weeks when an average of six beats was dropped in a minute during the course of one day. Again a period of regularity for a week when two days occurred in which from four to six beats would be dropped in a minute at times. From then on until the end of the seventh month the pulse remained regular. The temperature throughout showed physiologic variations; cardiac murmurs varied more or less from time to time depending largely on nervous influences. The patient was kept rigidly horizontal in bed. The pulse rate for the first three weeks was rather low, that is between 68 and 100, after averaging about 100 a minute, ranging from 80 to 110, but as a rule in the neighborhood of from 100 to 104.

Convalescence was otherwise uneventful except that about a week after the onset of the illness a sudden pain in the calf of one leg suggested an embolus; this, however, subsided and there were no further embolic symptoms; by the end of seven months the heart was normal in size; that is, just at the nipple line or within it, the heart sounds perfectly clear and the rate regular. The child was kept in a horizontal position as quiet as possible for five months. During that time there were systolic murmurs heard at the pulmonic and mitral areas, the pulmonic murmur persisting much longer than the mitral. For many weeks a little excitement or exertion caused a reappearance of the mitral bruit. At the end of the fifth month, the heart being normal in size and the mitral sound being clear, she was allowed to sit up in bed five minutes; the following day there was some dilatation and increase of the murmurs. These disappeared in the course of a day or two. At the end of the month she was sitting up in bed two hours a day with rubs and passive exercises. Between the latter part of the fourth and sixth months, the murmur to the left of the sternum in the second interspace, heard when the patient was in a horizontal position, disappeared if she were held in a sitting posture.

General massage was instituted when the heart had been found normal in size for about two weeks and the mitral sound showed a tendency to be pure. With each progressive step, whether massage or passive movement or sitting up in bed, the heart displayed marked irregularity so that these changes were made in very slow stages before the patient was allowed to sit unassisted even for a few minutes. She was held in an upright position as a test of the myocardial function and was not allowed to support herself until this maneuver was not followed by irregularity or too rapid pulse. At the end of the seventh month she was allowed

every liberty except standing. The heart was normal in size and all the sounds pure. She was then allowed to go to the seashore for three weeks but not allowed to walk.

With the beginning of the eighth month a few were permitted, which resulted after three or four days in a rather severe dilatation of the left ventricle. This was associated with systolic and pulmonic murmurs and an occasional slight irregularity in the shape of a lengthened diastole. The heart recovered after a few days in the horizontal position. There was no further cardiac trouble and the patient's heart remains at present, after an interval of two years, without any perceptible hypertrophy, with perfectly normal valve sounds, and the child is without the necessity of restriction in her activities which are those of a normal active girl. The diagnosis in this case rested on fever, rapid heart action followed by rather acute dilatation and irregularity, together with murmurs that changed from time to time and very marked muscular irritability.

CASE 2.—Acute endocarditis with aortic and mitral valvulitis in a boy, aged 14. On July 26, 1910, the patient complained of two large boils on his abdomen which had been untreated for some days and were exuding a large amount of rather thin pus. He did not complain of his heart, but on examination the left margin was found to be slightly outside the left nipple line. There was a systolic thrill felt at the fourth interspace over the heart, sharp accentuation of the pulmonic sound, soft aortic murmurs to the right of the sternum heard also in the left second interspace and a distinct systolic mitral valvular murmur. Subsequently these adventitious sounds varied in intensity. The pulse dropped two or three beats a minute, rate at first 86 to 90 a minute, leukocytes 7,400, temperature 98.4 to 99 F. During the course of the illness there was no evidence of emboli either in the skin, joints or kidneys.

During the second week there was a very questionable pericardial rub. The spleen was unchanged upward being, at the upper border of the ninth rib, not palpable. This patient was kept in bed until the murmurs disappeared and irregularity of the heart ceased. It was not until twelve months later, and two or three weeks after he was permitted to be on his feet, that he was allowed to walk down stairs. During that time his illness was very similar to that of the patient in Case 1; he had been allowed to sit up in bed as soon as the heart was normal in size and murmurs were absent. Passive exercise and massage were employed and exercise was allowed as soon as possible. With the advent of each new procedure whether massage, passive movements or sitting position, the heart became enlarged and missed beats and murmurs reappeared. He was not allowed to stand for long until none of these things happened, with the result that not only have the heart sounds remained normal but in particular there is no ventricular hypertrophy. At present, four years later, the patient is in perfect health. His life so far as violent exercise was concerned was restricted for a year, but aside from that has been allowed every liberty including the usual collegiate activities, and during his vacations has become an expert cowboy on a cattle ranch.

CASE 3.—Acute endocarditis with mitral valvulitis in a girl aged $7\frac{1}{2}$. The mother had died of infectious endocarditis. Child's previous health had been normal. The onset of illness consisted of loss of appetite and slight malaise. Physical examination showed the left heart dilated, pulse regular, rate 110, no fever, but a distinct systolic murmur at the pulmonic and mitral areas. The murmurs varied during the next few months, the mitral murmur gradually diminished until it finally disappeared; pulmonic murmurs persisted about ten months. The heart was normal in size in three or four weeks. The patient's recovery was complete in ten months of which eight were spent in bed. Two months later she was allowed to return to school, the heart being normal in size, pulse regular, valve sounds perfectly pure. In this case there was no leukocytosis, no evident emboli. Normal health has been maintained for three years, during which time there have been no restrictions on her activities. There is no evidence of hypertrophy of the heart.

In these three cases there was at no time leukocytosis; a blood culture was made several times in the instance of the boy, with negative results, and in none was there more than a very slight fever; the pulse was variable. With the onset of the inflammation it is interesting to observe that there was tachycardia in one case for a day before dilatation occurred. Dilatation of the ventricle occurred suddenly and was associated with a slow intermittent pulse.

In the matter of treatment, the ultimate result to be expected in any case would depend largely on the degree and virulence of the inflammatory processes. It is advisable to reduce the work of the heart to a minimum by means of absolute rest, regulation of diet with a view to preventing distention of the stomach and colon and eliminating as much as possible a rise of blood pressure by the avoidance of hearty meals, use of the ice-bag, etc. The matter of rest is the most important of all. In fortunate cases this will result in a short time in diminution of the cardiac dilatation and will bring about conditions that most favor the subsidence of the inflammation. It is to be borne in mind that rest must be carried out with the utmost rigidity and the patient left as much as possible to the care of a suitable nurse. It is seldom desirable to separate a child from its parents, but the fewer people that enter the room the better. During the stage when inflammation is still present passive movements and massage have no place in the treatment. These measures, however, are of benefit when it is felt that the inflammatory process has disappeared and the myocardial irritability has sufficiently subsided.

The great aim in the treatment of such mild cases as here detailed is to prevent the increase of cardiac inflammation to such a point that there is the full painted picture of infectious endocarditis with its hopeless prognosis, and also to obtain a recovery before inflammation of a valve has gone to the point of such destruction as will result in scars of the valve segments and sooner or later a cardiac cripple. To that end it must be insisted on that the patient remain in bed a sufficient length of time, and a safe minimum is three months. Broadbent points out that a child with endocarditis dies, as a rule, before it attains adult life, especially if it does not receive that care which insures a complete subsidence of the inflammation, which may smolder for months, and a return of the heart to its normal size, also until the myocardium has lost its abnormal irritability and has regained such a sufficient margin of reserve strength as will prevent dilatation on slight provocation and will enable it to bear the burdens that a careless person may impose on it. Experience seems to teach that in adults acute endocarditis complicating inflammatory rheumatism is in many instances a very benign disease, recovery taking place in a much shorter time than is the rule with children. Valves already injured by previous inflammations present greater obstacles to a cure than inflammations occurring for the first time.

The use of vaccines is not unattended with danger.¹⁴ In the first place the patient is already generating toxins theoretically sufficient without the addition of artificial vaccines. Again, when large numbers of bacteria are found in the blood, the use of vaccines may be attended with a reduction of the number of bacteria by destruction, but there are liberated at the same time toxins which result in an increase of the leukocytes

and fever and a lowering of the condition of the patient. The same thing results in the use of foreign serums. It appears that the invading organism immunizes itself against the antibodies in the blood of the patient so that when foreign serum is introduced, although the number of bacteria may be diminished, the net result for the patient is bad. The use of cardiac stimulants is unnecessary so long as the proper amount of cardiac work is being performed, and it would seem rather advisable as long as possible to avoid stimulating the myocardium, already more or less degenerated from bacterial poisons, as the great desideratum is cardiac rest, not work. It is not to be denied that the use of small doses of digitalis may become necessary, but it will be observed that the heart muscle in endocarditis is very susceptible to the action of stimulants and even small doses of digitalis, for instance, may produce an irregularity before not present and which disappears on the cessation of the drug. Not only that, but in the presence of vegetations stimulation may cause a dislodgment and troublesome embolus.

209 Post Street.

INTESTINAL OBSTRUCTION DUE TO SIGMOID VOLVULUS

WITH REPORT OF A CASE OCCURRING IN A CHILD

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In December, 1912, I reported a study of 191 cases of intestinal obstruction, exclusive of external hernia.¹ This series included 8 cases of sigmoid volvulus, all occurring in adult patients. Since that time I have added to the original group the records of 66 cases of intestinal obstruction, making the present number 257. Among the new cases is one of sigmoid volvulus occurring in a child of 6 years, which is herewith reported.

Acute obstruction is much more common in the small than in the large intestine, 201 to 56 being the proportion in this series. Volvulus of the sigmoid occurred 10 times in the series, making about 18 per cent. of the large intestine cases, and 3.8 per cent. of all forms of obstruction. Volvulus of the small intestine occurred 11 times, twice in children. Of the 257 cases, 41 occurred in children under 12. Eighteen of these cases were ileocecal intussusception, and 6 intussusception of the small intestine proper. Intussusception therefore makes up more than half of all the cases occurring in children, and is 8 times as common as all forms of volvulus in this class of patients.

Volvulus of the sigmoid occurring in a child is an unusual form of obstruction. As is usual when the obstructing agent interferes with the circulation in the mesentery the symptoms are severe and toxemia develops very rapidly after the onset of the obstruction. Therefore the passage from the first to the third or terminal stage of the disease may require but a few hours of illness.

A true volvulus of the sigmoid is probably impossible unless this portion of the colon is redundant. In all the cases studied this enlarged sigmoid is noted. The normal contour and close position of the foot-points of the sigmoid make a mechanical arrangement

14. Billings, Frank: Chronic Infectious Endocarditis, Arch. Int. Med., November, 1909, p. 409. See also Note 13.

1. McGlannan, Alexius: Intestinal Obstruction, THE JOURNAL A. M. A., March 8, 1913, p. 733.

especially favorable for the development of a twist when this loop of bowel is elongated. The feces collect in the loop, becoming more and more hardened as the constipation increases. Strong purgatives are usually administered to relieve this condition, and the resulting vigorous peristaltic movements forcing the contents of the distended loop of bowel against the fixed lower foot-point jam this outlet. Persistence of the force from above first makes the loop spastic and distended, and then sends the upper free portion in a spiral direction around the descending fixed portion.

Constipation is not necessarily a forerunner of volvulus. Any violent peristaltic action may cause the spastic contraction and the twisting movement of the long sigmoid loop.

The symptom of onset in sigmoid volvulus is abdominal pain, usually severe paroxysmal cramps, with or without previous constipation. Tenesmus with an inability to pass anything by rectum, except perhaps a little mucus, is often a secondary symptom. Blood may be present in the material expelled but the quantity is small and this sign is not at all frequently observed—a point of difference between the symptoms of volvulus and those of intussusception. An enema may be effectual, but if this does not relieve the pain or the nausea and vomiting which come on in a few hours after the onset, operation is indicated. The enema should be given through a long tube and with the patient in the knee-chest position.

The leukocytes are rapidly increased in number, reaching 25,000 or more in a few hours. In the 8 cases in adults studied the average was 23,000, the extremes 13,000 and 40,000. In the case occurring in a child the leukocyte count was 41,500.

Later on there will be distention with visible peristalsis, a palpable spastic coil in the lower abdomen, and then toxemia.

Operation should be performed in the early period of the obstruction, when it is safe to remove the redundant sigmoid and in this way prevent recurrent attacks. Simple relief of the volvulus is very likely to be followed by a recurrent obstruction. In one case of this series the patient had 32 attacks of obstruction and 3 laparotomies before his giant sigmoid was removed and a permanent cure effected.

The history of the case occurring in a child is the following:

The patient, a white girl, aged 6, was admitted to the children's ward of Mercy Hospital and examined in consultation with Dr. Edgar Friedenwald, who had at once recognized the acute surgical abdomen. The history was of two days' illness, the onset with cramps and diarrhea, followed by vomiting and tenesmus. No blood was in the movements. The patient was an anemic child, toxic, extremely listless, pulse rapid and thin; respirations thoracic and shallow. The abdomen was generally distended and tender. Muscle spasm and rigidity most marked in right lower quadrant. Dulness in both flanks. White blood count, 41,500, polynuclears 91 per cent.

Operation was performed immediately under novocain infiltration and ether anesthesia. A long right rectus incision was made. When the peritoneum was opened a large quantity of straw-colored fluid poured out. The small and large intestines were distended, but not inflamed. A hasty exploration of the right iliac fossa showed a healthy appendix and a greatly distended cecum. A much dilated loop of large bowel extended from the left over into the right lower abdomen. This loop was followed into the left fossa and proved to be the fundus of a sigmoid volvulus, which had twisted on its foot-points through an arc of about 300 degrees.

This was untwisted, and a rectal tube passed through the anus by an assistant was guided by a hand in the abdomen up into the dilated loop. There was an immediate expulsion of gas and watery feces through the tube, with relief of the distention of the bowel. The abdomen was closed in layers, using fine silk sutures. The stomach was washed out and an ounce of castor oil given through the tube. Five hundred c.c. of salt solution and one dose of 1/200 grain atropin were given subcutaneously.

The patient was quite toxic for the first twenty-four hours after the operation and lavage of the stomach was required. After this time she improved steadily and in ten days was out of bed, the wound having healed.

Six weeks after the relief of the obstruction the second operation of resection and anastomosis was performed for the removal of the redundant sigmoid. The divided ends of the bowel were turned in and the anastomosis made by the method described by Bloodgood.² The turned in ends were sutured outside the parietal peritoneum and drains carried down to them. The muscles, fascia and skin were closed up to the drains.

Leakage from one end of the bowel occurred on the fifth day and prevented primary healing. The sinus closed spontaneously on the twenty-second day and the wound healed tight a week later.

As the child's home surroundings were very poor, she was kept in the hospital a month after the wound had closed. During this time she spent the days on the roof garden and was given increased nourishment. Her bowels moved daily without cathartics, her digestion was unimpaired and on her discharge she was in perfect health.

114 West Franklin Street.

GASTRIC AND DUODENAL ULCER

THE INFLUENCE OF OPERATIVE PROCEDURES ON
GASTRIC MOTILITY AND SECRETION *

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AND

JAMES J. LEACH, M.D.

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It is generally conceded, both clinically and experimentally, that among the various factors responsible for chronic ulcer of the stomach, motor insufficiency and hypersecretion play the leading, if not the title, rôle. It follows that, in the treatment of ulcer, therapeutic procedures should be devised to control, so far as possible, these two important factors; in fact, the value of a given therapeutic measure can in a certain sense be gaged by its ability to restore the normal emptying time of the stomach (or to increase it) and to diminish the hyperacidity of the gastric contents.

Among various therapeutic measures instituted for the cure of gastric and duodenal ulcer, surgical procedures have been inaugurated in constantly increasing frequency. These surgical procedures are legion; they possess inexhaustible variations and modifications; they are constantly being supplanted by new models and new styles. Scant inquiry is devoted to the ultimate results of these operations, little thought to the permanent relief of symptoms; to the healing of the ulcer and the prevention of recurrences, and no consideration to gastric function, particularly gastric motility and secretion.

The present paper is a preliminary study of the postoperative results in a series of gastric and duodenal

2. Bloodgood: *Ann. Surg.*, 1909, xlix, 161.

* From the medical and surgical services of the Michael Reese Hospital. Read at the first meeting of the Chicago Society of Internal Medicine, Feb. 22, 1915.

ulcers, with particular reference to the effect of operations on gastric motility and secretion, and the value of the procedure as gaged by these standards.

A few similar studies have been made. Wilcox,¹ in 1909, reported one of the earliest postoperative studies, finding in general that stomach acidity, particularly "active" hydrochloric acid, diminished regularly after gastro-enterostomy.

Schüller,² in 1911, in a comprehensive study of forty clinical cases from Leube's clinic, as well as experimentation on animals, concluded that gastro-enterostomy alone, and gastro-enterostomy plus pyloric resection, modified motility more than secretion. In cases of pyloric obstruction with motor insufficiency, gastro-enterostomy alone raises the emptying time to normal, *but does not increase it beyond*. (In one case the emptying time was delayed.) In cases without obstruction and good motility, gastro-enterostomy produced no change, the emptying time remaining normal (no increase). These results are different from those of Jonas, Steindel and others, who describe the emptying time increased above the normal in all cases of gastro-enterostomy. They likewise differ from the results of Hartmann and Soupault, Rosenheim, Dunin and others, who find the emptying time delayed or made worse.

In fifteen cases of the combined operation (gastro-enterostomy plus pyloric resection), Schüller found the motility of the "pylorus frei" stomach inconstant in different patients, and in the same patient at different times. With complete removal of the muscle-bearing portion of the stomach (antrum pylori), insufficiency is liable to occur, because of increased difficulty of overcoming strong jejunal peristalsis.

In reference to secretion, Schüller found rather universally the values of free and total acidity lower than before operation, similar to the conclusions of Krause, Renki, Kausch, Hartmann and Soupault, and others. A few cases showed no change in acid values. One patient with normal acidity before operation showed a constant postoperative hyperacidity. He noted no striking difference in acid values in gastro-enterostomy, with or without pyloric resection.

Dogaero,³ in 1913, came to somewhat similar conclusions. He estimated the emptying time of the dog's stomach by use of gastric and duodenal fistulas after introducing a 5 per cent. solution of glucose. In dogs with complete pylorotomy and gastro-enterostomy, the stomach discharged its contents much more slowly than normal. A mixed dietary made this motor delay even more apparent. He concluded that the pyloric portion normally acts as an accelerator, and that in its absence (pylorotomy) the pendulum contractions of the jejunum act as a resistance to the relatively weak fundus musculature.

Faulhaber and Redwitz,⁴ in 1914, analyzed twenty-six cases of penetrating callous ulcer of the fundus, in which a resection of the ulcer-bearing median portion of the stomach with direct union of the cardial and pyloric stumps had been made by Enderlen—the "sleeve" operation of American surgeons. In from sixteen days to two years following operation, the patients were submitted to a complete physical examination, test meals, fluoroscopic and Roentgen-ray examinations, etc. All had gained in weight, had taken

up their old occupation and could stand all foods in moderate quantities. Test meals showed free acid and total acidity markedly lowered; some even were subacid or anacid. Fluoroscopy showed early emptying time increased in all cases, although complete emptying time was variable—the early rapidity being only temporary. They found no constant relation between emptying time and secretion; for example, cases with most rapid emptying time had relatively high acidity. They concluded that the motor activity of the pyloric antrum and the sphincter was not disturbed by resection of the middle portion of the stomach, and that the time of emptying depends on the balance between the relatively inactive fundus and the active antrum.

The cases forming the basis for this study comprise seventeen—nine gastric and eight duodenal ulcers. With the exception of three private cases of one of us (Hamburger), these patients were obtained from the regular medical and surgical services of the Michael Reese Hospital. The patients either presented themselves voluntarily because of nonrelief from their operation, or came in response to follow-up letters. Of the seventeen patients, eight received no or only partial relief from their complaints; nine cases resulted in marked benefit or complete cure. The patients were examined for the most part on an average of from three months to two years following operation; one patient as early as five weeks, one as late as twelve years. So far as possible, all patients were submitted to complete physical examination, test breakfast and motor meal, fluoroscopy and Roentgen-ray examination before and after operation. The roentgenographic examinations were made under the supervision of Dr. Frances Turley. In some instances this complete examination was impossible; in a few cases we were forced to be content with only partial data, and in two cases letter replies constituted the only available information.

The gastric ulcers divide themselves into two groups: lesser curvature ulcers (four) and pyloric ulcers (five).

The following may be taken as a type of the former:

CASE 1.—S. W., merchant, aged 49 years, had a gnawing pain in the epigastrium one hour after eating for thirteen years and vomiting for two weeks. He had lost 15 pounds in weight. He was a heavy smoker and ate hurriedly. He had had chronic rheumatism twenty years previously. Physical examination was negative. Ewald's test meal revealed:

Amount	Free	Total
60	20	40
90	25	43
90	20	45

Motor meal was negative (seven hours). Fluoroscopy revealed the stomach completely empty in four hours. Roentgenoscopy revealed a penetrating ulcer of the lesser curvature.

The ulcer was excised near the cardia. No gastro-enterostomy was performed. Five weeks after the operation, examination revealed:

	Amount	Free	Total
Ewald's	190	0	10
Motor meal	40	30	90

Fluoroscopy revealed the emptying time at six hours, and roentgenoscopy a partial hour-glass constriction.

Nine months after the operation the patient wrote: "Now I eat practically everything, including meat; eat more than used to before operation; have no pain; have a better appetite; no vomiting; have gained in weight."

Epicrisis: Excision without gastro-enterostomy. Clinical result excellent. Motility: Slight motor insufficiency (hour-

1. Wilcox: Quart. Jour. Med., 1909, iii, 93.

2. Schüller: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1911, xxii, 715.

3. Dogaero: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1913, xxvi, 176.

4. Faulhaber and Redwitz: Med. Klin., 1914, Nos. 16 and 17.

glass) (tube and fluoroscopy) immediately after operation, probably only temporary. Secretion: Slight increase in amount—decrease in degree of acidity. Postoperative hypersecretion?

Of the three remaining ulcers of the lesser curvature, one had gastro-enterostomy with excision; two, gastro-enterostomy alone. All patients obtained a fairly satisfactory clinical result, those with excision the best. In all, secretion values were reduced. Motility was more complicated: 1, normal before—slight delay afterward (excision alone); 1, slight delay before—normal after operation (excision plus gastro-enterostomy); 2, normal before—normal after operation (gastro-enterostomy alone).

Results agree fairly well with Schüller, and parallel the conclusion of Bolton⁵:

"If stomach empties in normal time, gastro-enterostomy must be a useless procedure; operation would prove useless in treatment of an ulcer situated away from pylorus, either on lesser curvature or elsewhere."

The five pyloric ulcers are more difficult to handle. The following is an extremely brief summary of their—in some instances—extremely complicated histories:

CASE 2.—E. S., salesman, aged 48, had had a burning and gnawing pain one-half hour after eating for five years, and delayed vomiting. He had lost 40 pounds in weight. He had had typhoid twenty-seven years before.

Examination revealed an ulcer at the lesser curvature near the pylorus with marked pyloric obstruction; marked stasis with hyperacidity.

The operation consisted in resection of the ulcer-bearing portion, pylorotomy and gastro-enterostomy.

The result after ten months was excellent. The stasis was relieved. The emptying time was three hours. Tube and fluoroscopy were in accord. The acidity was reduced.

The positively good result in this case is in marked contrast to the following:

CASE 3.—A. C., blacksmith, aged 38, had had a burning pain two and one-half hours after eating for two years. There had been vomiting for two weeks. He had lost 12 pounds in weight. He had had typhoid fifteen years before.

Examination revealed an ulcer of the pylorus, with adhesions; marked stasis, with hyperacidity.

A posterior gastro-enterostomy was performed, the pylorus not excluded.

The result after six weeks was improvement. The stasis was improved (the stomach being empty in seven hours). Hypersecretion remained, and the acidity was the same.

In this case the motility result was better than the secretion, although the patient was not observed sufficiently long to be sure of the permanence of the result. Pylorotomy or pyloric exclusion should probably have been performed, in addition to gastro-enterostomy. There was probable postoperative hypersecretion.

CASE 4.—B. K., cigarmaker, aged 42 years, had had epigastric pain two hours after eating for eight years, with constant vomiting; loss in weight.

Examination revealed marked stasis, marked hypersecretion and hyperacidity. There was an old pyloric ulcer, with pyloric obstruction.

A posterior gastro-enterostomy was performed; the pylorus was not excluded.

The result was poor. The pain, vomiting and stasis were unrelieved. Gastric tetany, one month. Roentgenoscopy revealed a vicious circle. Stasis and hypersecretion were made worse.

A second operation for adhesions, with lateral anastomosis entero-enterostomy, resulted in improvement for three years. The result after three years was poor. There was complete obstruction, neither the pylorus nor the stoma functioning.

Epicrisis: No relief from gastro-enterostomy. Ulcer should have been resected and pylorus closed.

CASE 5.—A. W., aged 48, had had pain after eating for three and one-half years. There were no obstruction, hyperacidity or positive surgical indications.

Examination was negative.

Operation revealed adhesions and a scar at the pylorus. A gastrojejunostomy was performed, with no relief from symptoms. There was conversion of normal motility and secretion to stasis and hypersecretion.

Fluoroscopy revealed normal motility; motor meal, stasis.

A second operation for adhesions, with pyloric exclusion, resulted in the patient's feeling well for five months.

Epicrisis: Surgical interference not indicated. Patient had not had benefit of medical treatment. Conversion of normal stomach function into abnormal. No permanent relief from first or second operation.

From this series the following conclusions may be drawn: Gastro-enterostomy performed without definite surgical indications (stasis—hypersecretion) is liable to convert normal gastric function into abnormal. Gastro-enterostomy with definite surgical indications is liable to fail and increase stasis and hypersecretion if the pylorus be not excluded. The best results, with relief of stasis and hyperacidity, are obtained by pylorotomy (or pyloric exclusion) plus gastro-enterostomy. In the case of pyloric ulcer, excision and closure are of even greater importance than in ulcer of the lesser curvature. Conversion of normal to abnormal function is due to pylorospasm (Hertz⁶) or postoperative hypersecretion, or both. In the latter event, some cases evidence good motility, but show marked hypersecretion following the test breakfast and motor meals.

Postoperative hypersecretion (without stasis), as observed in this series, as well as in several duodenal ulcers, to be discussed later, has several interesting problems. From a clinical standpoint, it is likely that in cases showing acid contents after motor meals, the explanation lies not, as has been thought, in postoperative stasis, but in postoperative hypersecretion. Furthermore, postoperative hypersecretion may explain certain discrepancies found to exist between the results of bismuth-buttermilk meals, as observed by the fluoroscope, and motor meals, as determined by the stomach tube. In fact, in two cases the bismuth meal left the stomach within six hours, while the stomach tube at the end of seven hours yielded but 2 to 3 ounces of acid contents, with little or no food residue.

The physiologic mechanism of postoperative hypersecretion is described somewhat by Lobassow and Orbeli.⁷ In certain operations on the dog's stomach, for example, the Heidenhain-Pawlow small stomach operation, they describe a hypersecretory postoperative period. This period of hypersecretion is usually transitory and is held to be due to increased irritability of the nervous control of the secreting glands, a result of operative trauma. Orbeli found a similar hypersecretory condition after making a simple stomach fistula. It is our belief that a similar postoperative hypersecretory period follows surgical procedures on the human stomach, and may account for certain postoperative findings. The thought occurs that postoperative hypersecretion may follow operations on other

5. Bolton: *Ulcer of the Stomach*, London, 1913.

6. Hertz: *The Sensibility of the Alimentary Canal*, London, 1911.

7. Orbeli: *Arch. d. Scienc. Biol.*, 1906, xii, 1.

portions of the gastro-intestinal tract, such as appendix or gallbladder, or from narcosis alone. We hope to test this question out in the near future.

ULCER OF THE DUODENUM

Without giving separate protocols of the eight duodenal ulcer cases, we shall confine our discussion to several points which their study has brought forth.

1. Two cases of gastro-enterostomy without pyloric exclusion showed rapid (two-hour) discharge of bismuth up to and by way of the gastro-enterostomy opening, with delay (six hours) of food beyond the opening—the bismuth finally passing out through the pylorus. This was true of the motor meal plus bismuth, as well as the regular bismuth-buttermilk meal. In one case, the delay of the contents beyond the opening amounted to a true stasis. Another case showed rapid early discharge up to the level of the opening, but delay of the residue in the small sac below the level of the gastro-enterostomy opening. Placing the patient in a recumbent position allowed this residue to discharge.

2. As in the case of gastric ulcer, pyloric exclusion plus gastro-enterostomy was attended by the best results. In two cases with the pylorus left patent, marked stasis occurred in the overfilled and distended duodenum at the site of the ulcer! In this case, in spite of the wide, well-placed enterostomy opening, the maximum discharge occurred through the patent pylorus.

3. Cases with normal preoperative findings developed postoperative stasis and hypersecretion, similar to gastric ulcer.

4. Two duodenal ulcer cases showed late—four and twelve years, respectively—gradual closing of the gastro-enterostomy opening, necessitating a second anterior operation. Zweig⁸ and Mallory⁹ describe cases of spasm of the opening, similar to pylorospasm.

SUMMARY

1. Operative procedures on stomachs with normal motility and secretion frequently produce stasis, hypersecretion or both.

2. Stasis may be caused by pylorospasm, by contents stranded below the level of the gastro-enterostomy opening, or by contents held between the opening and the pylorus.

3. Hypersecretion may occur coincidentally or secondarily to stasis, but also independently, as a true postoperative hypersecretion, similar to the same conditions in dogs. This hypersecretory period is probably due to operative trauma, and is likely to be temporary. Postoperative hypersecretion explains certain discrepancies between bismuth and motor meal findings.

4. Operative procedures on stomachs with delayed motility and hypersecretion usually reduce motility to normal (but not beyond), and lower hyperacidity. This is particularly true if the pylorus is closed. If the pylorus is left patent, vicious circle, stasis in duodenum, spasm or secondary contracture of the opening are liable to continue the abnormal gastric function or to increase it.

5. Nonrelief from surgical interference in gastric and duodenal ulcer is due to (a) lack of properly placed surgical indications; (b) lack of thorough and

prolonged preoperative medical treatment; (c) failure to devise the proper surgical procedure to meet the individual case, and (d) lack of prolonged postoperative medical treatment.

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SOME SURGICAL EXPERIENCES AMONG INDIANS OF ALASKA

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Every physician at some time during his career is called on to administer aid and even to perform a serious operation under most trying circumstances, and without proper equipment and assistants; in this respect the following experience may be of some interest.

It has been estimated that at least 20 per cent. of the Indian children in Southeastern Alaska are afflicted with adenoids and diseased tonsils which require surgical interference. This condition is largely due to the rainy weather which prevails in this section of Alaska. During a recent tour of inspection of the Government Indian Schools in Southeastern Alaska, I performed fifty-seven surgical operations in thirteen days at Klawock and Hydaburg, two Indian settlements 40 miles apart on Prince of Wales Island.

LIST OF OPERATIONS

HYDABURG:	
January 14.....	1 pterygium
January 15.....	3 adenoids and tonsils
January 16.....	5 adenoids and tonsils
January 17.....	4 adenoids and tonsils
January 17.....	1 lipoma, weight 1½ pounds
January 18.....	7 adenoids and tonsils
KLAWOCK:	
January 22.....	1 adenoids and tonsils
January 22.....	1 harelip
January 23.....	7 adenoids and tonsils
January 25.....	3 adenoids and tonsils
January 25.....	1 ectropion
January 26.....	4 adenoids and tonsils
January 27.....	4 adenoids and tonsils
HYDABURG:	
January 29.....	5 adenoids and tonsils
January 30.....	5 adenoids and tonsils
January 31.....	5 adenoids and tonsils
<hr/>	
53	
4 other operations	
<hr/>	
57 operations in 13 days	

The table shows the maximum number of cases operated in a single day to be seven; five in the morning from 9 to 12, and two in the afternoon. The patients operated on for adenoids and tonsils were between the ages of 2 and 38 years; all operations were done under chloroform or ether anesthesia, and there were no fatalities or serious complications. But one case required resuscitative measures from the effects of chloroform, and a tonsil hemostat was applied in one case to check persistent hemorrhage.

The school house in each community was utilized for a hospital. One room served as an operating room and another as a receiving ward for postoperative cases, where they were kept for a few hours before being carried to their homes on stretchers. An improvised operating table was constructed from rough lumber and covered with blankets furnished by the patients. Sponges were prepared and sterilized by baking in an oven, while mercuric chlorid solution was used for the hands and towels and compound solution of cresol for instruments. As operating gowns were

8. Zweig: Arch. f. Verdauungskr., 1913, xix, 740.

9. Mallory, William J.: Gastric Hypertony and Gastro-Enterostomy, THE JOURNAL A. M. A., June 13, 1914, p. 1883.

unavailable, a towel over the chest served as a substitute. The corps of assistants comprised a trained nurse to hold the tongue depressor, one teacher to light the oral cavity with a pocket electric flashlight and assist in sponging the field of operation, and a second teacher who administered the anesthetic under supervision.

The evening before the operation, and after a careful examination of the heart and lungs, each patient was given a dose of calomel, instructed to refrain from breakfast the following morning, and directed to bring two blankets and five towels for his individual use at the appointed hour. These instructions were very faithfully complied with and with two exceptions there was no vomiting during the operation.

I personally administered the anesthetic until the operative stage was reached, when the teacher continued it under close observation. The hands of the operator were immersed in bichlorid solution for a few moments, the head and chest of the patient covered with towels treated in the same solution, and the operation commenced.

The mouth gag being inserted in place and a tongue depressor holding the tongue off to one side, the tonsil was grasped by a forceps, dissected out, and enucleated with a snare. A forceps carrying a sponge was quickly introduced into the space formerly occupied by the tonsil and pressure applied to check hemorrhage while the anesthetic was resumed. The second tonsil was enucleated in the same manner, after which the adenoids were scraped with a curet and any remaining adenoid tissue completely removed with the index finger covered with gauze. The patient was then quickly turned over on the side to facilitate the expulsion of blood into a bucket on the floor. After all hemorrhage had ceased, the patient was cleansed and carried into the receiving ward on a cot, where the relatives applied cold towels about the neck and looked after him during vomiting spells. After each operation the instruments were washed off in water and thrown into the lysol solution, while the towels of the next patient were treated with bichlorid solution and the blankets arranged on the table.

This experience illustrates what can be accomplished under adverse conditions and without the facilities usually demanded by surgeons in hospitals.

Tincture of Iodin in First Aid Packet.—The Italian government has ordered thousands of small elastic rubber tubes to contain tincture of iodine. They are to be given the soldiers with their first-aid packet as an improvement over the tiny glass bottle of tincture of iodine and the brush given the French soldiers. The *Policlinico* adds that the British are said to be adopting the French method. In the Italian method the fluid is sprayed on the wound by pressure on the rubber tube.

EXTENSION OF THE LIMITS OF OPERABILITY OF RECURRENT CARCINOMA OF THE BREAST

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CHICAGO

The operability of a carcinoma of the breast depends on many factors, chiefly, however, on the extent of the pathologic condition. It is true that many varieties of carcinoma exist as far as the malignancy and progress of the lesion are concerned. Some grow slowly, some rapidly, some form their metastatic deposits very gradually, others show from the start a quick dissemination. On the whole, however, the progress is similar in all, namely, first an invasion of the regionary axillary glands, then of the glands of the supraclavicular region of the same side, then of the chest and sometimes of distant portions of the body.

Experience shows that recurrence of the growth after a skilful radical excision is mostly seen in the axillary region and in the neck, whereupon the vessels, particularly the veins and the nerves of the arm, become blocked and compressed. The neuralgic pains of the arm and the edema of the same are for the most part the evidences of such a recurrence. When this stage is reached, most surgeons consider the case inoperable with the view of radical cure, and justly so, because it is very questionable that an elimination of the process now spread into a region of great vessels and proximity to the large nerve trunks is possible. The only thing to do in such cases is to comfort the patients with a Roentgen ray or Coley's serum and the

most reliable morphin. Such cases are always a dread to the surgeon.

Many times it seems to me cruel to allow such a patient to linger toward a certain death and stand by while he is dying by inches. In the course of the last few years, however, I have been able to snatch a few cases from such certain death, and since years have elapsed from the time of treatment and no recurrence has taken place, I feel that there is a possibility of doing some good in some of such cases by a more extensive operation. It consists in the exarticulation of the whole shoulder-girdle, including clavicle, arm and scapula, with the plexus and the vessels of the affected side, with the ribs, if necessary, should they seem invaded by the carcinoma. It may be that such procedure has been done elsewhere; I have not taken the trouble to go through the literature to find instances of that kind; at any rate the procedure is not common and its publication may be useful to recommend it.

The technic of the operation is not simple in every case, and there cannot be prescribed a definite plan in detail. In the individual case there must be an indi-

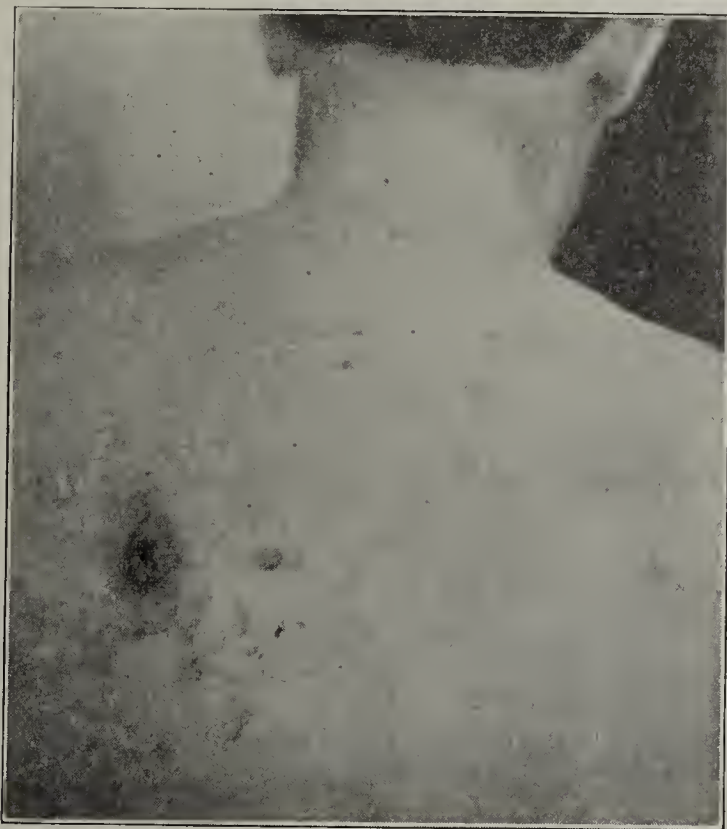


Fig. 1.—Primary carcinoma of back with metastases in axilla and neck (Case 5).

vidual plan in order to make the operation safe. It is a very extensive operation and requires great delicacy, because of the removal of such a large part of the body. The section of such large nerve trunks is a great shock to a person afflicted for a long time and often not in the best condition.

On the whole, however, it begins with the formation of a large skin flap destined to cover the whole area of the defect, the exarticulation of the clavicle following, then dissection of the tissues of the neck and axilla in one block, ligation of every vessel as it is reached, cautious cutting of one nerve after the other, and lastly, the separation and excision of the scapula. Altogether I have done this operation eight times in nine years. All cases were desperate, some of the patients operated on several times by myself or others, were all considered inoperable, some of them having consulted the best operators of the country, who declared surgical operations useless.

REPORT OF CASES

CASE 1.—Mrs. M., aged 34, had carcinoma of the breast. Radical operation in 1905. One year after operation recurrence in supraclavicular region, glands in axilla, swelling of arm, severe neuralgia; several secondary incomplete operations afforded no relief. There were strabismus, with rigid contraction of neck, a regular torticollis from contracture, and severe headaches, showing diffuse dissemination. I decided to remove the shoulder with adjoining glands and all tissues of the neck (1906). The patient was relieved and lived about six months but finally died from intracranial carcinomatosis.

CASE 2.—Mrs. C., aged 60 years, an old Italian woman. History similar to that of Patient 1. Operation was performed in 1907 for carcinoma of the breast; several incomplete secondary operations by different surgeons. In 1908 the patient was suffering from intolerable pains in arm and chest, a tumor pressing on the plexus, and coughing spells; arm immovably adherent by carcinoma to the chest; a desperate case. In September, 1908, she was operated on by exarticulation of the shoulder-girdle. The upper four ribs, closely connected with the carcinoma, were resected with the

tumor. The patient made a good recovery, and lived three years practically free from symptoms. I have not heard from her since 1911, and have not been able to locate her. Most probably she has died since that time.

CASE 3.—Mrs. Z., aged 65, a German housewife, with carcinoma of the breast, was operated on several years ago in Germany; had in 1909 a recurrence deep under the axilla, with immovability of the arm, which was edematous and painful. The case was very favorable for radical operation with exarticulation, which was done. The patient made a good recovery, but developed erysipelas after the operation and had to be removed from the hospital. She died of erysipelas at her home.

CASE 4.—Mrs. C., Italian, aged 58. A case similar to Case 1. Exarticulation performed in 1909 with good surgical result, but had a complication showing that the pleura had been invaded. The patient lingered for some time and then died.

CASE 5.—Mr. J. F., recommended to me by Dr. H. on account of carcinoma of his back (Fig. 1). Radical operation was performed, with excision of the infected axillary glands. Free for some time; then there was a recurrence of the tumor on the neck above the clavicle and extending into the middle of the neck. Extirpation of the cervical glands in a secondary operation. Relatively well for several months, but returned with recurrence in the axillary pit, with a large group of indurated glands, swelling of arm and pain. Removal of these glands afforded no relief; patient developed lymphangitis of arm and severe septic infection, which ran him down considerably. After

he had recovered from this operation the patient felt somewhat better than before, and attended to his business, though not free from recurrence, which showed on the neck again. The arm was only partly movable and swollen. At this time I proposed exarticulation as a last resort. The gentleman, who holds a prominent position, could not decide to have it done and consulted different surgeons. One of the most prominent wrote: "I cannot see how anything can be

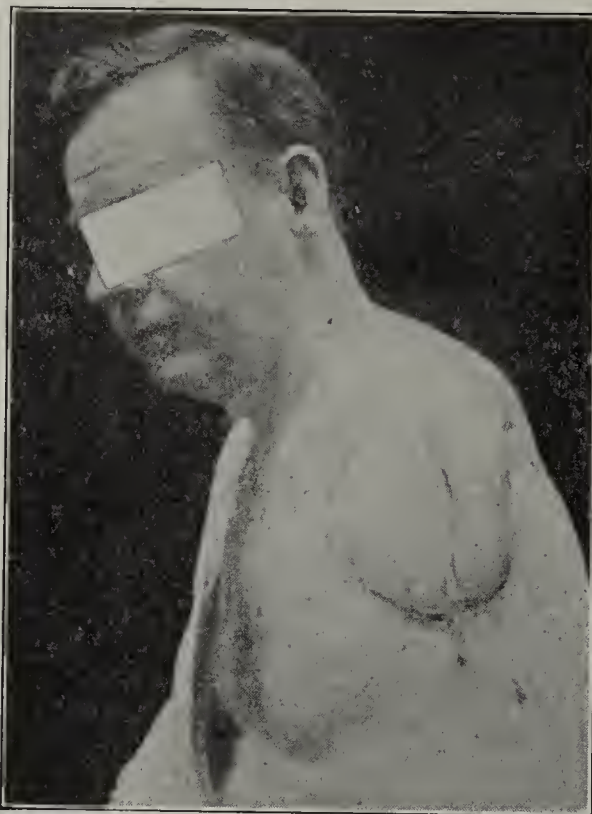


Fig. 2.—Patient (Case 5) five years after last operation.



Fig. 3.—Patient in Case 6 shortly after removal of shoulder girdle.



Fig. 4.—Patient in Case 6, posterior view.

done except treatment with Coley's serum or morphin." Seeing no alternative, the patient finally submitted. The operation was performed in the presence of a prominent surgeon of London, England, who happened to be visiting me at that time. The patient made an absolute

recovery and has been free from recurrence since, now five years (Fig. 2).

CASE 6.—Miss J., school teacher, aged 30, was brought to my office from the depot, just about to return home from the hospital. She had a severe hemorrhage from a tumor of the breast. All the patient's clothes were saturated with blood, which was running down on her body. She had been at one of the hospitals for several weeks, treated with the Roentgen ray for an inoperable carcinoma of the upper breast and was sent home with the decision that nothing more could be done. Before her entrance to the hospital she had been operated on at home twice within a year by her local physician, an incomplete removal of the breast tumor having been done; then she came to Chicago, but radical operation was thought impossible by one of our most competent surgeons. As she reached the depot the hemorrhage occurred. Hemorrhage had occurred twice before while at the hospital. By a compression bandage I stopped the hemorrhage and after two days we took a roentgenogram, ascertaining that the pleura and lung were free. I decided on exarticulation. Technic as usual. She made a quick and splendid recovery and has been well since; has had no recurrence and was shown at the Clinical Congress of Surgeons in 1913 (Figs. 3 and 4).

CASE 7.—Mrs. A., aged 54, came to me after having been operated and reoperated on twice for carcinoma of the breast. Had all the typical symptoms of secondary carcinoma of the type described above. Her appearance seemed to indicate that she would make an excellent case for our operation. The only difficulty was the very tight scar formation around the neck of the humerus, owing to the different dissections (Fig. 5). In this case I learned that we have to be careful in sectioning the nerve trunks, and particularly the deep nerves of the neck, vagus and phrenicus. I cut several large nerves and at once pallor and weak pulse appeared and deep shock followed, from which the patient rallied slightly only for a time. Just as I completed the dissection she died.

CASE 8.—A few weeks ago I operated on Mrs. S., a poor woman, who suffered agonizing pain from a recurrent tumor of the breast and neck after a radical operation. She was in continuous pain and morphin would not stop it. I decided to cut the nerves of the plexus only, as it seemed impossible to remove the carcinoma even with such an extensive operation as exarticulation. On the fourth rib, near the sternum, was an isolated, ulcerated tumor which could not easily be removed (Fig. 6). Under novocain I dissected out and cut one nerve after the other of the plexus.

Following the operation, the actual pains in the arm stopped, but on the neck and around the shoulder there was still neuralgia. The arm was so heavy that the patient said it felt like a ton and therefore I removed it at a second operation, and since that time the patient is free from pain and has also improved in general health. The isolated recurrence of carcinoma on the ribs is yielding slowly to the blue rays. The Roentgen ray seemed to make it disappear more rapidly, but patient seemed to grow weaker, it was thought, on account of too rapid absorption of the destroyed carcinoma material.



Fig. 5.—Patient in Case 7, showing condition after several radical operations. Note neck and both arms.

agencies on which I have pinned a great deal of hope at first, have in most instances disappointed me. Most important of all seems to me the deduction that even some of these apparently hopeless cases have still

a slight chance when we go to the limit.

108 North State Street.

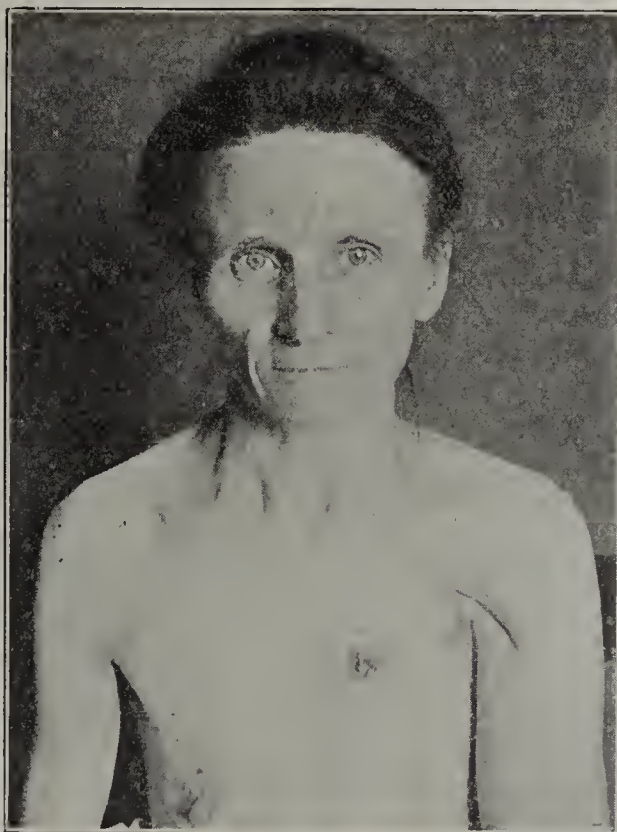


Fig. 6.—Patient in Case 8, showing difference in the arms, solitary carcinoma on chest and metastasis in left side of neck.

The Mortality Bill Against Alcohol.—In a number of life insurance companies, chiefly in Great Britain, the abstainers were separated from the rest of the policy holders (all accepted as temperate and healthy risks), and the difference in the death rate determined. In one institution of London over a period of forty-five years the mortality of the nonabstainers, or so-called moderate drinkers, accepted as temperate and healthy risks, was 37 per cent. higher than that among the total abstainers. In another association of London over a period of twenty-seven years the mortality of the nonabstainers was 54 per cent. higher than among the total abstainers. In a third life assurance company of Glasgow, over a period of twenty-nine years, the mortality of the nonabstainers was 44 per cent. higher than the mortality among abstainers.

In a Canada company over a period of eight years the mortality of the nonabstainers who had been accepted as temperate and healthy risks was 78 per cent. higher than among the abstainers.—Monthly Health Letter, Life Extension Institute.

FRACTURE OF THE PATELLA

AN ORIGINAL METHOD OF RETAINING THE FRAGMENTS IN APPPOSITION

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For the last three years, the following simple and successful method has been employed in recent cases of ordinary transverse fracture of the knee-pan:

the quadriceps extensor insertion, but not entering the bursa beneath this tendinous expansion.

Two strips of sterile gauze are now laid over the incision, and over these are tied very firmly, as one would tie one's shoestrings, the upper and lower ends of the opposing threads. In this way, not only are the fragments held in perfect contact, as no separation by muscular contraction is now possible, but also they cannot be tilted, or override.

A plaster-of-Paris cast is applied over all, from the ankle to near the groin, and the patient kept in bed for a week, with the foot elevated on a pillowed chair.

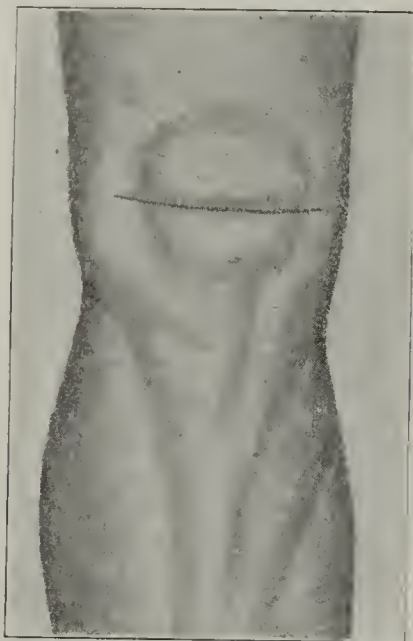


Fig. 1.—Line of incision across the middle line of the sulcus due to separation of the fragments.

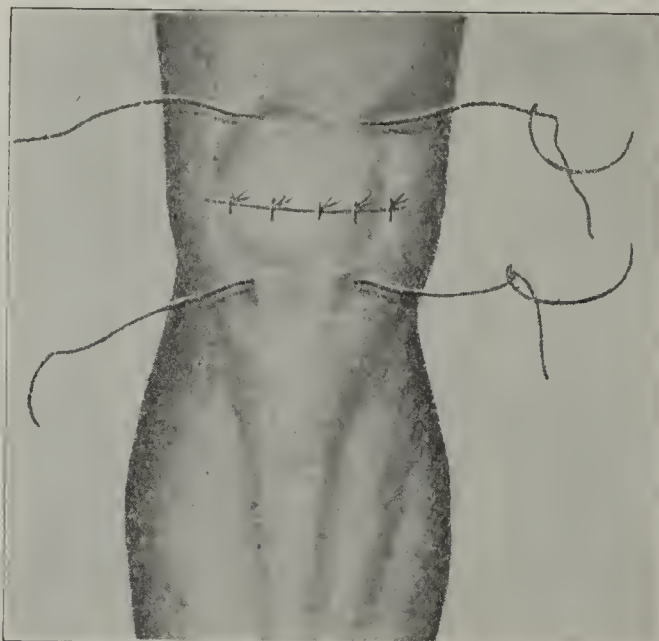


Fig. 2.—The retaining sutures of linen inserted and the incision closed, after removing the clot and reuniting the torn edges of periosteum.

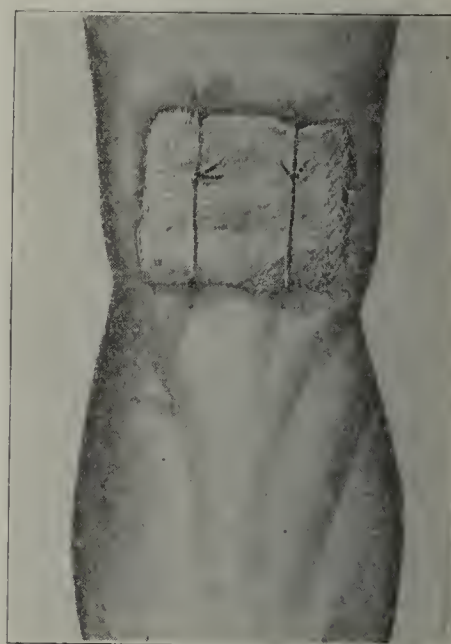


Fig. 3.—The dressing applied and the retaining stitches tied.

The edges of the fragments are exposed by a transverse incision over the center of separation, and the intervening clot washed out with reasonably hot salt solution, a syringe being used with as much force as is necessary to cleanse thoroughly. A gentle swabbing would suffice, but water gives a minimum of traumatism.

The opposing frazzled edges of overhanging connective tissue are now carefully stitched with a continuous, very fine linen suture, and the skin incision closed with running chromicized gut.

The holding device is as follows:

A strong quarter curved needle (Hagedorn by preference) threaded with extra large linen (No. 5) is carried across the lower border of the lower fragment, dipping greedily into the substance of the ligamentum patellae, just along its expanded attachment to the patella.

The points of entrance and exit of this needle should be about $1\frac{1}{4}$ inches apart, and the thread ends left 8 inches long.

The same maneuver is practiced along the upper edge of the upper fragment, the needle going well into

After this, locomotion on crutches is permitted *ad libitum*. The dressing is not disturbed for six weeks, when the threads are removed, and then slight passive motion is made, while the fragments are very strongly supported. The cast is readjusted, and there is a repetition of this two weeks later, and again, two weeks further on. The knee should be guarded from overstrain for at least six months, as a common-sense precaution. The danger of ankylosis is nil.

I have always done this operation with ether anesthesia. If done with novocain, the holding threads should first be inserted, as an assurance against possible involuntary contraction of the quadriceps extensor.

Figure 4 shows the result one year after operation. The function is perfect.

244 Lexington Avenue.



Fig. 4.—Roentgenogram one year after operation. Extreme flexion; function normal.

Industrial Accidents.—A conservative estimate of the economic loss in this country through industrial accidents places it above a quarter of a billion dollars each year. This is more than two million workmen could earn in twelve months at \$4 a day.—From an address by J. Kirby, Jr.

New Instruments and Suggestions

A NEW BONE CLAMP

R. E. FARR, M.D., MINNEAPOLIS

This instrument is designed for the purpose of reducing and holding reduced the fragments of a fractured bone, when the open treatment is indicated, while one of the various forms of fixation methods is applied.

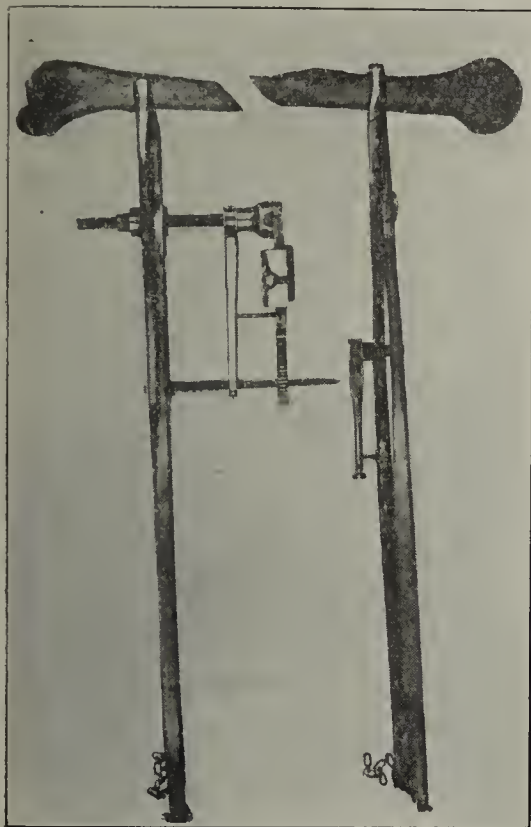


Fig. 1.—Farr bone clamps in position for reduction of fracture.

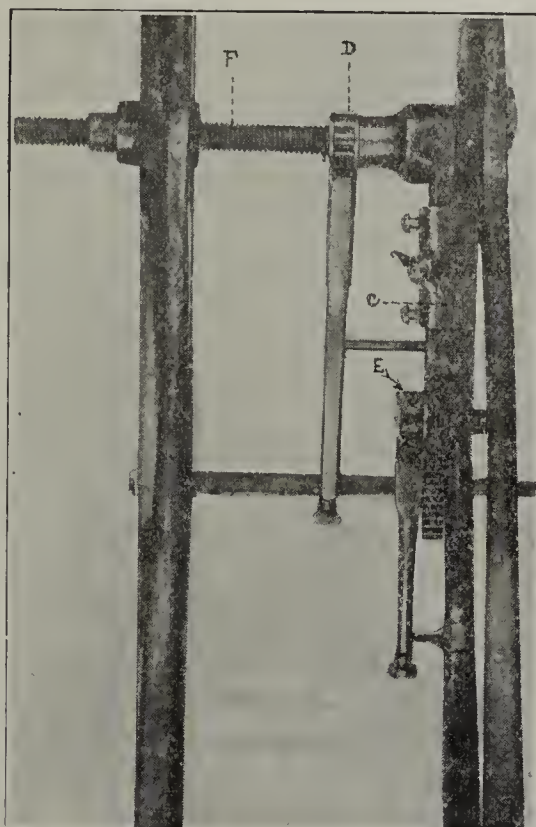


Fig. 2.—Mechanism of clamp. C, clasp for locking forceps together; D, ratchet by means of which shortening is overcome; E, ratchet for lateral movement of fragments; F, bar as fulcrum.

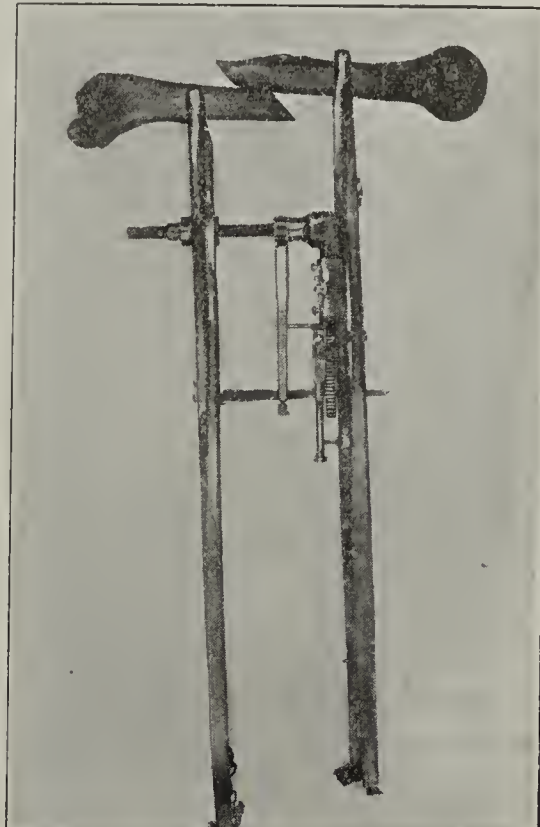


Fig. 3.—Clamp in position for reduction of overriding.

It consists of two pairs of long-handled forceps (Fig. 1), with two ratchets which work in planes at right angles to each other. The technic of application is the following:

After the point of fracture is freed, one clamp is placed on each fragment at right angles to its long axis and at points which will allow the forceps to be locked together with the clasp C (Fig. 2). The only other requirement before locking the forceps together is that the fragments be held parallel to each other or nearly so. Providing there is overriding, which is usually the case, the ratchet at D (Fig. 2), is worked to and fro until the shortening is overcome. Here I have made use of the jack-screw described by Gerster but have added the ratchet attachment which I find to be a decided improvement. This ratchet is reversible and after the fragments are moved laterally by the use of the ratchet E (Fig. 2), and brought into alignment, they may be

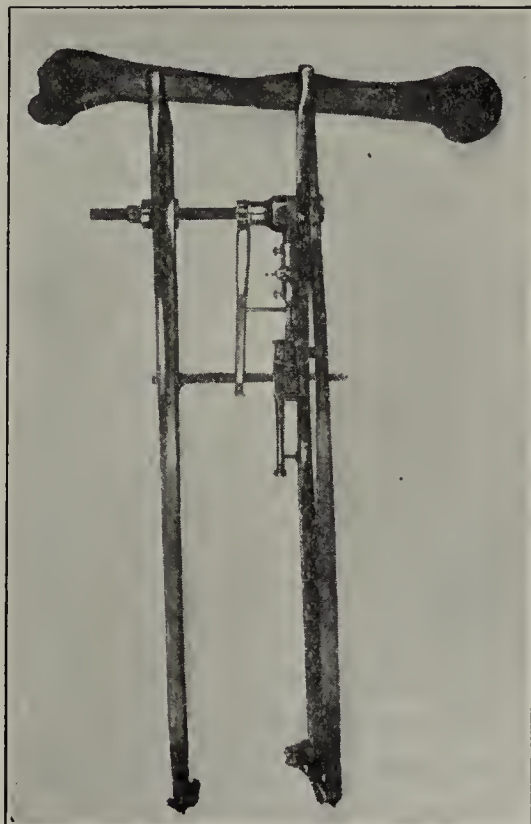


Fig. 4.—Ends of fragments in apposition.



Fig. 5.—Grasping surface of forceps.

made to engage with all of the precision one may desire (Figs. 3 and 4). An alternate upward and downward movement of the handles with the bar F (Fig. 2), as a fulcrum in addition to the movements given by the ratchets D and E gives one absolutely complete control over the fragments. In applying the fixation of Lane, a clamp may be used temporarily at the line of fracture, once the reduction is accomplished, and the other clamps may be released sufficiently to allow the metal splint to be slipped into place, when it is securely held by a second closure of the clamps while the

screws are inserted. This first model, though crude, seems to fulfill the indications for which it was designed. Figure 5 shows the grasping surfaces of the forceps. They are designed to hold the bone securely, both before and after the Lane plate is in place. The distance of the ratchets from the field of operation renders the carrying out of an aseptic technic easy and certain. The handles are made long and flexible and are locked with chains. They will hold securely a bone of any size.

Suite 301, Reid Corner.

Density of Population and Infant Death Rate.

—Based on the school census for 1914 it was found that the average number of people per

in Chicago is 19.5. The wards having death rates above the average have an average of 49.7 people to the acre. It is not congestion alone, but congestion plus bad sanitary conditions that produce high infant death rate.

TUBES FOR INTRA-URETHRAL MEDICATION

MAX GOLDMAN, M.D., KANSAS CITY, Mo.

For the introduction of various medicinal substances into the urethra I have devised, and have been employing for some time, a series of tubes modeled after the pattern of the Ultzmann instillation syringe. These tubes are made of sterling silver, and range in size from 14 F. to 24 F. In shape they follow the curve of the classical urethral sound, and all

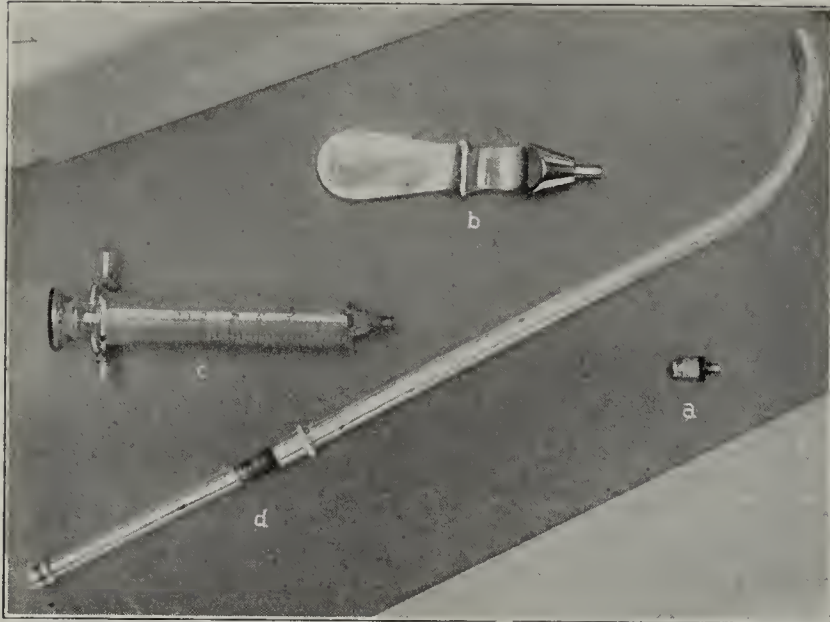


Fig. 1.—Urethral tube and accessories: (a) adaptor, (b) sound handle, (c) syringe, (d) irrigating nozzle.

have capped ends with threads suitable for the attachment of the universal hypodermic syringe. By means of adaptors they can readily be adjusted to fit all glass and record syringes.

There is also a sound handle, which is likewise adjustable, so that each tube can easily be converted into a urethral sound. In addition, another attachment is supplied in the way of a short silver tube, much like the ordinary glass irrigating nozzle, but having an adjustable small end for attachment to the tubes, to be used in cases in which irrigation of the bladder or urethra is desired.

The value of these tubes is enhanced by the fact that (1) they can be used (a) as sounds in any stage of the disease (for instance, urethritis); (b) not only as a means of instilling medicines in the posterior urethra, but also for placing any variable amount of an agent anywhere along the urethral canal from the vesical orifice clear out to the urethral meatus; (2) any size can be used, thereby avoiding irritation of the mucous membrane; (3) irrigation can be gently made with any one of the instruments, and followed by the injection

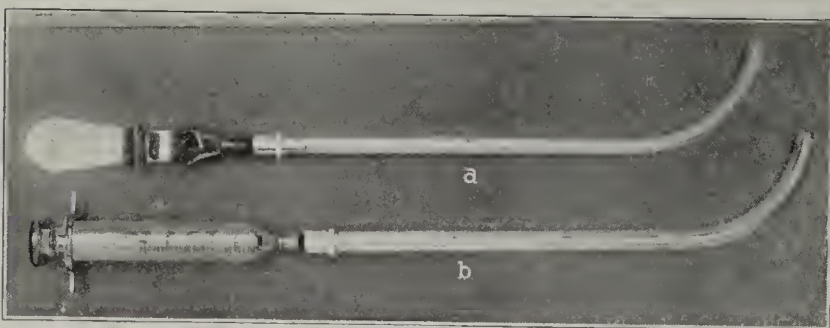


Fig. 2.—Urethral tube, converted into (a) sound, (b) syringe.

tion of some medicinal agent without too much instrumentation; (4) the effect of both sound and tube is secured without the additional use of a sound proper.

In chronic posterior urethritis or gleet this treatment will be found of the highest value; and in urethral stricture of long standing it is of much assistance when combined with other methods in softening up inflammatory indurations, and relieving congestion of the mucous membrane. After cystoscopic examinations or urethral examinations in which considerable instrumentation has been carried out, a local

treatment with one of the tubes, an albuminate of silver preparation being placed along the canal from the bladder outward, will do much in the way of preventing a urethral chill or infection by its antiseptic and astringent effects on the mucous membrane.

If undue difficulty is experienced in introducing the instrument, sterile glycerin may be used as a lubricant, but as a rule the medicinal agent itself is sufficient for this purpose.

1222-1223 Rialto Building.

A NEW METHOD FOR ETHER ADMINISTRATION

J. W. SNYDER, M.D., MICHIGAN CITY, IND.

I have endeavored to devise a simple means of securing a positive warm ether for anesthesia, a method which would employ the principles of the open mask and would have the added feature of a warm anesthetic. To do this I have employed the ordinary mask and have superimposed on it an electric heating coil. This coil is built about a seamless brass tube placed vertically to the top of the mask. The tube



Apparatus in use, showing thumb of left hand holding mask in position while the fingers support the jaw. The heavily insulated cord for connection to the city current is shown and also the manner in which ether is dropped through the coil.

at various levels has wire gauze screens and plates which become heated from the surrounding coil, and which in turn heat the ether as it is passing through them. The coil is attached to the mask by means of a casing which extends part way down over the mask proper. The coil and casing may be quickly detached from the mask by a slight turn to the right, leaving the mask free. The coil is built for the usual 110 volt alternating city current, and is so constructed that it has a maximum temperature and will not become too hot if connected up for an indefinite time. In use the coil is attached to the city circuit and left on for about twenty minutes before the anesthetic is started. As previously indicated, the coil needs no regulating, as it will not become hot enough to decompose ether if left in circuit for hours, and it is only necessary to keep it connected to use it repeatedly.

The mask portion proper is prepared with layers of gauze as is usually done, and when the coil has been connected for a period of twenty minutes as previously described, it is

attached to the mask, and both are placed over the patient's face. From this time on the anesthesia is by the ordinary drop method, except that instead of dropping ether on the mask, it is dropped through the brass tube inside the coil, and so reaches the mask proper as a warm gas. The only caution at this period is to give the ether more slowly and in smaller amounts than by the cold method, as it reaches the patient more quickly and more is available to the patient after being heated than when it is dropped cold on the mask. Towels may be placed about the mask as desired, but in the majority of cases they are not required, and in practically all they may be removed as soon as full narcosis is reached. In this way we give an abundance of air to the patient and as a result have little cyanosis. The patient's good color throughout has been quite remarkable. During the period the anesthetic is being crowded, a little of the ether may reach the gauze of the mask unchanged; but the coil will speedily regain its temperature as soon as the rate of administration can be somewhat slackened, and will again convert all of the ether to a gas. As the patient breathes, warm air is inhaled and exhaled, as can be readily noted, a quite different matter from breathing through a mask covered with ice crystals of the exhaled breath.

As to the results in the employment of this method, I have observed the following:

1. The patient goes to sleep more easily without coughing or holding his breath.
2. There is an absence of second stage excitement in the great majority of cases.
3. It is a dry anesthesia, with absence of mucus from the air passages, except in the deepest prolonged anesthesia.
4. Anesthesia is easily maintained.
5. As a rule, the patient is brighter on awakening and awakens in a shorter time.
6. Postoperative nausea and vomiting are absent.
7. By reason of conserved bodily heat we should expect shock to be less; and this conservation, together with absence of bronchial irritation, tends to lessen the occurrence of postoperative ether pneumonia and bronchitis.
8. The total amount of ether used is diminished by approximately one-half.

AN ACTUAL POCKET MERCURIAL SPHYGMOMANOMETER

HUGH HAMILTON, M.D., HARRISBURG, PA.

I have found the various sorts of blood pressure instruments defective in one essential—all are bulky. Of the two kinds of mercurial and dial gages, the mercurial is esteemed the best. In an effort to devise an instrument which could be carried on the person without exciting curiosity in private practice, the one illustrated resulted.

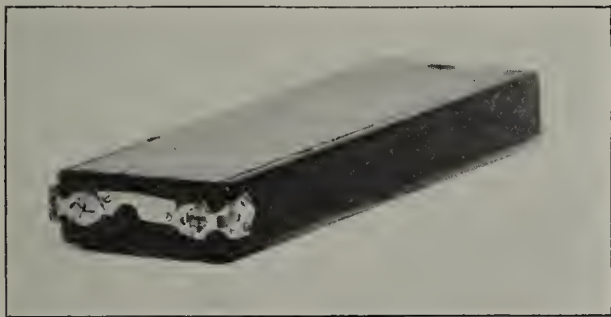


Fig. 1.—Pocket mercurial sphygmomanometer closed.

The mercurial hinge cock for the mercury is from an instrument made by Tagliabue. I claim only reduction in bulk and consequent mechanical arrangements, the whole apparatus weighing about 1 pound.

The photographs are precisely at the identical focus. Therefore the comparative size open and shut is represented in true proportion.

After careful comparison the mercurial column may be regarded as the most certain to give true results because it is fixed at a zero by gravity and not through artificial stand-

ards essential in all other devices dominated by springs as dial instruments, that may some time or other lose the zero, which automatic quicksilver will not do. In this little box I have added beside the U tube a thermometer for the room temperature. At the time of taking an observation of a "pressure" the body temperature is also then noted; across the space in the U tube about midway a level is inserted in the wooden support.

The wooden support for the U manometer of the sphygmomanometer is a free lid to the box. The edge under the

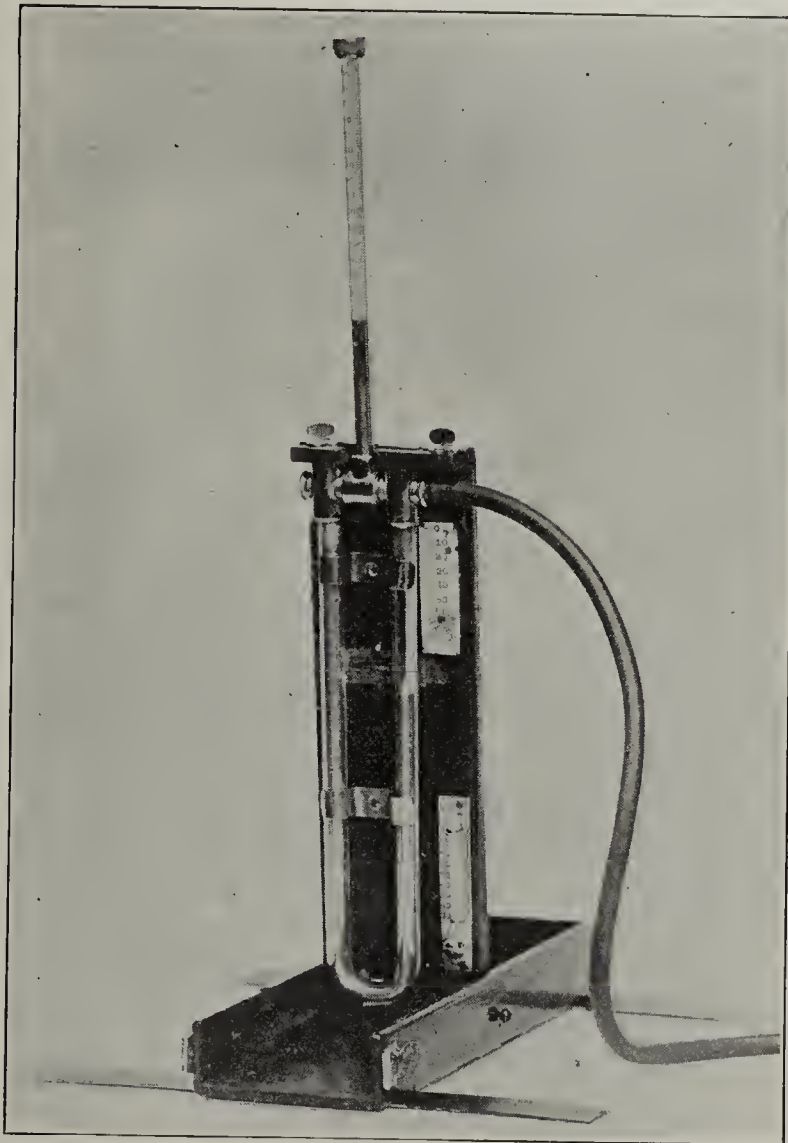


Fig. 2.—Pocket mercurial sphygmomanometer open for use.

curve of the U fits upright into a slot in the center of the box, fastened by braces rising from opposite ends of the box. On the bottom of the box are four blades that extend at right angles to the length of the box resembling when opened "a turtle." This little box is $8\frac{1}{2}$ inches long, $2\frac{3}{4}$ inches wide and $1\frac{3}{4}$ inches thick or 22 by 7 by 3 cm. The hope is that this small (actual pocket) case may make the employment of the accurate mercurial sphygmomanometer available in clinical private practice and assist all in more precise prognoses.

ADJUSTABLE SPLINT FOR FRACTURES ABOUT THE ELBOW JOINT—CONVENIENT STAND FOR THE DIAGNOSIS OF PES PLANUS*

WILLIS E. HARTSHORN, M.D., NEW HAVEN, CONN.

ADJUSTABLE SPLINT FOR FRACTURES ABOUT THE ELBOW JOINT

Fractures of the external and internal condyles of the humerus, T-fractures into the elbow joint and comminuted fractures in this region often afford occasions in which an adjustable angular splint can be used to great advantage. The splint, a description of which is here outlined, is distinctly a simple affair which can be made by any one in a comparatively short time. This fact offers the chief reason for its presentation. It consists of two wooden splints *A* and *B* (Fig. 1), the length varying in children and adults. These

* From the Surgical Service of the New Haven Dispensary.

are connected by an ordinary door hinge, C. This is held in position by small stove bolts and nuts. The pin which ordinarily connects the two parts of the hinge is driven out. The inner edge of one side of the loop and the outer edge of the corresponding loop in each case is tongued and grooved with a file as noted in the sketch. A thumb bolt and nut is substituted for the original pin, and the splint is complete.

The general utility is emphasized because it can be tightly folded together and placed in a bag. The two wooden parts

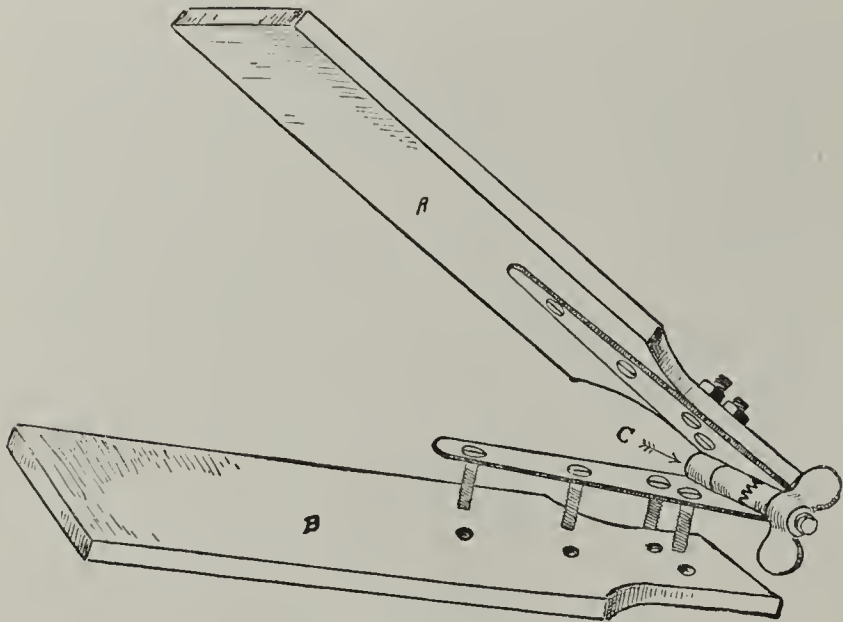


Fig. 1.—Adjustable splint.

can be removed by unscrewing the nuts on the heads of the bolts, and they can together or separately be used in fractures of the forearm, hands or fingers. Any degree of angle from the most acute can be formed in a moment's time without the removal of the splint from the extremity. A fracture of the olecranon can be treated in the extended position or in the semiflexed position. In fractures occurring in the upper third of the forearm where it is necessary to immobilize the elbow joint, it will be found useful, an anterior wooden splint supplementing the posterior. To tighten the splint so that it will hold firmly the angle needed, the thumb bolt is set with a wrench. With the ordinary commercial hinge, the loops at the center are a little too thick to admit of adjustment with the fingers alone. If desired, these loops can be filed thinner so that the thumb can be used to fix the angle; this, however, requires either a specially built hinge or the expenditure of a little more time in the making. Figures 2 and 3 show the application of the splint.

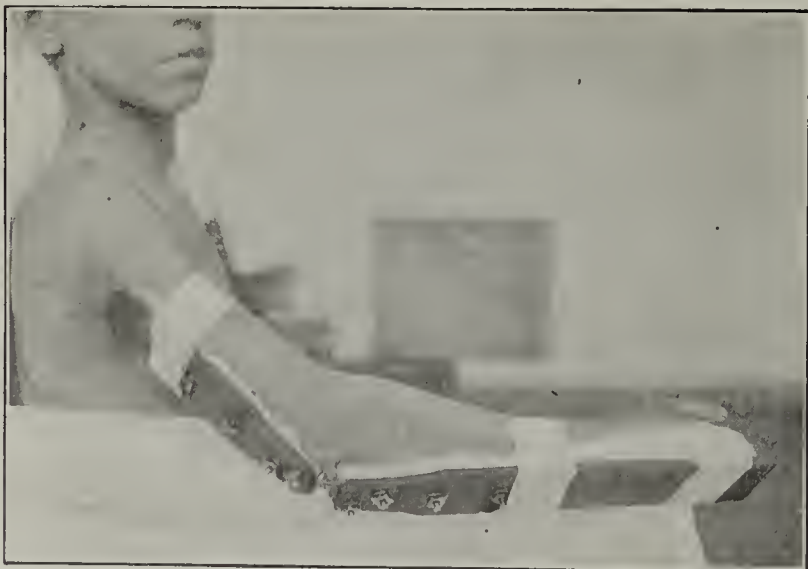


Fig. 2.—Adjustable splint applied to extended forearm.

CONVENIENT STAND FOR THE DIAGNOSIS OF PES PLANUS

At the suggestion of Dr. Joseph M. Flint of the department of surgery, who had observed in one of the European clinics visited by him a similar stand, the one illustrated was constructed at the surgical laboratory and has been found useful in the surgical clinic of the New Haven Dispensary as an adjunct to the general physical examination

of patients. It deserves consideration because it presents a simple method of determining the condition of the arches when symptoms including pain in the legs and feet are presented.

In the illustration (Fig. 4) it will be noticed that the area of pressure on the sole of the foot is sharply contrasted with the normal tint of that portion free from pressure. In actual use this is much better shown. If the pressure area encroaches on the inner side of the foot, the various grades of pes planus are suggested. This simple apparatus does



Fig. 3.—Adjustable splint applied to flexed forearm.

away with the need of the patient's standing on blackened or wet paper, is always ready for service, and gives instant indication of pressure wrongly directed or a weakened arch.

It consists of a box made of white wood, two sides of which are omitted. The mirror is inserted obliquely on the inside at an angle of 45 degrees. The top of the box should be of heavy plate glass at least half an inch in thickness. This thickness should be emphasized, as otherwise there might be danger of its breaking under the weight of the patient, and a serious accident occur.



Fig. 4.—Stand for pes planus.

This simple stand is of course not of especial assistance in actual orthopedic work; but in the ordinary routine of a surgical clinic, it saves time and has proved an effective and valuable assistant in the diagnosis of arch conditions which are of such frequent occurrence in the type of patients frequenting a dispensary.

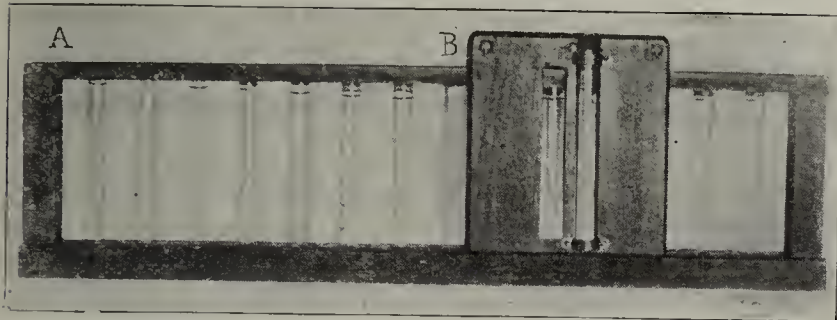
1138 Chapel Street.

A SIMPLE COLORIMETER FOR USE IN THE PHENOLSULPHONEPTHALEIN TEST FOR KIDNEY FUNCTION

JAMES S. BROTHERHOOD, M.D., GRAND RAPIDS, MICH.

The use of the phenolsulphonepthalein test of Rowntree and Geraghty¹ for estimating renal function has become quite widespread and were it not for the expense of the instruments for determining the percentage of phenolsulphonepthalein the test would enjoy even greater popularity.

The several instruments at present on the market (Duboscq, Autenrieth-Königsberger and Dunning colorimeters) are all reliable, but too expensive for the average practitioner. Acting on the suggestion of Drs. Cabot and Young² I have devised an instrument which is of simple construction and can be made at small expense. It has proved reliable and



Colorimeter for Use in Phenolsulphonepthalein Test for Kidney Function; A, wooden rack to hold test-tubes filled with dilutions of a standard solution of phenolsulphonepthalein; B, movable shield holding test tube whose phenolsulphonepthalein content is to be determined.

will give readings within 2 per cent., when compared with the Geraghty-Rowntree modification of the Autenrieth-Königsberger colorimeter, also when compared with known and measured dilutions of the standard solution.

The instrument consists of a wooden rack to hold 14 small test-tubes (12 x 120 mm., the size used for the Wassermann reaction). Fitting over the rack and sliding in a groove in base of rack is an upright shield-piece which has two oblong apertures to permit the passage of light through the test-tube in the rack, and a second test-tube which is held in the shield and which contains the specimen whose phenolsulphonepthalein content is to be tested. The remainder of the shield, on either side, protects the observer from side light interfering with accurate matching of the colors in the test-tubes. The test-tubes in the rack are filled with varying percentages of the phthalein, from 5 to 70 per cent. The dilution is made from a standard solution of 6 mg. of phenolsulphonepthalein to one liter of distilled water, to which is added sufficient sodium hydrate (10 c.c. of 5 per cent. solution or a few cubic centimeters of concentrated solution) to bring out the color of the dye and to render the solution more permanent. It has been found of advantage to use chemically pure rubber corks and paraffin in sealing the tubes, as ordinary corks tend to discolor the solution. With ordinary care, and preventing the color tubes from being exposed to direct sunlight for long periods, there will be little if any fading of the color and this simple apparatus will give excellent service.

The method of estimating the quantity of phenolsulphonepthalein excreted, using this colorimeter, is the following:

Dilute the specimen of urine to about 200 c.c. with water, and render alkaline by adding 10 c.c. of 5 per cent. solution of sodium hydroxid and the further addition of water to make it measure 1 liter. With this dilution fill a test-tube the same size as used in the rack and place in front of aper-

ture in shield; then by moving shield along the rack to a point where a color tube in the rack most nearly matches the specimen, the percentage of this color tube will correspond to that of the specimen tube and represent the percentage of the dye (phenolsulphonepthalein) secreted.

Occasionally it is found that after adding the sodium hydroxid to the specimen the coloration is slight; the dilution should then be made to 500 c.c. instead of 1,000 and the percentage reading divided by 2. Directions for application of test and phenolsulphonepthalein in sterile ampoules (containing 6 mg. to 1 c.c.) may be obtained from Hynson, Westcott and Company, Baltimore.

Grand Rapids Clinical Laboratory.

A CONTROLLER OF THE TONGUE AND PALATE DURING GENERAL ANESTHESIA*

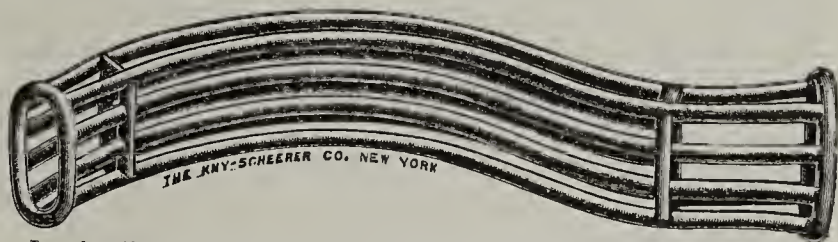
JOSEPH E. LUMBARD, M.D., NEW YORK

Instructor in Anesthesia, University and Bellevue Hospital Medical College; Anesthetist to Harlem, Knickerbocker and Lying-in Hospitals

It is of great importance to maintain an unobstructed air way during the administration of a general anesthetic. The prevention of obstruction to free breathing through the upper air passages is one of the most important details with which the anesthetist has to cope. The most common form of respiratory obstruction, during anesthesia, is the falling back of the tongue into the pharynx, owing to the relaxation of the muscular support.

There are several instruments to overcome this difficulty, known as air ways, breathing and pharyngeal tubes. Those best known are the tubes devised by Hewitt of London and Connell of New York. Both give excellent results, but are open to the great objection of becoming obstructed with mucus.

To overcome this I have devised an instrument which consists essentially of a double row of four bent wires, running parallel, about an eighth of an inch apart, and firmly held together by wire bands, two at each end. The instrument measures 5½ inches in length, three-fourths inch in width and one-fourth inch in thickness: It presents a double curve which adapts itself to the dorsum of the tongue. The instrument is easily introduced, by placing the pharyngeal end between the tongue and the soft palate, until it rests in the pharynx. No attempt should be made to do this until the patient is well anesthetized. The use of the instrument is



Lumbard's controller of the tongue and palate for general anesthesia, thirteen-twentieths actual size. The pharyngeal end is at the left.

also indicated in obstructions of the nose and mouth. It obviates the barbarous methods of tongue retraction and jaw holding, and an instrument of this nature should be considered as an essential part of every anesthetist's outfit.

ADVANTAGES

1. It is easily and quickly introduced. No mouth-gag or manipulating of the tongue are necessary.
2. It will not clog with mucus, which is the chief defect of similar instruments.
3. It is easily kept in position.
4. It is quickly cleansed.
5. It will not conduct a fluid anesthetic to the throat, an accident that is liable to occur with other instruments.
6. It cannot be compressed by the teeth or gums.

1925 Seventh Avenue.

1. Geraghty, J. T., and Rowntree, L. G.: The Phenolsulphonepthalein Test for Estimating Renal Function, *THE JOURNAL A. M. A.*, Sept. 2, 1911, p. 811. Rowntree, L. G., and Geraghty, J. T.: The Phthalein Test, *Arch. Int. Med.*, March, 1912, p. 284. Geraghty, J. T.: A Study of the Accuracy of the Phenolsulphonepthalein Test for Renal Function, *THE JOURNAL A. M. A.*, Jan. 18, 1913, p. 191; The Value of Renal Functional Tests to the Surgeon and the Limitations of These Tests, *New York Med. Jour.*, Aug. 15, 1914.

2. Cabot, H., and Young, E. L.: Phenolsulphonepthalein as a Test of Renal Function, *Boston Med. and Surg. Jour.*, Oct. 12, 1911, p. 549.

* Shown at the New York Academy of Medicine (Section on Surgery), March 5, 1915.

Special Article

PRACTICAL PHARMACOLOGY *

(Continued from page 1657)

XX

CIRCULATORY DEPRESSANTS

It is well known that, though the blood-pressure undergoes frequent minor changes, it is under the control of a coordinated mechanism which tends to maintain a close approximation to a certain level from day to day during health. Even after the administration of drugs which affect the distribution of the blood, any considerable change in blood-pressure is usually only fleeting. When the vessels of the splanchnic region are constricted, those of the periphery usually undergo a compensating dilatation; if the constriction of the splanchnic vessels is sufficient to cause a rise of blood-pressure, the heart is commonly slowed, so that the pressure in the large arteries tends strongly to remain constant.

The blood-pressure may be lowered by diminishing the amount of blood in the circulation; by dilating the vessels, or by diminishing the activity of the heart by decreasing either its force or its rate.

Venesection, or bleeding, was formerly employed widely, but this has fortunately fallen largely into disuse. Drastic cathartics were also used at one time somewhat more freely than at present; diaphoretics and diuretics remove liquid too slowly to be satisfactory in those emergencies in which vasodilators are commonly used. The blood tends strongly to maintain a uniform concentration, and when much fluid is removed by diuretics or diaphoretics this is largely replaced in the circulating blood by fluid drawn from the tissues.

There is an even greater tendency on the part of the vasomotor mechanism to compensate for changes induced in the vessels of different areas, and the vasodilators often exert only an inconspicuous and brief influence on the general blood-pressure.

The rate of the heart-beat is influenced by many factors which tend to regulate it according to the demands of the circulation. Consequently, the heart often responds to the systemic actions of drugs in a manner directly opposite to that which would result from the action on the heart alone.

VASODILATORS: THE NITRITES

Therapeutic doses of many drugs cause dilatation of the vessels of certain areas, and many cause general vasodilatation when toxic doses are given.

Attention has been called to the dilator action of the antipyretics on the vessels of the skin whereby they promote sweating and the elimination of heat. They are not used to lower the general blood-pressure, however, even though this does result from their collapse action.

Alcohol also causes dilatation of the peripheral vessels even with small doses, and it was used formerly to lower blood-pressure. Toxic doses of hydrated chloral cause a marked vascular dilatation, and it is commonly stated or implied that therapeutic doses also

lower the blood-pressure. Any such action, however, is commonly incidental to its narcotic effect and not due to its vasodilator action, which is unimportant except with toxic doses.

Guthrie is credited with having been the first to observe the effects of the nitrites in causing flushing of the face. Lauder Brunton is chiefly responsible for their introduction into therapeutics about 1867, after he had observed the effects of amyl nitrite on a patient who suffered from anginal attacks.

Tracings of the pulse taken by him after the administration of amyl nitrite during one of these attacks do not show any essential difference from tracings of the normal pulse, the amyl nitrite having overcome the vasoconstriction which accompanied the attacks.

The actions of the several nitrites, including amyl nitrite, glyceryl nitrate or nitroglycerin, which acts as a nitrite, and sodium nitrite, are qualitatively quite similar, though they differ somewhat in duration.

The nitrites have little direct action on the higher parts of the brain, except for the dilatation of the cerebral arteries. This is attended with a sense of fulness in the head and dizziness, with some disturbance of the special senses, and often with headache.

The effects on the medullary centers are direct and indirect, but it is not easy to determine which of these is the more important in some cases.

The vasomotor centers are certainly depressed after the administration of small doses of the nitrites, but this depression is probably not alone responsible for the vasodilatation which results, especially after large doses. The vessels of the face and neck—the so-called blush area—are affected first, and the vessels of the skin of the upper part of the body in general appear to dilate before the splanchnics, but these also participate in the effects of therapeutic doses.

There has been a good deal of discussion concerning the seat of the dilator action of the nitrites, and some authors attribute the effect almost entirely to the action on the musculature in the vessel walls, while others consider this wholly secondary and attribute the effect mainly to the depression of the vasomotor centers.

The question is of more than purely theoretic importance, because it is frequently stated that the nitrites have an especial action on the coronaries. It seems probable that they have no specific action on the coronaries, but that the benefit which they confer in conditions attended with high blood-pressure is due mainly to the relief of an overburdened heart by diminishing the resistance. Attention has already been called to the physiologic necessity for the coronaries to respond to increased cardiac action with dilatation when other arteries are constricted, from which it is evident that they do not behave toward all agents in the same way that other arteries do.

It is uncertain whether the nitrites have any important direct action on the other medullary centers, though the functions controlled by these centers show active changes. It is sometimes stated that the vagus is depressed, leading to an increase in the heart-rate. The heart, however, responds normally to lowered blood-pressure by an increase in the rate of the beat.¹

1. The tone of the vagus depends to a great extent on the blood-pressure in the medulla, and when this falls, the lowered vagus tone permits of acceleration through the action of the accelerator center. The delicacy of this regulating mechanism in the dog is such that it is extremely difficult at times to cause a notable fall in the blood-pressure by administering amyl nitrite to that animal, the heart becoming much faster with a slight fall. The rabbit lacks this delicate control and amyl nitrite causes a prompt fall of the blood-pressure.

* This is the twentieth of a series of articles on useful drugs—on practical pharmacology for the general practitioner. As soon as completed, these articles, elaborated by additional subjects, will be published in book form.

and it is not probable that vagus depression is due largely to the direct action of the nitrites. At any rate, it is important to remember that the heart is not injured by therapeutic doses of the nitrites, since these are used in precisely those conditions in which the heart suffers from overexertion.

After the administration of amyl nitrite the respiratory center behaves as it does during fall of blood-pressure from other causes, that is, it responds to the stimulation of carbon dioxide (or lack of oxygen), and increased respiration results. There is no reason to suppose that the nitrites stimulate the center directly.

The text-books state that enormous doses of the nitrites result in the formation of methemoglobin. This does not occur, however, with doses such as are used therapeutically; it is of no interest to the clinician, except in possible cases of poisoning.

Other smooth muscle beside that of the arterioles is depressed by the nitrites, and spasm of the bronchial muscles is said to be relieved by the fumes from the burning of potassium nitrate mixtures, which contain nitrites.

The nitrites cause venous dilatation, and this probably contributes somewhat to the fall of blood-pressure, by providing reservoirs for the blood.

The nitrites are oxidized in the body and appear in the urine chiefly as nitrates.

In addition to the effects of nitrites which have been discussed, other secondary effects will be observed at times,² but these are inconstant, and are to be explained by the differences in the distribution of the blood which are seen at different times. If the renal vessels are dilated to a disproportionately greater extent than those of the general circulation, there may be an increased secretion of urine, but diuresis in such cases is not to be attributed to any direct action of the nitrites on the kidneys.

ACONITE

The actions of aconite are those of its principal alkaloid, aconitin, but tincture of aconite is used much more frequently than the alkaloid, because of the difficulty of obtaining aconitin of constant activity, and because of the mechanical difficulties involved in the use of a drug of such extraordinary potency.

The actions of aconitin on the central nervous system are difficult of analysis, but these consist of stimulation and subsequent depression.

The heat-regulating center (if we may refer to the coordinating mechanism as a center) seems to be influenced by aconitin in the same way in which it is by the antipyretics, and aconite has a distinctly antipyretic action.

The vagus center is stimulated, and Cushny states that aconitin affords one of the best means of obtaining pure slowing of the heart. Fatal doses affect the heart partly through the vagus, and it is stated that larger doses of aconitin are survived if atropin be given than without it.

2. The question has been raised frequently whether the small amounts of nitrites present in flour bleached by the several processes in common use are injurious to health and whether flour bleached in this way is less digestible than unbleached. There is no evidence that minute amounts of nitrites are injurious, and it cannot be said that the flour so bleached is less digestible than the unbleached, but on the other hand, we are unable to say that small amounts of the nitrites continued over long periods are without deleterious influence on the health, and there still remains the larger subject on which there can be no discussion, that bleaching is often employed for fraudulent purposes.

Aconitin stimulates the respiratory center, but this shows a strong tendency to become depressed, and death from aconitin frequently results from paralysis of the respiratory center. So great is the tendency of aconitin to cause depression that it cannot be used therapeutically as a respiratory stimulant.

Vomiting often occurs late in the state of poisoning, this being due to stimulation of the vomiting center (unpublished experiments).

The direct action on the vasomotor centers does not appear to be constant, and there may be either reflex stimulation or depression, but there seems to be some evidence that vasodilatation is the more common effect of aconitin action.

The effect of aconitin on the heart is due to vagus and accelerator stimulation and to the direct action on the heart itself. There is apparently a brief period during which the heart beats more energetically because of accelerator stimulation, but this is unimportant, and with the slowing from vagus stimulation there is no corresponding increase in the strength of the contractions, so that less blood is expelled from the heart in a unit of time, and in consequence the blood-pressure falls. With severe poisoning from aconitin the heart becomes very irregular; in fact, various forms of irregularity are seen in the exposed heart of an animal poisoned with it, the heart finally stopping in diastole. It is more than possible that aconitin causes a fall of blood-pressure through its combined actions on the cardiac muscle, the vagus center and the vasomotor centers.

Aconitin causes tingling when applied to the tongue or to the skin in such a way that it penetrates to the sensory nerves, and when large doses have been taken this tingling is manifested in the same way as after local application. It is one of the most typical symptoms of aconite poisoning, and usually serves to call the patient's attention to something being amiss in such cases.

Aconite was formerly administered therapeutically to the point of commencing tingling in the fingers. The sensory stimulation is followed by anesthesia, but this action is much less pronounced with aconitin than with cocaine, or even than with atropin, to both of which aconitin is closely related chemically.

Aconitin is absorbed rapidly from the alimentary canal, and, to some extent, from the unbroken skin when applied in the form of an oleate or liniment.

Poisoning by aconite is not rare, but less frequent perhaps than formerly, when aconite was widely used for a great variety of complaints.

Absorption takes place so rapidly that there is usually little time for treatment after a fatal dose has been swallowed. Tingling and irritation of the mouth and throat are observed soon after the poison has been taken. This is due to the local action, and soon after the poison is absorbed the tingling is felt in the fingertips, and later over a large part of the body. Nausea, vomiting and diarrhea may occur. The respiration suffers severely as well as the circulation, and death probably results from a combination of the actions on the heart and the respiration.

Of course, any poison remaining unabsorbed should be removed from the stomach by washing; atropin is said to be antidotal, but it is probably of limited value in most cases, and artificial respiration would be preferable to the atropin action on the respiratory center.

A single dose of 1 mg. ($\frac{1}{60}$ grain) of atropin may be given, and repeated once if it causes improvement in the respiration or if it fails to abolish the vagus influence on the heart.

The patient is kept as quiet as possible, and heat is applied to the body.

Tincture of aconite probably undergoes deterioration when kept long, and dogs sometimes withstand enormous doses even when these are injected intravenously. It is probable that the fatal dose of pure aconitin for a man is only a few milligrams.

THERAPEUTIC USES

The nitrites are used, as already indicated, for reducing blood-pressure. Amyl nitrite finds its especial field of usefulness in giving relief in attacks of angina pectoris, in which it is often supposed to abolish spasm of the coronary arteries. It seems much more probable that amyl nitrite relieves this distressing and even terrifying condition by abolishing the excessive resistance against which the heart contracts.

It may be used to relieve any pain which is due to arterial spasm, to prevent or relieve epileptic convulsions, and in bronchial asthma.

Amyl nitrite is sometimes used to stop hemorrhage when this results from the rupture of a vessel in the lungs, brain or elsewhere through very high blood-pressure, but it is apt to do harm if the hemorrhage has progressed to the point that the general arterial pressure is already low. Owing to the brevity of its action it is unsuited to those conditions in which a prolonged effect is necessary.

Nitroglycerin is used much like amyl nitrite, but its action is not induced instantaneously as that of amyl nitrite is, and it is therefore employed where a slower and somewhat more lasting action is desired, as in the high blood-pressure of arteriosclerosis and of nephritis, as well as between the attacks of angina pectoris.

It is sometimes used with digitalis with a view to overcoming the reputed vasoconstrictor action of the latter. It has been brought out in the discussion of digitalis actions that this direct vasoconstrictor action is negligible, and that digitalis may actually cause a fall of blood-pressure when this was previously abnormally high.

It is probable that nitroglycerin is seldom of any benefit in influencing the action of digitalis.

Sodium nitrite is used for exactly the same purposes as nitroglycerin, and it probably has no advantages over the latter.

Erythrol tetranitrate (for description see New and Nonofficial Remedies) is used for the same purposes as nitroglycerin, over which it has the advantage of exerting a more prolonged action. It is very expensive, and is said to be even more prone than nitroglycerin to cause severe headache.

The vasodilator actions of alcohol have been referred to; spirit of nitrous ether has a feeble vasodilator action, and is used to promote diuresis and diaphoresis.

In some cases the splanchnics appear to be incapable of dilating in response to the action of the nitrites, and in such cases the slight fall in the blood-pressure, and probably some direct depression of the vagus center, result in such an increase in the heart-rate that the fall is converted into a temporary rise of pressure.

Aconite is used occasionally as an antipyretic and diaphoretic in fever patients of sthenic type, or early

in other febrile conditions — not late during protracted fevers, such as typhoid. It may be used cautiously when it is desired to reduce the blood-pressure, if the heart is in good condition. There is little scientific basis for its continued internal use in therapeutics.

It is used externally in the form of liniments and ointments for the relief of neuralgias. Absorption may occur from the unbroken skin, and it should be used only with caution. It should not be applied to mucous membranes, from which it is absorbed promptly.

Veratrum viride is sometimes used for the reduction of the extremely high blood-pressure often seen in eclampsia. While good results have been reported in some cases, the action of the drug is not sufficiently understood to justify its use in general practice, and there is little reason to doubt that it sometimes precipitates a catastrophe in this dangerous condition. Veratrum viride is not recognized in "Useful Drugs," nor is it recommended here. It probably owes any popularity which it has to its former exploitation as a proprietary preparation under the name of "Norwood's Tincture."

DOSAGE

Amyl nitrite is commonly used in the form of glass capsules, or "pearls" containing from 0.2 to 0.3 c.c. (3 to 5 minims). These are carried about by the patient, and at the approach of an attack one of the "pearls" is broken in the handkerchief and inhaled.

Amyl nitrite is sometimes sold in sealed glass containers holding about 25 gm. (1 fluidounce).³ These tubes should never be grasped in the bare hand. Before being opened they should be cooled, and wrapped in several folds of a towel loosely; the operator, when filing the neck, should point the tube away from his face.

Nitroglycerin being explosive, is commonly used in the form of the spirit or in tablets. The average dose of spirit of nitroglycerin is 0.05 c.c. (1 minim), which is to be repeated several times daily when it is desired to maintain the effect. It gradually loses its capacity for lowering the blood-pressure, owing to the development of habituation, and the intensity of the headache which it frequently causes is a great disadvantage in its use.

Spirit of nitrous ether, popularly used as a diuretic, has, to a limited extent, the vasodilator action of other nitrites, but is now seldom used. The average dose is 2 c.c. (30 minims).

The dose of sodium nitrite is about 0.05 gm. (1 grain) repeated several times daily. It is always administered in solution, but it is prone to undergo oxidation with the formation of the nitrate; hence only enough of the solution should be prepared to last a short time.

Aconite is almost invariably administered in the form of the tincture, of which the dose is 0.2 c.c. (3 minims) repeated every hour until the desired effect is produced. Smaller doses may be given with correspondingly greater frequency.*

3. The following experience may be of interest: The neck of one of these tubes was filed with the intention of opening it, when it exploded violently; a second tube was cooled in a freezing mixture of salt and ice, and the neck then filed; there was a severe explosion; several tubes were then opened after wrapping them in towels, but in every case explosions of extreme violence resulted. The makers are well-known chemists, but they have been unable to explain the extreme violence with which these tubes exploded.

* Owing to lack of space the materia medica of this group is omitted from THE JOURNAL. It will be included when this series is published in book form.

DIURETICS

The secretion of urine may be influenced by drugs in many different ways; hence the diuretics do not constitute a well-defined group, and in fact, few of them are used as diuretics exclusively. Some of the diuretics have been discussed among other groups, and others will be discussed elsewhere.

Sollmann¹ classifies the diuretics as follows:

1. Those acting through changes in the general circulation.
2. Those acting purely by local irritant stimulation of the kidney cells.
3. Those acting by non-irritant stimulation of the kidney cells.
4. Those acting mainly by salt action.

Under normal conditions the rate at which the urine is secreted varies with the volume of blood which passes through the kidneys in a unit of time, but there is a minimum blood pressure (about 40 mm. of mercury), below which the kidneys do not function. On the other hand, intense constriction of the renal arteries causes a diminution of the secretion even though the general blood pressure may remain high.

DIGITALIS BODIES

The actions of the digitalis bodies have been discussed and it is necessary to call attention here only to the fact that they cause diuresis by improving the circulation. There is no evidence that they act on the kidneys directly, and in fact they do not cause diuresis in healthy man, since they do not improve the normal circulation.

VASODILATORS

While our knowledge of the actions of the vasomotor nerves in controlling the circulation is considerable, we do not know much about the changes which drugs cause in the renal circulation under different conditions, unless they induce diuresis, which may be accepted as evidence that the circulation has been improved. But improvement means only a closer approximation to normal conditions, since either vasodilation or vasoconstriction may interfere with the secretion.

We may conclude then that the vasodilators will facilitate the secretion of urine when they abolish an excessive constriction of the renal arteries without causing too great a fall in the general blood pressure, but we are unable to state in what cases this beneficial effect will follow their use. The nitrites and other vasodilators have been employed in many cases in which they could hardly be of benefit, for example, they have been recommended frequently to overcome the vasoconstrictor action of the digitalis bodies, but, as we have already pointed out, the *direct* vasoconstrictor action of therapeutic doses of the digitalis bodies is wholly negligible, and when an improvement in vascular tone follows their use it is due to the general improvement in the circulation, and does not call for vasodilators.

It is hardly probable that the vasodilators can often have any important action in promoting diuresis, but the indications for their use in any case may be deduced from the discussion of their actions.

The drugs of the caffein group influence the general circulation but their most pronounced diuretic action is exerted on the kidney directly.

IRRITANTS

The second class of drugs—those which act through their local irritant action on the renal cells—embraces the volatile oils, which have been mentioned under urinary disinfectants, and certain glucosidal bodies, such as scoparin, and some others which are not used therapeutically for their diuretic action.

The most important drug usually classed among the irritant diuretics is calomel. There is no question that large doses of calomel are capable of causing renal irritation, hence caution is urged when it is employed in nephritis, and some authorities state that it should not be used when there is the least suspicion of nephritis. That view would appear to be extreme, however.

An entirely different theory has been advanced recently to account for the diuretic action of calomel. It causes increased peristalsis in the small intestine resulting in a lessened absorption, and consequently in the emptying of a larger amount of fluid into the colon than normally. It is explained that calomel does not affect the large intestine markedly, and the excess of fluid in the colon undergoes rapid absorption. In the meantime the composition of the blood has been restored to the normal through the withdrawal of fluid from the tissues to compensate for that excreted into the small intestine, and this rapid absorption of fluid from the large intestine induces hydremia and consequent diuresis. It is urged that the copious diuresis which accompanies the absorption of small amounts of calomel prevents the latter from exerting its irritant action on the renal cells.

It is a matter of common experience that calomel diuresis is attended with greater improvement in the condition of dropsical patients, than is seen when it causes the removal of water by purgation.

There is no apparent advantage in securing the absorption of water from the colon only in order that it may be excreted by the kidneys, hence we must suppose that the advantage is due to a milder action whereby the sudden removal of a large amount of fluid from the circulation is avoided.

The combination of opium and calomel causes diuresis more certainly than does calomel alone, and this is explained on the basis that the delayed peristalsis permits of a greater absorption of calomel, or according to the view of calomel action just discussed, it permits of a greater absorption of water from the large intestine.

WATER

Several investigators have found that a given amount of water administered by the mouth causes a greater diuresis than an equal amount injected intravenously or subcutaneously. It has been suggested that some substance which is actively diuretic, is absorbed with the water from the intestine, and that it is the absence of this hypothetical substance in the circulation which accounts for the slighter diuresis when the water is injected intravenously. It is probable that the diuretic action of calomel may stand in relation to this observation.

CAFFEIN GROUP

The drugs of the caffein group are the only ones of importance which induce diuresis through their non-irritant stimulation of the renal cells.

We have called attention to their influence on the heart, and on the vasomotor system, and it remains to discuss their specific action on the renal cells.

1. Sollmann: Pharmacology, Philadelphia, W. B. Saunders Company, 1906, Ed. 2, p. 546.

It is generally held that they act on the tubules, stimulating them to increased secretion, but there is another theory of their action which is diametrically opposed to this view, according to which caffeine inhibits the capacity of the tubules for reabsorbing water, with a consequent increase in the amount eliminated.

Whichever theory is correct, the essential fact for the clinician is that caffeine and theobromin act on the kidneys and do not cause irritation, hence they may be used in the presence of nephritis.

It is sometimes maintained that these agents cause a specific dilation of the renal vessels, but the vessels of every organ dilate when it begins to function more actively, and it is impossible to say whether the renal dilation is the cause or effect of renal activity.

OTHER MEANS OF CAUSING DIURESIS

The rate of secretion of urine varies with the viscosity of the blood, and anything which causes water to pass into the circulation tends to promote the secretion of urine. This may be accomplished by causing water to be absorbed from the body tissues or from the alimentary tract.

The absorption of tissue fluids into the circulation may be accelerated during health by the intravenous injection of a saline solution which has a higher concentration than the blood. The renal cells offer little resistance to the passage of sodium sulphate, and when a 2 per cent. solution is injected intravenously, tissue fluid passes into the circulation and active diuresis is induced. This is one of the most active diuretics at our command, and may be depended on to hasten the elimination of those poisons which are excreted by the kidneys. Obviously, this method is only suited for emergencies.

Venous stasis favors the passage of water from the blood into the tissues, and conversely, the relief of venous stasis is commonly followed by the return of the water from the tissues into the circulation, with the resulting hydremia and diuresis.

Even a comparatively small initial change of this sort may institute diuresis with the ultimate elimination of enormous quantities of water with progressive improvement in the circulation and relief of the stasis; hence any drug which causes improvement in the general circulation in dropsical conditions will act as a diuretic if the kidneys are capable of functioning.

Owing to the slight absorbability of sodium sulphate by the intestinal epithelium it does not usually pass from the intestinal tract into the circulation with sufficient rapidity to cause active diuresis, but the acetate and citrate of potassium are absorbed promptly and are commonly used as diuretics. They are also commonly used when it is desired to render the urine alkaline.

Potassium acetate is absorbed more readily than the citrate, and is therefore a more active diuretic; large doses of the citrate act as a laxative, and may then fail to produce diuresis, and may even diminish it temporarily, since the removal of water by the bowel will increase the viscosity of the blood.

THERAPEUTIC USES

The urine serves to remove toxic substances from the body, whether these be waste products formed during health, the results of disease, or poisons introduced in the form of drugs, though not all toxic substances are removed in this way. From this the chief uses of the diuretics in normal circulatory conditions

are obvious. When the circulation is impaired and water accumulates in the tissues, it causes distress, and its removal becomes imperative. This may be accomplished in part by sweating and purgation, but diuresis affords the most satisfactory method of disposing of the accumulations when the kidneys are capable of functioning normally.

It is not feasible to consider all of the therapeutic indications for diuretics, and only a few of them will be discussed here.

We do not know enough about the toxic substances (toxins) which are formed during disease and the best method of securing their elimination to enable us to state just what measures should be employed, and therefore we do not know to what extent the use of active diuretics will prove beneficial in many cases. We know that certain vegetable poisons at least are excreted practically unchanged in the urine, while others are decomposed to a greater or less extent before they are eliminated, and still others are removed from the circulation by the liver, and exert practically no effect on the kidneys, and their elimination is practically unaffected by diuresis.

Our knowledge of the fate of many of the vegetable poisons is fragmentary, and we are often unable to state whether they are eliminated by the kidneys, or by the liver, or are destroyed in the organism.

Even in those cases in which we know that a poison is eliminated by the kidneys, we are seldom able to state whether it is excreted through the glomeruli or through the activity of the tubular epithelium, hence we do not know which of the diuretic drugs is to be preferred in a given case. Fortunately, diuresis, however induced, appears to favor the elimination of many of those poisons which are excreted through the kidneys, and the necessity of choosing one diuretic rather than another does not appear to be pressing, and in cases of acute poisoning by a drug such as strychnin, which is excreted mainly by the kidney, and when the necessity of securing its rapid elimination is urgent, one's efforts should be directed toward inducing copious diuresis by the most effective means at hand.

When poisons which are capable of inducing nephritis have entered the circulation, it seems probable that we should secure the largest possible flow of blood through the kidney vessels, as well as the most copious diuresis; hence caffeine and theobromin, which are said to cause a specific dilation of the renal vessels, probably deserve consideration in addition to other diuretic measures.

It is surprising how little attention has been paid to the possibilities of extreme diuresis and flushing of the kidneys to the maximum in cases of poisoning with mercuric salts, which have become all too common of late, but it is not to be understood that this subject has been wholly neglected, and diuresis does play an important rôle in the treatment in such cases. We do not believe that the possibilities of the treatment have been appreciated, however, just as the possibilities of the elimination of strychnin during intense diuresis have been overlooked, even though every text-book mentions diuretics as a part of the routine treatment in such cases.

The choice of diuretics in a given case is often empiric though there are certain conditions which demand a definite method of procedure.

When there is an accumulation of water in the tissue (dropsy) due to the faulty action of the heart and

its failure to maintain an adequate circulation, the digitalis bodies are of the first importance, and their action may be supplemented advantageously by that of caffeine. Since it is necessary to rid the body of water it would evidently be improper to secure diuresis through the administration of large amounts of fluid. The different drugs of the digitalis group contain irritant principles and it is barely possible that some of these may induce diuresis after the manner of the second class mentioned above, that is, those acting purely by their irritant action on the renal cells, but, on the other hand, the absence of diuretic action during health from these agents, and the fact that they do not cause diuresis in dropsical conditions unless they improve the circulation through their cardiac actions, is strongly indicative of their acting as diuretics only through the changes in the general and renal circulation. The irritant digitalis principles are probably excreted almost entirely through the liver, and when they are excreted through the kidney this appears to take place so slowly that they are never in sufficient concentration to cause severe irritation. At any rate the digitalis bodies do not cause serious renal irritation and they are used in the presence of nephritis.

The action of the digitalis bodies may be supplemented by diuretics which cause dilation of the renal vessels (caffeine), or by those which cause hydremia (calomel, potassium acetate).

Just as digitalis bodies are indicated when the cardiac action is impaired, so they are contra-indicated when the heart's beat is normal, and in such cases dependence should be placed in drugs which diminish the viscosity of the blood, or those which act on the kidneys directly when diuresis is desired.

There is seldom any special indication for the use of the volatile oils as diuretics alone, but they are sometimes used in small doses which produce only a mild stimulation of the kidney cells.

The injection of physiologic salt solution commonly causes a marked diuresis, but the kidney may become resistant to the passage of sodium chlorid as the result of continued administration or under pathologic conditions, in which case the administration of salt leads to a diminution of urinary secretion. It then becomes necessary to reduce the ingestion of salt to a minimum. Attention has been called recently to the slow intravenous injection of hypertonic solution of glucose when sodium chlorid is contra-indicated.

Venous engorgement involving the abdominal veins which results from cardiac insufficiency, interferes with the renal circulation by retarding the outflow, and, as is very well known, anything that interferes with the free outflow from the renal veins interferes with the secretion of urine. Hence anything which relieves the venous stasis promotes the secretion of urine.

Active cathartics which remove a large amount of water may suffice to relieve the interference with the renal circulation. In like manner dropsical accumulations may interfere mechanically with the venous return and thereby lessen the secretion of urine, and in an analogous manner the purgative sometimes affords relief by removing the water which presses on the veins.

Clinicians often experience great difficulty in removing accumulations of fluid in patients who suffer with renal insufficiency. The retention of urea in nephritis is so well known as to require no further comment.

Saline diuretics and drugs of the caffeine group are said to be best for use during chronic nephritis.

DOSAGE

The dosage of the digitalis bodies has been discussed in the article dealing with cardiac drugs.

The dosage of caffeine and theobromin for inducing diuresis is commonly limited by its actions on the heart and central nervous system, especially in the case of caffeine by its tendency to produce wakefulness, and in the case of theobromin by its action on the heart.

The diuretic dose of caffeine is usually given as 0.3 gm. (5 grains) but the drug is commonly given up to the limitations imposed by its side actions. It may be repeated about three times a day. Theobromin is given in about the same amounts, but owing to the more rapid action it may be repeated about four times a day.²

The volatile oils are seldom administered alone for their diuretic action, but they are sometimes used in the form of infusions, or other preparations of drugs which contain them.

The dose of potassium acetate is about 2 gm. (30 grains). It is commonly used when it is desired to increase the urine and render it alkaline, and the dose may be repeated every two or three hours until the desired object is attained. It is converted into the carbonate, in which form it is excreted largely.

Calomel is given in doses of from 0.1 to 0.2 gm. (from 1½ to 3 grains) several times daily when it is desired to cause diuresis. Since such doses cause diarrhea in most cases, it is often advised that opium be administered with it in sufficient amounts to prevent active purgation. This interferes with the evacuation of large amounts of water, and does cause diuresis in the manner described, but it is probably better to use smaller doses of calomel, and avoid the necessity of using opium. In many cases the removal of even a small amount of water by purgation will suffice to inaugurate an increased secretion of urine, and with a mild action one avoids the depression which is such an objectionable feature of violent calomel purgation. Small doses of calomel often cause purging with little more discomfort than accompanies a normal movement. The severe depression which accompanies calomel purgation is probably due in a large measure to the determination of an excessive amount of blood to the splanchnic region as the result of active intestinal secretion. Moderate action is not accompanied by this excessive activity of the intestinal glands and the resulting depression.

It seems probable that the combined use of digitalis, calomel and caffeine or theobromin would be better than calomel with opium, except when the opium is needed for its other actions.*

(To be continued)

2. It seems probable that theobromin may be administered conveniently in the form of cocoa in sufficient amounts in many cases. It is often objected that this requires the administration of too much water, but every patient must have some fluid every day, and since cocoa should be made with milk only—not with water—there is no apparent reason why the cocoa should not be administered with the milk which forms an important part of the diet as a rule in such cases. The better class of powdered cocoas contain about 1 per cent. of theobromin, hence 10 gm. of powdered cocoa, sufficient for one cup, would contain 0.1 gm. (1½ grains) of theobromin. If desired, the theobromin administered in this way may be supplemented by theobromin or the theobromin and sodium acetate or salicylate. An advantage in the use of cocoa in this way is the reduction of the amount of sodium salicylate or acetate which it presents, and the lessened gastric disturbance.

* Owing to lack of space the materia medica of this group is omitted from THE JOURNAL. It will be included when this series is published in book form.

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SATURDAY, MAY 22, 1915

SENSATIONS OF GASTRIC ORIGIN

The classification and analysis of our sensations meet serious obstacles when we attempt to unravel the nature of those feelings through which a knowledge of the condition of the body and perhaps of ourselves as distinct from the external world is acquired. There is a group of organic sensations of movement and position, of pain, fatigue and less definite sensations of the visceral organs, which furnish subjective information regarding ourselves as things apart from the objects which surround us or the changes which excite our exterior senses. Important as the psychologic significance of these sensations projected into the interior of the body is in the way of entering into and qualifying our judgments, the subject does not lend itself readily to popular discussion. Aside from vague suggestions of ill-defined localities which are furnished by the pain sense, the sensory data derived from the interior of the body are exceedingly meager at best.

The inaccuracy of localization which pertains to the sensations associated with the visceral organs is in part complicated by the reference of pain arising from them to other parts of the body, notably to certain areas of the skin. Experience teaches that the stomach is not sensitive to touch; otherwise we should all be more familiar with this organ than we are. There are times, however, when sensibility of some sort is present. What is the solution of this seeming paradox?

Professor Carlson¹ of the University of Chicago concurs, with other investigators who have examined cases of fistula in the human stomach, in the conclusion that stimulation of the normal gastric mucosa does not produce tactile sensation. Gently touching or striking the mucosa with blunt objects produces no sensation. The indefinable feeling noted when more vigorous manipulation is employed is not like touch or pain or hunger, and is presumably associated with some outlying visceral part. Carlson believes that the

sensation of pain cannot be produced from the normal gastric mucosa by any stimulation confined to the mucosa itself. Pinpricks or incisions of the normal mucosa do not seem to affect consciousness in any way. It does not follow that pain may not be caused by the stimulation of the hypersensitive mucosa. It is suggested that the gastric pain accompanying excessive inflation, gastric ulcers and chronic obstruction is due to the mechanical stimulation of hypersensitive nerves or nerve endings in the muscularis or submucosa by excessive distention or contraction. The nature of gastric hunger pains has already been discussed in *THE JOURNAL*.²

With respect to the recognition of temperature changes, the conditions in the stomach seem to be somewhat different. The evidence suggests that the mucosa is endowed with heat and cold nerve endings. The sensibility appears to be of the type which Head has termed protopathic, that is, of somewhat indefinite and "affective" character rather than "epicritic" and accurately localized. These fibers are undoubtedly more abundant and readily stimulated in the throat and esophagus than in the stomach; but the temperature sensations initiated by touching the gastric mucosa directly through a fistula with hot or cold solids cannot be referred to the esophageal membrane or to the skin of the abdomen. It is an interesting fact that heat and cold sensations are not confused, and that according to several investigators the cold sensation seems to be more distinct and better localized than the heat sensation.

The sensation of fulness does not originate in the mucosa of the stomach.³ Its main source is the tension exerted from within on the circular muscular fibers of the stomach. A certain amount of tonus relaxation of the organ must be present before tension or pressure of the walls of the stomach produces the sensation of fulness.

Carlson has maintained for some time that hunger and appetite are qualitatively different sensations.² The sensory apparatus for hunger is distributed in the stomach wall and is stimulated by a certain type of contractions of the empty stomach. When foods or liquids are taken into the mouth and swallowed in the normal way, their main influence on appetite is via nerve endings in the mouth. In fact, the latter is so prominent that only by excluding it are we able clearly to distinguish the gastric factor. The memory factor in appetite is therefore preeminently gustatory and olfactory. Nevertheless the recent observations¹ on a subject with a gastric fistula indicate that chemical, and possibly mechanical, stimulation of nerve endings in the normal gastric mucosa gives rise to a sensation identical with appetite. This is the basis for

1. Carlson, A. J., and Braafladt, L. H.: Contributions to the Physiology of the Stomach, xviii, On the Sensibility of the Gastric Mucosa, *Am. Jour. Physiol.*, 1915, xxxvi, 153.

2. The Call of the Empty Stomach, editorial, *THE JOURNAL A. M. A.*, Oct. 4, 1913, p. 1300; The Voracity of Certain Diabetics, Feb. 21, 1914, p. 621; New Facts About Hunger, July 11, 1914, p. 169; Stomach Bitters, Jan. 2, 1915, p. 58; Water as a Gastric Stimulant, p. 59.

3. Hertz: The Sensibility of the Alimentary Canal, London, 1911.

the conclusion that the mucosa is endowed with a "protopathic" appetite sense. In weighing the uncertainties of such statements it must be remembered that they represent the results of subjective analysis, a debatable mode of investigation enforced by the necessities of the problem.

WAR EXPERIENCES WITH INFECTED WOUNDS

The treatment of the bacterial infections of projectile wounds, founded on the experiences in the present war, forms the subject of an interesting memorandum¹ bearing the signatures of Colonels F. F. Burghard, Sir W. B. Leishman, F.R.S., Sir B. Moynihan and Sir A. E. Wright, F.R.S. The memorandum is issued for the guidance of members of the English army medical service in the treatment of wounds during the war, and it is expected, as soon as certain researches are completed, to follow it with additional memoranda on the employment of antiseptics and vaccines.

Among the most interesting observations made with regard to wounds, and particularly deep, penetrating wounds as made by shells in this war, is the notable difference between the reaction of sailors and soldiers. Sailors with the most severe type of wound, ragged, irregular, with uneven surface produced by herniated muscle and retracted severed fibers, usually have recovered promptly.² Soldiers suffering from even slight wounds have often had them contaminated with bacilli from the soil, particularly the anaerobes. This is a trench war; many of the trenches are dug through cultivated fields, and soldiers often cannot be removed from them for many hours after being wounded; contamination becomes almost inevitable. Large penetrating wounds made by shells under such circumstances have been particularly slow to heal, and septic complications have been frequent, severe and only too often fatal.

It was said at first that the sailors recovered promptly and satisfactorily in spite of the fact that many of them were subjected to immersion in cold sea water for from half an hour to an hour or more. Notwithstanding the shock thus inflicted, the reaction both in constitution and wound healing was excellent. Now the commission recommends the bathing of wounds with hypertonic salt solutions like sea water. Probably the exposure to sea water was actually remedial in its effects because the flow of lymph and serum induced in the wounded tissues actually obviated septic sequelae. The practical directions are:

"For ordinary use, the best application will be a 5 per cent. solution of common salt combined with 0.5 per cent. citrate

of soda to render the lymph incoagulable. Where citrate of soda, or a similar decalcifiant is not available, a simple 5 per cent. solution of salt will serve. Sea water, this being equivalent to a 2.5 per cent. solution of salt, may also be employed. In dealing with dry and infiltrated wound surfaces, stronger solutions of salt (up to 10 per cent.) will be found to resolve the induration and to clean up the wound surfaces much more quickly than weaker solutions."

Where the wounds are deep and open, the simplest procedure is to pour in hypertonic salt solution and then plug lightly with gauze. Superficial wounds may be dealt with by laying on gauze thoroughly soaked in the solution. As these measures produce a very free flow of fluids from the wound, care must be taken to keep the bed and clothing from becoming perilously or even uncomfortably damp; therefore the limb should be wrapped in water-proof material. The memorandum adds that an application of petrolatum will prevent irritation of the skin and stinging on freshly cut skin surfaces. It is interesting to realize that this suggested method of treatment is actually a reversion to the idea of "drawing something out" of the system which used to be so familiar in connection with the use of poultices in the older generations, though, of course, poultices were usually applied to unbroken surfaces. The memorandum speaks of the "drawing agent" having done its work "as soon as it has checked the spreading invasion of the tissues, and cleaned up the dry and indurated wound surface and this last has clothed itself in bright coral red granulations. The hypertonic salt solution may then be replaced by some simple dressing."

Antiseptics have lost their prestige, but are now recommended because they help in the destruction of bacteria of various kinds in tissue debris which might cause infective processes in others or contaminate the hospital generally. If this precaution were omitted, infective microbes would inevitably be carried from one wound to another, and by such "passaging" there would almost surely "be bred out in the hospitals very virulent strains of microbes which would as in pre-Listerian days induce all manner of fatal septic infection. . . . Up to the present, experiment has not furnished anything in confirmation of the idea that the introduction of antiseptics into wounds would be likely to contribute to the arrest of suppuration." In a word then, while antiseptics used to be employed for the sake of the individual to whom they were applied, with the belief that they facilitated wound-healing, they are now recommended only because of the protection that they afford to others.

In conclusion, the memorandum suggests that when wounds are heavily infected, the ideal method of treatment, if only it were always practicable, would be immersion in a bath or continuous irrigation with some aseptic or mildly antiseptic fluid. When this continuous bath or, according to the conditions of the cases and the circumstances of the treatment, "the lymph

1. Burghard, F. F.; Leishman, W. B.; Moynihan, B., and Wright, A. E.: Memorandum on the Treatment of the Bacterial Infections of Projectile Wounds, *Lancet*, London, April 24, 1915, p. 873.

2. War Surgery, editorial, *THE JOURNAL A. M. A.*, March 13, 1915, p. 912; *The Bacteriology of the Wounds in the War*, Jan. 30, 1915, p. 438.

lavage" induced by hypertonic salt solution has brought the infection under control, what remains of the infectious process may very often be extinguished by freely exposing the open wound to the air. In other words, two of Nature's simplest and most abundant materials, sea water and air, have come back as adjuvants in surgery. There has long been a tradition among sailors that washing wounds with sea water did them good, and on the farm, salt solution has often been employed in the treatment of wounds both of animals and of men. The feeling usually was that this old-time tradition probably had little basis of value in it, though now the experience of a great war would seem to indicate that the acute clinical observation of the older generations has enabled them to realize the value of applications of salt solution. As the true reason was misunderstood, their use gradually went out, or became limited only to popular medicine. As a reversion to older ideas in many particulars, this memorandum is significant in the history of medicine.

INDOOR HUMIDITY

There is a widespread and growing belief in this country that the problems of ventilation are in need of exhaustive investigation. Some of the aspects of this subject, and particularly their bearing on hospital ventilation, have been discussed in detail in a series of papers in *THE JOURNAL*.¹ Physiologic research has brought about a new attitude in regard to what constitutes "foul air." The chemical composition of the atmosphere, its relative content of oxygen, carbon dioxide and other gaseous ingredients, are now of less concern to the hygienist than are certain other factors formerly looked on as somewhat incidental. The movement of the air, and its temperature and humidity now likewise call for careful attention and analysis. To a certain degree these features are interrelated and may properly be considered together.

Inasmuch as the temperature of the body is regulated by the loss of heat through evaporation of water from the lungs and skin, obviously the humidity of the environment of the body is of no small importance. The term "relative humidity" is used to express the ratio of the moisture actually present in a given space to the maximum amount which this volume can contain at the same temperature. At a temperature of 15 C. (59 F.) and with a relative humidity of 75 per cent. — a high figure — Pettenkofer and Voit estimated the loss of water by the lungs at 286 grams, and from the

skin at from 500 to 1,700 grams daily. This will give some idea of the magnitude of the effects here concerned. If the relative humidity be increased, there will be a hindrance to the escape of water from the body; and when this condition of high relative humidity is combined with a high temperature of the air, the heat is far more oppressive than when the air is dry and allows free evaporation. Conversely, a cold, moist atmosphere may also be distressing.

The complexity of the question of humidity is well exemplified by the statement that very humid air, on the one hand, may prevent the comfortable escape of body heat by evaporation, whereas very dry air, especially when warm, is said to affect the mucous membranes injuriously. The foremost need at the present time is a mass of facts — something definite and tangible to guide the ventilating engineer. It is commonly stated that the air in our houses is too dry in winter, especially in cold weather. An American physicist² has called attention to the fact that most of the current household devices for humidifying the air of houses heated by the hot air furnace are entirely inadequate for this purpose. According to his calculations, a house containing 17,000 cubic feet of space would require, for a relative humidity of 40 per cent. at 70 F., with air already containing 20 per cent. humidity and changed once an hour, about 15 gallons of water a day. Rarely will the familiar water pans of American furnaces evaporate more than 2 or 3 gallons daily — hardly enough to raise the humidity 5 per cent.

Professor Ingersoll² of the University of Wisconsin has rarely found a humidity of less than 20 per cent. in buildings examined by him. Even allowing for moisture furnished by the exhalations of occupants and for such occasional sources as cooking operations, he maintains that many gallons of water must be evaporated daily in a moderate-sized house in cold weather to secure even 40 per cent. humidity. The latter figure is less than that given by medical writers as an ideal value. The relative humidity of outside air not infrequently passes the 80 per cent. level. Ingersoll found that when a humidity of 50 per cent. was produced by special devices, the condensation accompanying this value in cold weather proved unbearable. He concludes that for a temperature of about 70 F., which our heated rooms approach in winter, the ideal indoor humidity for winter in a climate such as that of Wisconsin is from 40 to 45 per cent. Seventy per cent. would mean the atmosphere of a steam laundry. According to Ingersoll, any recommendations of this value are either based on pure theory or else are founded on measurements with older forms of unreliable and inaccurate apparatus. Precisely wherein the hygienic advantages of a relative humidity of even 40 per cent. lie remains to be explained.

1. Bass, Frederic: Tests of Ventilating Plants, *THE JOURNAL A. M. A.*, Nov. 7, 1914, p. 1620. Winslow, C. E. A.: The Importance of Studying the Actual Condition of Hospital Air, Nov. 7, 1914, p. 1621. Miller, J. A.: Hospital Ventilation from the Point of View of the Clinician, Nov. 7, 1914, p. 1623. Lee, F. S.: Laboratory Experiments With Air, Nov. 7, 1914, p. 1625. Ohmes, A. K.: Hospital Ventilation from the Ventilating Engineer's Point of View, Nov. 7, 1914, p. 1628. Ventilation, editorial, Nov. 7, 1914, p. 1672; Temperature and Humidity in Hospitals, Oct. 25, 1913, p. 1541; The Ventilation Problem, Nov. 22, 1913, p. 1902.

2. Ingersoll, L. R.: Indoor Humidity, *Jour. Home Economics*, April, 1915, vii, 193.

THE "LAW OF ANTICIPATION"

Numerous statistical studies of the inheritance factor indicate that insanity is gradually increasing. This increase has been attributed not alone to the more intense strain of modern life, but also to alleviation or temporary cure of mental derangements by appropriate treatment, thereby giving the mentally unfit a greater chance for procreation.

In contrast to these notions stands Mott's¹ "law of anticipation," derived from the study of a series of 217 pairs of father and offspring and 291 pairs of mother and offspring in which two or more members of the same family had been inmates of London county asylums. He found insanity appearing in 2 per cent. of the fathers and 4 per cent. of the mothers before 25 years of age, whereas among the offspring, 44 per cent. of the cases occurred before 25 years of age. The average age of onset of insanity was 50 years in the parents and 26 years in the offspring. Thus there was an antedating or anticipation of twenty-four years, the disease occurring, on the average, twenty-four years earlier in the children than in the parents. This so-called "law of anticipation" implies that when children of the insane become insane, they do so at a much earlier age than did their parents. They are also said to suffer from a more intense form of the disease. Mott lays great stress on this as Nature's way of ending or mending an unfit stock, and believes that there is a diminishing risk of the child of an insane parent becoming insane after he has passed 25 years. He even goes so far as to advise offspring of insane parents to marry if at 25 years of age they are mentally sound.

If the "law of anticipation" is a fact, it is evident that much of the present comment on the increase of insanity is unfounded and that many of the problems now confronting eugenists will, through Nature's provision, care for themselves. Since Mott's findings are contrary to conclusions drawn by many other statisticians, Heron² has undertaken a careful study of the method of compiling and the interpretation of these data.

He found that cases of insanity occurring before 20 years of age invariably appeared in the tables, whereas, many instances of insanity occurring in the offspring at 40 to 60 years of age escaped the records. Thus a false antedating results. No allowance was made for the mentally normal, at the time the tables were compiled, who in later years became insane. By directly comparing parent and child, one group, the parents, has been limited to over 20 years of age, making a marked error in favor of anticipation. Heron studied this manner of anticipation by means of the family histories of some of the ruling houses of the eighteenth century. In these records, every member of the entire

family is accounted for. Among the fathers, none died under 30 years, while 87 per cent. of their children died under that age. The average death age of the fathers was 62, of the children 10, an anticipation of fifty-two years. None of the 294 fathers died before 20, but 106, or 36.1 per cent., of the 294 first-born children died before that age. This manner of selection, similar to Mott's, limits the age of the parental group to over 20 years, while more than one third of the offspring die under 20. This fallacy may be removed by contrasting the death rate of the fathers with that of the first son to marry and have a child. In 213 such instances, scarcely a year separates the age at death of father and son. Thus by removing artificial selection, all anticipation disappears. Further mathematical evidence tends to disprove the possibility of a "law of anticipation," and one must believe that such a law is not based on fact.

Mott's advice concerning marriage of offspring of insane parents has been criticized as unsound. Of the 500 offspring studied by him, 44 per cent. became insane before reaching 25 years of age. If 44 per cent. become insane before 25, 56 per cent. must become insane after this age, and therefore marriage after 25 is of greater risk than before.

The rise and fall of the "law of anticipation" serves as an illustration of fallacies which may occur in statistical studies. In the future such mistakes will happen less frequently since undoubtedly, twenty years hence, statistics will be a science unto itself and dealt with only by trained men.

PASTEURIZATION OF MILK AND THE
COLON BACILLUS

Although the pasteurization of milk has become a familiar process in various parts of the United States and is highly lauded in many quarters as an admirable safeguard of the health of consumers, there still is considerable misconception regarding the results actually accomplished. The real function of pasteurization, that is, its actual effect on the milk involved, is not understood so adequately or accurately as it ought to be. Those least conversant with the underlying facts often believe that the procedure destroys all the micro-organisms present in raw milk; the results attained are confused with what is attempted in complete sterilization of milk by more vigorous methods. The more rational assumption, on which the current practices in general are based, is that pasteurization of milk, by heating it to a temperature of from 60 to 63 C. (140 to 145.4 F.) and holding it at this temperature for from twenty to thirty minutes, serves to destroy any bacteria of diseases regarded as transmissible by milk. The use of higher temperatures for shorter periods is now more generally avoided because it is believed that undesirable chemical changes are

1. Mott: *Brit. Med. Jour.*, May 11, 1912, p. 1060.

2. Heron: *Biometrika*, 1915, x, 356.

more likely to take place in milk treated in this way, and more especially because higher heating destroys an undue proportion of lactic acid bacteria, while the spores of certain micro-organisms which decompose the proteins of milk are not destroyed. As a result, the milk may subsequently become unwholesome from putrefactive change before it becomes sour as a result of the acid-forming bacteria.

Realizing, then, that pasteurization is never expected to destroy all bacteria in milk, one is prompted to ask what margin of safety against survival of undesirable living organisms remains at the temperatures and during the periods currently advised for heating the milk. It is said that the presence of colon bacilli in pasteurized milk is generally interpreted as meaning either that the milk was not properly heated or that it was reinfected after pasteurization by careless handling. This interpretation is based on the low thermal death point of cultures of *Bacillus coli*. In the laboratories of the Dairy Division of the Bureau of Animal Industry at Washington, Ayers and Johnson¹ have ascertained the thermal death point of many cultures of colon bacilli isolated from numerous typical sources of contamination, such as the excrement of man and cattle, flies, milk, cream and cheese. The duration of the heating was fixed at thirty minutes for all the trials. At 60 C. (140 F.), the lowest pasteurizing temperature, ninety-five out of 174 cultures examined, or 54.59 per cent., survived; at 62.8 C. (145 F.), the usual temperature for pasteurizing, twelve, or 6.89 per cent., survived. One culture was not destroyed at 65.6 C. (150 F.) on the first heating, but in repeated experiments it was always destroyed. There is a marked difference in the effect of heating at 60 C. and at 62.8 C. Although there is only a difference of 2.8 degrees C., or 5 degrees F., 87.3 per cent. of the cultures which survived at 60 C. were destroyed at 62.8 C.

It is important from a practical standpoint to learn that 62.8 C. maintained for half an hour is a critical temperature for most colon bacilli. It seems desirable, however, to emphasize the fact that though there is a low "majority thermal death point," a few cells often may survive this. Under the circumstances pointed out, the thermometer needs careful watching, and the pasteurization process calls for intelligent execution in order to produce dependable results. The presence of a large number of colon bacilli immediately after the heating process may indicate improper treatment of the milk.

The government bacteriologists have reached the conclusion that if milk is pasteurized at a temperature of 65.6 C. (150 F.) or above for thirty minutes, they would not expect, from their results, that any colon bacilli would survive. Consequently, under such con-

ditions the colon test for the efficiency of pasteurization may be of value. It must be remembered, however, that a study of more cultures may reveal strains of colon bacilli that are able to survive this and even higher temperatures.

THE COAGULATION OF THE BLOOD AFTER HEMORRHAGE

Variations in the clotting power of the blood are encountered in diverse manifestations of practical medicine. Not infrequently they are occasion for uncertainty and annoyance, particularly when conditions arise in which an inhibition of coagulation accompanies some hemorrhagic diathesis. Until the physiologic factors concerned in the coagulation of the blood are more clearly understood, it is almost unwarranted to expect any real progress in the management of the often serious situations created by certain types of uncontrollable hemorrhage. Empiric experience has served as a guide in the past, and the remedial procedures instituted have as a rule been local and palliative rather than fundamental and permanent in character.

The coagulation of the blood has formed the subject of intensive study on the part of physiologists and biochemists for decades. Even the most recent literature in this field abounds in many contradictory statements, irreconcilable observations and obscure points. It calls for no small degree of scientific courage at the present moment to venture an attempt at a comprehensive summary or a tenable theory. The variables are still too numerous and complex to fit into any complete hypothesis yet offered. So long as the experts cannot agree, the physician of today may be excused if he fails to understand the obscure language in which the coagulation phenomena are currently described. The growth of scientific nomenclature is not always a guarantee of progress in the elucidation of the problems of science.

In spite of the confusion, there is an accord on certain fundamental features. Two factors, which we may call fibrinogen and thrombin, unquestionably play a part in the coagulation of the blood. There is a growing objection to the older theories which regard this process as essentially enzymatic in nature. Thrombin, which is somehow formed from a precursor, prothrombin, reacts with fibrinogen to form the fibrin of the clot. According to Howell, the non-coagulability of circulating blood depends on the fact that an inhibitory substance, antithrombin, prevents the activation of the prothrombin into thrombin.

From a practical standpoint in medicine it is of no small moment to learn clearly what substances actually act as accelerators or inhibitors of coagulation. One need only recall the predicament offered by the slow clotting of the blood in hemophilia to gain some appre-

1. Ayers, S. H., and Johnson, Jr., W. T.: Ability of Colon Bacilli to Survive Pasteurization, Jour. Agric. Research, 1915, iii, 401.

ciation of what might be accomplished if the factors were thoroughly understood. Little by little, however, useful progress is being made. An illustration of this is afforded by a recent study of the effect of rapid progressive hemorrhage on the factors of coagulation.¹ It has long been known that the coagulation time of the blood is decreased under the condition noted.² This is, indeed, an advantageous adjustment for the organism. In a search for quantitative alterations in the different factors of coagulation corresponding to the decrease in coagulation time after hemorrhage,¹ it was discovered that the antithrombin decreases in amount and remains practically constant when the coagulation time is unchanged. Under conditions of diminished coagulability of the blood an increase in its antithrombin has been demonstrated; but this newer research is regarded as the first instance in which there has been reported a positive decrease in the antithrombin content of the blood.

Current Comment

A RARE ZOOPARASITE IN MAN

The rarities and novelties of medical experience almost always embody some features of interest quite aside from the immediate practical questions which they involve. When cases of tropical disease are discovered in the temperate zones, the problem of their origin and distribution is inevitably suggested. With the means of communication between the Orient and America improving every year, it is not surprising to learn that disease-producing agencies heretofore unknown among us should follow the easy paths of commerce. These reflections are awakened by the first reported American case of infection with the larval cestode, *Sparganum mansoni*. Somatic teniasis, due to infection with the larval stage of tapeworms, is not a frequently observed condition. Among the different types, hydatid disease, due to infection with the larval *Echinococcus*, and cysticercosis associated with the presence of the larvae of *Taenia* are known far better than the infection with the bothriocephalid larvae of the species *Sparganum mansoni*. Although this larval tapeworm was discovered in 1882, all of the cases of human infection with the zooparasite hitherto reported have concerned persons either living in the Far East (China and Japan) or those who have presumably traveled there. The parasite lodges in various tissues of the body, and is said to show a tendency to wander from one locality to another. The host is not known, so that preventive measures cannot intelligently be followed to avoid infection. When the parasite presents itself to view, as is sometimes the case in the urinary passages, it can usually be removed mechanically. In other cases, when the worm locates in superficial

swellings of muscle or connective tissue, surgical treatment must be employed. It was the latter procedure which led to the discovery of the larval *Sparganum* in a breast tumor by Dr. Moore¹ of Houston, Texas. The fact that the patient had never been out of the borders of the United States at the time when the worm, measuring 21.5 cm., was removed from a tissue mass near the nipple, presents a new feature in respect to the geographic distribution of this species of parasite.

THE POISONOUS PRINCIPLE IN WATER HEMLOCK

Among the poisonous plants of which the toxicologic agent has not heretofore been classified with any well-defined chemical group, the water hemlock has furnished many victims. Nine or ten species of *Cicuta*, belonging to the Umbelliferae, or parsley family, have been recorded as occurring in this country. They are, of course, to be clearly distinguished from the spotted hemlock (*Conium maculatum*) of Socrates fame, which is a different genus. The harmful results from eating the roots of the water hemlock have not been confined to domestic animals, among which the mortality has at times been reported to be very high. Two decades ago it was not uncommon to read of severe intoxications in man usually owing, it is said, to a confusion of parts of the plant with parsnips. One author has collected thirty-one cases of poisoning by *Cicuta*, of which number fourteen were fatal. Suicides among Indians, caused by eating the roots of the plant, have also lately been reported. The European pharmacologist Boehm prepared a crude product from the water hemlock and gave the name "cicutoxin" to it. Tested toxicologically, this substance provokes symptoms similar to those which have been described in the poisoning of man by eating the roots. There usually are tremors followed by tonic and clonic spasms. Paresis of the extremities appears, and finally there may be full paralysis and death. It has been supposed that the poison acts specially on the medulla, while the brain and spinal cord are only secondarily affected. At the Nevada Agricultural Experiment Station in Reno, Jacobson² has reinvestigated the chemistry of these potent plants. According to him at least three distinct species of water hemlock, growing in the United States along the banks of streams and in marshy ground, contain the same poisonous principle, which is located primarily in the rootstalk of the plant. Cicutoxin is an unstable resinlike substance of the formula $C_{19}H_{26}O_3$, and is a complex derivative of pyrone. It decomposes and polymerizes readily, especially at temperatures above 50 C. (122 F.). A reliable chemical test for its presence has been found. The lethal dose of this "spasмотoxin," which produces symptoms that include a paroxysmal and a paralytic stage, cannot yet be given with any approach to accuracy. The order of magnitude may be indicated by the fact that about 50 milligrams per kilogram of body weight will kill

1. Drinker, Katherine R., and Drinker, C. K.: Factors Affecting the Coagulation Time of Blood, VI, The Effect of Rapid Progressive Hemorrhage on the Factors of Coagulation, Am. Jour. Physiol., 1915, xxxvi, 305.

2. Gray, H., and Lunt, H. K.: Am. Jour. Physiol., 1914, xxxiv, 332.

1. Moore, J. T.: Sparganum Mansoni, First Reported American Case, Am. Jour. Trop. Dis., 1915, ii, 518.

2. Jacobson, C. A.: Cicutoxin: The Poisonous Principle in Water Hemlock (*Cicuta*), Jour. Am. Chem. Soc., 1915, xxxvii, 916.

small animals. Death usually ensues from asphyxiation and exhaustion. No antidote is at present known. The allaying of the convulsive symptoms by means of a narcotic is at best a palliative procedure.

AN IMPORTANT RULING ON THE HARRISON LAW

Since the Harrison law went into force, frequent inquiries have been made as to the quantity of drugs which a physician was justified in prescribing or dispensing. Obviously, the quantity necessary in chronic cases or in the treatment of drug habitués differs materially from the quantity permissible in an ordinary case. The law makes no provision on this point, except to provide in general terms that, whether prescribing or dispensing, all acts coming under the scope of the law must be in good faith and not to evade the purposes of the act. It has been evident that some supplementary ruling on this point would be necessary. The Commissioner of Internal Revenue has just issued a ruling, dated May 11, which provides that

"where a physician, dentist, or veterinarian prescribes any of the aforesaid drugs (those included in the provisions of the Harrison law) in a quantity more than is apparently necessary to meet the immediate needs of a patient in the ordinary case, or where it is for the treatment of an addict or habitué to effect a cure, or for a patient suffering from an incurable or chronic disease, such physician, dentist, or veterinary surgeon should indicate on the prescription the purpose for which the unusual quantity of the drug so prescribed is to be used. In cases of treatment of addicts, these prescriptions should show the good faith of the physician in the legitimate practice of his profession by a decreasing dosage or reduction of the quantity prescribed from time to time, while on the other hand in cases of chronic or incurable diseases, such prescriptions might show an ascending dosage or increased quantity. Registered dealers filling such prescriptions should assure themselves that the drugs are prescribed in good faith for the purpose indicated thereon, and if there is reason to suspect that the prescriptions are written for the purpose of evading the intentions of the law, such dealers should refuse to fill same."

Under this ruling, physicians must place on their prescriptions, whenever, for any reason, an unusual quantity of opium or cocain is prescribed, a statement of the reasons for such an order. If the physician and patient are acting in good faith, it is difficult to see any objection to such a provision. There will, of course, be some sensitiveness on the part of secret drug addicts to having their weaknesses made a matter of record, but this can hardly be avoided in any plan which will separate the genuine from the spurious demand for these drugs. The ruling of the Commissioner will clear up a point on which there has been much discussion. As THE JOURNAL has constantly stated, the object of the Harrison law is to secure publicity in the use of habit forming drugs and to effect the prosecution and punishment of all persons using them for illegitimate purposes. Compliance with this ruling will relieve physicians of responsibility and will make the prescribing or dispensing of unusual amounts of these drugs a matter of record.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Home for Incurables Opened.—A new home for incurables at the corner of Geary and Wood streets, San Francisco, was formally opened April 26. The building will accommodate thirty-six patients.

Vaccination Foes Defeated.—The senate, May 5, refused passage of the Gelder bill, which releases schoolchildren and students from compulsory vaccination. The bill was defeated by a vote of 23 to 12.

Hospital Dedicated.—On May 1 the new San Francisco City and County Hospital group of buildings on Protrero Avenue, erected at a cost of \$2,000,000, was dedicated with appropriate ceremonies. The president of the board of works formally delivered the completed buildings to the mayor, who accepted the group in the name of the citizens of San Francisco. There are 350 beds at present ready for occupancy.

Physician's Tax Annulled.—The section of the local license ordinance of Turlock, which imposed a tax of \$10 a day on transient physicians practicing in that city, was declared unconstitutional by Superior Judge L. W. Fulkerch, April 28, when he granted a petition for the release of Dr. J. H. Berry, on a writ of habeas corpus. The proceeding held that the section was "discriminatory, prohibitive and unreasonable."

Personal.—Dr. Samuel H. Horwitz has been appointed instructor in research medicine in the Hooper Foundation for Medical Research of the University of California, San Francisco.—Dr. Edouard C. Fabre-Rajotte, San Francisco, has been appointed eye, ear, nose and throat specialist to the French Hospital in that city.—Dr. Jacob H. Parsegan, San Francisco, has returned after a trip to Marsovan, Turkey, and Asia.—Dr. William A. Brooke, Halfmoon Bay, has been appointed coroner and public administrator of San Mateo County.

Hospital Notes.—The cornerstone of the Methodist Hospital of Southern California, Los Angeles, was laid May 3. The building is to be of reenforced concrete, six stories and basement in height, will accommodate 120 patients and will cost when completed, \$210,000.—The Bellevue Hospital Corporation has been organized at Los Angeles, to erect a hospital to be known as the Bellevue Hospital, to contain about sixty rooms and to cost about \$60,000.—The French Hospital Association has revived the plan to erect a modern hospital building at the corner of College and Castelar streets, Los Angeles. The building will cover a ground space of 150 by 40 feet, will be two stories in height and will contain two wards and eighteen private rooms, beside the necessary surgical rooms, kitchen and administrative offices, and the building is estimated to cost about \$40,000.

FLORIDA

Florida has a Single Board.—A bill providing for a single board of medical examiners, in place of the three separate and independent boards, has passed the Florida legislature. The law also provides for a reregistration of all physicians and osteopaths in the state.

GEORGIA

War on Hookworm.—The board of commissioners of Randolph County has made a special appropriation of \$150,000, to be spent in fighting hookworm in that county.

Drainage Expert to Fight Typhus.—Mr. George Hazelhurst, formerly of Atlanta, an expert engineer in drainage work of Savannah, has accepted a position under the Rockefeller Foundation for work against typhus fever in Serbia.

Personal.—Dr. Walpole C. Brewer, Atlanta, has started for New York for service with the British Red Cross.—Dr. G. H. Lowden, assistant superintendent, has succeeded Dr. Louis Hollander as superintendent of the Battle Hill Tuberculosis Sanatorium.—Dr. J. L. Adams was shot and seriously wounded near Donaldsonville, April 13.

Ware County in Advance.—A new epoch in public health work has begun with the action of the commissioners of Ware County in creating the office of county health officer. A health officer for each county in Georgia was authorized by the Ellis bill in the 1914 legislature, the authorization being subject to approval by the board of commissioners.

Health Officers Meet.—The Georgia Association of County and Municipal Health Officers met in Macon, April 20, and elected Dr. Howard J. Williams, Macon, president, and Dr. Peter J. Bahnsen, state veterinarian, secretary. A committee was appointed to memorialize the Georgia legislature to pass a law at its next session, requiring that each town and city in the state record vital statistics.

Sanatorium Wants New Buildings.—On the ground that the constantly increasing number of patients at the Georgia State Sanatorium, Milledgeville, renders imperative the provision of additional facilities, the trustees of that institution have recommended to the next general assembly an appropriation of \$500,000, with which to erect and equip new buildings. The buildings for which there is most urgent need are new wards, one for white women and one for negroes, a hospital for the treatment of curable cases and a nurses' home.

State Medical Association Meeting.—The sixty-sixth annual meeting of the Medical Association of Georgia was held in Macon, April 21 to 23, under the presidency of Dr. William B. Hardman, Commerce. Columbus was selected as the next place of meeting and the following officers were elected: president, Dr. William S. Goldsmith, Atlanta; vice-presidents, Drs. Olin H. Weaver, Macon, and George B. Smith, Rome; secretary-treasurer, Dr. William C. Lyle, Augusta, reelected; councilors, tenth district, Dr. James A. Price, Milledgeville; eleventh district, Dr. Lee Howard, Waycross; twelfth district, Dr. Edward F. Coleman, Graymont; delegates to the American Medical Association, Drs. Mallie A. Clarke and Charles C. Harrold, Macon, and alternates, Drs. Wyman W. Pilcher, Warrenton, and Thomas J. McArthur, Cordele. The association adopted resolutions favoring Atlanta as the meeting place for the American Medical Association in 1916.

ILLINOIS

Leper Colony Planned.—The Illinois State Board of Administration has planned to establish a leprosarium in connection with the Alton State Hospital, which is now under construction.

Banquet to Interns.—The attending physicians of St. John's Hospital, Springfield, gave a dinner to the interns of the hospital at the St. Nicholas Hotel, April 29. Dr. Ben B. Griffith was toastmaster.

Municipal Health Officers Should be Physicians.—The Elgin Physicians Club, at its meeting May 3, adopted resolutions petitioning the mayor and commissioners to change the ordinance regarding the health department, so that the health officer must be a qualified physician with laboratory experience.

Personal.—Dr. Henry G. Wildman of the County Tuberculosis Hospital, Oak Forest, has been restored to professional standing by the decree of Assistant County Judge Hoover, dated May 14.—Dr. Walter Stevenson, Quincy, who has been ill with diphtheria, is convalescent and has resumed practice.—Dr. Henry S. Bennett has succeeded Dr. Perry H. Wessel as city physician of Moline.

Epidemic Diseases.—On account of the prevalence of scarlet fever at Mattoon, orders have been issued that no child under 16 may attend moving-picture shows or other public gatherings.—Measles is very generally prevalent in Jacksonville. The epidemic is mild in its type.—The health officer of Rock Island reports that during the month of April, 154 cases of measles and 20 cases of smallpox were reported in the city.—Schools at Ashton have been closed and public meetings interdicted on account of an epidemic of smallpox.—Smallpox of a mild type is reported from Rochelle.—During April, 109 families in Pana were under quarantine for measles and 13 families on account of smallpox.

Chicago

Child Welfare Taken up by Society.—The May 5 meeting of the Chicago Medical Society was devoted entirely to the subject of child welfare.

Appeal for Funds.—The Chicago Tuberculosis Institute appeals for contributions to make up the deficit of about \$2,500 of the \$12,000 needed for the budget for the year.

Rosenow Joins Mayo Foundation.—Dr. E. C. Rosenow, a member of the staff of the Memorial Institute for Infectious Diseases, has been appointed one of the directors of the Mayo Foundation and chief of the department of bacteriologic research. He expects to assume his new duties about July 1.

Personal.—Dr. Robert L. I. Smith sailed for Europe, May 8, to work in the Belgian Red Cross with Dr. Dupage, surgeon-general of the Belgian army.—Dr. Anna Dwyer has been appointed a member of the subcommittee of the morals commission on regulation of pool rooms and additional recreation facilities.

Public Laundry Suggested.—The commissioner of health has suggested to the mayor the establishment of a public laundry in connection with the public municipal bath to be built on North Lincoln Street near Augusta. In this plan Chicago is years behind the cities of Europe and especially England, which has had for many years public laundry facilities in connection with the public baths.

KANSAS

New Hospital.—George M. Hoffman, a banker of Rice County, is about to establish a hospital in Little River, to be under the charge of Drs. L. H. Powers and Louie J. Beyer, Little River.

Personal.—Dr. Rollo C. Dugan, Ottawa, superintendent of the Ottawa Hospital, who has been under treatment in Chicago, has returned and resumed practice.—Dr. George H. Hobson, Kansas City, has temporarily succeeded Dr. Chilton W. McLaughlin as health officer of Kansas City.

University Health School.—A free course of instruction for Kansas physicians was given in the Bell Memorial Building, Rosedale, by the University of Kansas and the State Board of Health for two weeks, from April 26 to May 10. Among other speakers, Dr. John S. Fulton, secretary of the Maryland State Board of Health, delivered an address on "Population and Birth"; Surgeon Mark J. White, U. S. P. H. S., St. Louis, discussed "The Pathology and Diagnosis of Bubonic Plague," and Dr. Albert J. Chesley, Minneapolis, director of the division of preventable diseases of the Minnesota State Board of Health considered the "Organization of the State Public Health Service."

Protests Quarantine.—At a meeting of the State Livestock Sanitary Board held in Lincoln, Neb., April 23, an emphatic protest was made by the state of Kansas against the quarantine which Nebraska has enforced against Kansas livestock as a precaution against the foot and mouth disease. During the past six months, Kansas has had six outbreaks of this disease, and it has been necessary to kill 1,217 cattle valued at \$72,588.78 and 313 hogs valued at \$3,463.20. The owners of the animals were reimbursed in full by the state and national governments. In addition to this, the state has paid \$38,025.99 for disinfection and in addition, the necessary veterinary inspection.—Notice has been served on the Texas livestock commission by the state of Kansas that quarantine will be declared against Texas unless that state lifts the ban against Kansas.

State Society Meeting.—The Kansas Medical Society held its forty-ninth annual meeting in the Masonic Temple, Kansas City, Kan., May 5 and 6, under the presidency of Dr. William F. Sawhill, Concordia, and elected the following officers: president, Dr. Oliver D. Walker, Salina; vice-presidents, Drs. Charles W. Jones, Olathe; Benjamin F. Chilcott, Osborne, and John R. Scott, Newton; secretary, Dr. Charles S. Huffman, Columbus (reelected); treasurer, Dr. Lewis H. Munn, Topeka (reelected); councilors, first district, Dr. Charles W. Reynolds, Holton; second district, Dr. Clarence C. Goddard, Leavenworth; seventh district, Dr. Kirk P. Mason, Concordia; eighth district, Dr. Howard N. Moses, Salina, and ninth district, Dr. Chauncey S. Kenney, Norton; delegate to the American Medical Association, Dr. William F. Sawhill, Concordia. Topeka was selected as the next place of meeting.

MARYLAND

Sanitary Engineer Starts for Serbia.—Charles E. Fox of the State Sanitary Engineering Department sailed for Serbia, May 13, to serve as sanitary inspector under the Serbian government. His special duty will be the cleaning up of the typhus plague spots in Serbia.

To Build New Hospital.—Tentative plans looking to the abandonment of its present building and the erection of a modern new hospital in North Baltimore are being con-

sidered by the board of trustees of the Union Protestant Infirmary, who are negotiating for a site near Homewood.

Brady Institute Opened.—The formal opening of the James Buchanan Brady Urological Institute, Johns Hopkins Hospital, took place on May 4 with elaborate exercises. There were formal dedicatory exercises early in the afternoon, followed by a reception to Mr. Brady, and in the evening a banquet was held at the Belvedere Hotel. Among those making addresses at the opening were: Dr. Hugh H. Young, Director of the Institute, Dr. William H. Welch and Dr. Edward L. Keyes, of New York.

Physicians Officiate at Church Service.—On May 16, the services at the Emmanuel Protestant Episcopal Church, Baltimore, were participated in by a number of practitioners in attendance on the meeting of the Medical and Chirurgical Faculty of Maryland. Dr. Richard Clarke Cabot, Boston, delivered the sermon, the lessons were read by Drs. Winford H. Smith and Hiram Woods, and the ushers were Drs. Frank Martin, William W. Russell, John M. Hundley and Page Edmunds.

Gift for Johns Hopkins Hospital.—Dr. Winford H. Smith, superintendent of the Johns Hopkins Hospital, has announced a gift of \$16,500, to be paid in three yearly instalments, from John D. Rockefeller, Jr., to be used in a special social hygiene department at the hospital, which is to be established next September. The work of the new clinic will be in charge of a committee consisting of Dr. George H. Walker, chairman, Dr. Theodore C. Janeway and Dr. Winford H. Smith. Dr. Albert Keidel, a graduate of the Johns Hopkins Medical School, will be the physician in charge of the new dispensary. He will have four assistants.

Personal.—Dr. David K. Henderson, Baltimore, has resigned as resident physician to the Phipps Psychiatric Clinic, Baltimore, to accept a position as superintendent of the Glasgow Royal Asylum, Scotland.—Dr. Roscoe W. Hall, Baltimore, who is assistant resident physician at the Phipps Clinic, has been appointed by Dr. Winford H. Smith to fill the vacancy caused by the resignation of Dr. Henderson. Dr. Charles B. Thompson has been made first assistant physician and Dr. Augusta Ruby Scott, second resident. Dr. Scott is the first woman to hold this position.—Dr. Walter L. Nicholls, Baltimore, recently underwent operation at the Mercy Hospital.—Dr. John C. Travers, of Baltimore, has been appointed by Health Commissioner Nathan R. Gorter, assistant physician at the Quarantine Hospital to succeed the late Dr. E. G. Altvater.—Dr. John J. Szymanski Schmitt, a young Polish physician, who is at present engaged in special urological work at the Johns Hopkins Hospital under Dr. Hugh H. Young, sailed May 13 from New York for Piraeus, Greece, where he will act in the capacity of sanitary inspector in conjunction with the American Red Cross work.—Dr. Robert H. Crawford, an intern at the Union Protestant Infirmary, has sailed for Europe to engage in Red Cross work. He will land at Rotterdam and go from there to Germany.—Dr. John E. Fisher, Baltimore, was thrown from his buggy in a collision with a motorcycle, May 5, and was painfully injured.

State Medical Faculty Elect.—At the one hundred and seventeenth annual meeting of the Medical and Chirurgical Faculty of Maryland held in Baltimore, April 27 to 29, the following officers were elected: president, Dr. J. Whitridge Williams, Baltimore; vice-presidents, Drs. Lewis C. Carrico, Bryantown; Milton D. Norris, Eldersburg; and Joseph A. Chatard, Baltimore; secretary, Dr. Joseph I. France, Baltimore; treasurer, Dr. William S. Gardner, Baltimore; delegate to the American Medical Association, Dr. G. Lane Taneyhill, Baltimore; alternate, Dr. Herbert Harlan, Baltimore; councilors, Drs. Guy Steele, Cambridge; J. B. Johnson, Frederick; Henry L. Naylor, Pikesville; William J. Todd, Mount Washington, and Edwin B. Claybrook, Cumberland; and Drs. David Streett, Wilmer Brinton, Randolph Winslow and Harvey B. Stone, Baltimore; members of the State Board of Medical Examiners, Drs. John L. Riley, Snow Hill; and Lewis A. Griffith, Upper Marlboro (reelected). A large oil portrait of the late Dr. William Travis Howard, professor of diseases of women in the University of Maryland from 1867 to 1897, and presented to the faculty by Dr. Howard's widow, was unveiled in Osler Hall, Baltimore, April 27. Dr. J. Whitridge Williams made the speech of presentation and the portrait was accepted in behalf of the faculty, by Dr. J. W. Humrichouse. Two amendments to the constitution were adopted, one abolishing the Board of Trustees and the other, increasing the members of the council from eleven to fifteen.

MISSISSIPPI

State Association Meeting.—The Mississippi State Medical Association held its annual meeting in Hattiesburg, May 11 to 13, and elected the following officers: president, Dr. Inman W. Cooper, Newton; vice-presidents, Drs. Walter H. Scudder, Mayersville; William L. Orr, Fulton, and James W. Lucas, Moorhead; councilors, third district, Dr. Charles M. Murry, Ripley; fourth district, Dr. Felix J. Underwood, Nettleton; ninth district, Dr. John C. McNair, Fayette; delegate to the American Medical Association, Dr. Jacob S. Ullman, Natchez; alternate, to be appointed by the president-elect; members of the State Board of Health, Drs. S. Wade Glass, Lyon; Samuel E. Eason, New Albany; Thomas F. Elkin, Tupelo; Thomas H. Seay, Laurel, and John H. Johnson, Brookhaven. It was voted to continue the present arrangement with the *Pan-American Medical and Surgical Journal*.

NEBRASKA

State to Make Sanitary Survey.—A proposal to make an extensive and thorough sanitary survey of the state has been made by the board of secretaries of the State Board of Health on a plan similar to that pursued by Dr. Oscar Dowling in Louisiana.

Personal.—A farewell dinner was given, May 6, to Dr. Anders P. Overgaard by the Dodge County Medical Association at Fremont. Dr. Overgaard expects to reside in Omaha.—Dr. Arthur A. Spoor, Omaha, of the University of Nebraska, has been appointed state bacteriologist of Michigan.

Smallpox.—Seven new cases of smallpox were reported to the health office at Hastings, April 21. This makes a total of 36 cases since the epidemic began. Those who neglect to report cases are to be vigorously prosecuted.—The smallpox situation at Benkelman is now considered to be well under hand. Only one or two new cases developed during the last week.

Hospital News.—An architect has been selected for the state hospital building, to be erected on the campus of the College of Medicine of the University of Nebraska, Omaha. The building with equipment will cost about \$50,000. It will be in the same general style of architecture as the college building and will be erected west and a little south of the latter.

NEW YORK

Appropriations for Port Health Office.—Dr. Joseph H. O'Connell, Health Officer of the Port of New York, after a hearing before Governor Whitman, secured the appropriations he had requested.

Payments for Birth and Death Records.—As the result of the enactment of an amendment to the health law which has been recently signed by the governor, physicians will receive a fee of twenty-five cents for each birth and death record filed. This, it is hoped, will do away with the difficulties which have heretofore arisen from non-registration or improper or late registration of births and deaths.

Amend Habit-Forming Drug Law.—The Boylan law has been amended so as to make it unnecessary to use the "Boylan Law" order blanks in order to secure these drugs, provided that the State Commissioner of Health approves in their place such order blanks as may be issued under an Act of Congress. The Commissioner of Health has approved the order blanks required by the federal (Harrison) law and it will therefore in the future be unnecessary to use the Boylan law blanks if the federal order blanks are used.

Contagious Diseases.—It is reported from Poughkeepsie that the scarlet fever situation is well in hand and that no case has developed among the pupils of the public schools beyond the thirteen reported.—The epidemic of measles in Syracuse is said to be on the increase. During April, 528 cases were quarantined and there were 225 under quarantine on May 6.—The foot and mouth disease quarantine in the townships of North Greenbush, East Greenbush, Sand Lake, Poestenkill, Grafton, Pittstown, and Schaghticoke, has been ordered to be raised except within a radius of three miles of any farm or on farms where foot and mouth disease has actually existed.—Fourteen families in the north end of Olean are under quarantine for smallpox. The public school has been closed and a general order has been issued for the vaccination of the school children.

Personal.—Dr. James T. Houghton, Saratoga Springs, a passenger on the *Lusitania* on her last trip, is on his way to take his place on the surgical staff of the Belgian Red

Cross.—Dr. Edgar A. Vander Veer has been elected president and Dr. George E. Gorham, secretary, of the Bender Hygienic Laboratory, Albany.—Dr. Henry Hun has been elected a member of the Board of Trustees. At the last meeting of the board, the resignations of Drs. Albert Vander Veer and Willis G. Tucker were accepted and votes of thanks were given to them for their labors.—Dr. O. W. H. Mitchell, has resigned as city bacteriologist of Syracuse to accept the chair of bacteriology in the College of Medicine of the University of Syracuse.—Dr. Mason R. Pratt, Syracuse, has assumed his new duties as superintendent of the Hebrew Hospital, Baltimore.—Dr. James E. Burns, Glen Cove, L. I., has been appointed inspector for the Long Island District under the new Harrison law.

New York City

Clinic Moves.—The municipal clinic for diseases of the throat and lungs has been moved to a building secured by the Board of Health at 420 Herkimer Street, Brooklyn.

Personal.—Dr. F. Warren Pearl of New York City was among those rescued from the *Lusitania*.—Dr. and Mrs. Henry H. M. Lyle arrived from Liverpool on May 13.

Smallpox on Arriving Ship.—The steamship *Havana*, which arrived from Havana, May 12, had aboard a case of smallpox. All the other passengers were ordered to be vaccinated before being allowed to land.

Division of Statistical Research.—A division of statistical research will be organized within the Bureau of Records on Jan. 1, 1916. An effort will be made to utilize the activities of this new department in such a way that other bureaus of the Department will be guided in their work by its findings. Such a division has been repeatedly recommended by special committees.

Dr. Goldwater Offers to Run Street Railway.—Health Commissioner Sigismund S. Goldwater, while admitting that he is going outside the bounds of his department, has published an unofficial offer made to Theodore P. Shonts, President of the New York Railways Company, to operate the cars on the Sixth Avenue line for an experimental period, as he is thoroughly convinced that at least 10 per cent. more cars could be run than at present.

Health Department Undertakes Novel Investigation.—The Department of Health has organized an experimental health district for the purpose of making a trial of the merits of local or decentralized municipal health administration. The activities of the department in "Health District No. 1" will continue to be identical with those of the department elsewhere. This plan is to be continued except that advantage will be taken of every means of increasing the effectiveness of the work by cooperation with local civic agencies and by arousing and sustaining in the district's residents an interest in personal hygiene. To this end an exhaustive study is being made of housing, occupation, recreation, and the habits and resources of the entire population, with the object of thus developing rationally a health program which will deal in an effective way with whatever is found actually to impede healthful living. All physicians and others interested in health matters are invited to visit the Headquarters of Health District No. 1 at 206 Madison Street.

Labor Health Bureau Started.—The Commissioner of Health, Dr. Sigismund S. Goldwater, has directed the formation of a new division of the Bureau of Infectious Diseases, to be known as the division of industrial hygiene, and of this, Dr. Lewis L. Harris has been designated chief. The tentative program of the work of this division includes:

"1. A general 'industrial survey' comprising (a) a statement of the number of employes in the city in extra hazardous occupations, and (b) a general statement as to where the most unhygienic 'plants' under these industries are situated.

"2. An intensive study of the conditions of work and the physical condition of the workers in, say, half a dozen of the most hazardous industries in the city.

"3. Arrangements with certain dispensaries to open special occupational disease clinics to which all sufferers from occupational ills could be referred.

"4. All observations should be checked with corresponding data as to home conditions, else conclusions may be assailed as incomplete. For example, tuberculosis among garment workers may be wholly due to home conditions and the workshop may be exceptionally hygienic. This could, in part, be done by co-operation with the Tenement House Department, although social service workers are the proper persons to obtain such data."

Summary of Health Activities of Academy.—The Public Health Committee of the New York Academy of Medicine has published in leaflet form, a summary of its activities for March and April, which include a medical estimate of

certified milk; an amendment to the penal law relating to necropsies; an inquiry into the practicability and feasibility of so changing the present law as to require a year of hospital training for all applicants to practice medicine; a questionnaire as to the number of cases of heart disease in children cared for in hospital wards and dispensaries; the problem of providing adequate facilities for the treatment of drug habitués; the medical and sanitary care of inmates of the Home for the Aged; the conditions existing at the hospital of the Workhouse on Blackwell's Island and the need of improving the medical service; cooperation in the meeting on quarantine held April 20; consideration of many of the bills relating to public health and the strong opposition to the so-called Hinman bills and also the bill exempting Christian Science practitioners from the provisions of the medical practice act.

Limitations of the Dairy Score Card.—A bulletin recently published by the New York Agricultural Experiment Station at Geneva sets forth in detail an interesting series of experiments as to the relationship of dairy scores and bacteria values of certain milk supplies. These experiments were conducted by Dr. Brew and seem to show that a dairy score card does not furnish a reliable index to the quality of the milk, inasmuch as it is found that in many instances the best milk from a bacteriologic point of view came from low score dairies, while milk from high score dairies was found grossly contaminated. One of the most important conclusions arrived at was that one shortcoming of the score card was its inability to take account of the personal equation of the dairyman himself. A clean dairyman will produce a clean article even under adverse conditions, whereas a dirty individual would produce dirty milk even under the best conditions. It seemed, however, that where such a degree of care was given as was required by the numerous details noted on the score card it was safe to assume that due precaution was taken to safeguard against accidental pollution that was not guarded against on the average low score dairy farm. The finding that only two of the dairies used ice made it probable that insufficient cooling had something to do in creating the conditions reported.

Educational Lunch Room Opened.—The New York Department of Health, on May 10, opened an educational lunch room for its employees at the headquarters of the department. The enterprise is being financed by the employees themselves. At the opening of the lunch room there were present the Acting Mayor Hon. George McAneny, Borough President Marcus M. Marks, Professor Graham Lusk, and many other distinguished guests. The menu issued daily lists under the heading of "Specials" the item sold, the price, quantity, number of calories and grams of protein. Two specimen lunches furnishing a balanced ration at low cost and at high cost—22c and 46c—respectively are offered. Under the heading "Ready Every Day" items are again listed with price, quantity, number of calories and grams of protein. The back of the menu is given over to many hints with the heading "Food Wisdom." Examples are:

Clerks, stenographers and the average adults doing office work need about 2,500 calories a day. Mechanics and artisans need about 3,000 to 3,500 calories per day, while laborers, longshoremen and others doing hard work need 3,500 to 4,500 calories per day.

Your lunch should consist of sufficient food to supply about 1,000 calories; 90 per cent. of these should be in the form of starches and fats. Look at the specimen lunches on this bill of fare and notice that this can be obtained for various prices.

Food should have not only sufficient nourishment, but should also supply certain necessary constituents to rebuild body tissue. Chief among these are protein and mineral salts.

Protein is especially abundant in meat, eggs, fish, milk, cheese, beans and peas.

NORTH CAROLINA

Ground Broken for Hospital.—Ground was broken April 22, for the new Mercy General Hospital, to be built east of Charlotte.

Drug Law Conviction.—T. L. Love, a colored druggist of Raleigh, is said to have been convicted and fined \$300 for violation of the state statute.

Investigates Prison Camps.—By direction of the governor, Dr. Watson S. Rankin, Raleigh, secretary of the State Board of Health, is making an investigation into the sanitary condition of the various prison camps in the state.

State Society to Meet.—The annual meeting of the Medical Society of the State of North Carolina will be held in Greensboro, June 15 to 17. On June 14 the State Health Officers Association will hold its annual session.

Sanitary Survey Started.—A sanitary survey of Orange County, which is being made by the United States Public Health Service and the North Carolina State Board of Health, was started by Surgeon Leslie L. Lumsden, U. S. P. H. S., this month. He is being assisted by Dr. E. C. Branson of the state university.

Personal.—Dr. George M. Cooper, Clinton, whole-time health officer of Sampson County, began work May 10, as chief of the bureau of rural sanitation and as assistant secretary of the State Board of Health.—The house of Dr. Garrett D. Gardner, West Asheville, was destroyed by fire, April 22, with a loss of \$4,000.—Dr. John A. Williams, Greensboro, while visiting New York City was seized with a cerebral hemorrhage and taken to the Hudson Street Hospital. He is reported to be improving.—Dr. James D. Cochran, Fayetteville, has returned after a long stay in New York City and will remove to Nashville, Tenn.—Dr. H. D. Taylor, professor of bacteriology and pathology in the Wake Forest Medical School, has resigned to accept service with the Rockefeller Institute for Medical Research, New York City.—Dr. Owen H. Kenan, Wilmington, was one of the rescued passengers of the *Lusitania*. He was on his way abroad to engage in the Red Cross service. He was ill for several days, but is now reported to be convalescent.—Dr. Henry M. Tucker, Raleigh, has returned after several months postgraduate work and resumed practice.—Dr. George R. Cooper has been placed in charge of the newly created bureau of rural sanitation and just opened his office in the building occupied by the State Board of Health, Raleigh.—Dr. John W. P. Smithwick has been elected mayor of La Grange.—Dr. George W. Elias, Biltmore, and Dr. Montgomery H. Biggs, Rutherfordton, have been elected aldermen.—Dr. Raymond A. Pollock, New Bern, has returned after a course of postgraduate study in New York City.—Dr. Jesse M. Russell, Canton, has been commissioned lieutenant in the Medical Corps, North Carolina National Guard and assigned to duty with the Canton Ambulance Company, succeeding Dr. J. Rufus McCracken, Waynesville, resigned.—Dr. Michael P. Cummings has been elected mayor of Reidsville.

OHIO

Society to Study Alcohol.—The Ohio Society for the Study of Alcohol and Other Narcotics, was organized in Cincinnati May 6; Dr. Simon P. Kramer was elected chairman pro tem. The society has a charter membership of 23.

Physicians Organize.—The Cuyahoga Falls Medical Association was recently organized with the following officers: honorary president, Dr. Wayland C. Hough; president, Dr. John W. Caines, vice-president, Dr. Floyd D. Smith; secretary, Dr. Daniel C. Keller, Jr., and treasurer, Dr. Bayard T. Keller, Hudson.

Health Officials Must Not Interfere with Attending Physicians.—Under the new rules governing the work of the epidemiologist, communicable disease nurses and sanitary inspectors of the state will be given instructions that they are under no circumstances to "interfere with or criticize the treatment or diagnosis of the attending physicians."

Personal.—Dr. Mark D. Stevenson, Akron, is seriously ill in the People's Hospital, Akron, on account of an infected wound of the finger.—Dr. Morton W. Bland, state registrar of vital statistics, Bellevue, who has been critically ill, is reported to be improving.—Dr. Ben R. McClellan, Xenia, has been appointed a member of the state medical board, succeeding Dr. Augustus Ravogli, Cincinnati.—Dr. Cyrus W. Chidester, Delaware, has been re-elected great medical examiner of Ohio, by the state convention of Maccabees.

Communicable Diseases.—Quarantine against foot and mouth disease epidemic has been extended to the counties of Ashland, Medina, Mahoning, Lorain, Erie and Huron and also portions of Paulding, Miami and Montgomery counties.—Forty-one new cases of measles were reported in Cleveland May 4, bringing the total for four weeks to 719.—It is announced by the Youngstown Board of Health that the smallpox situation is now under control. At this time there were 18 cases under quarantine in 8 different houses. The health officer of Youngsville has been authorized to prepare the temporary detention hospital for use of the smallpox patients.—There are said to be nine cases of smallpox in the House of the Good Shepherd, Columbus, and sixteen cases have altogether been reported in the city.—In the Village of Berea and Middleburg township, fifteen cases of smallpox have been discovered.

State Society Meeting.—The annual meeting of the Ohio State Medical Association was held at the Hotel Gibson, Cincinnati, May 4, 5 and 6, and the following officers were elected: president elect and vice-president, Dr. Harmon B. Gibbon, Tiffin; president, Dr. William E. Lower, Cleveland; chairman of the committee on public policy and legislation, Dr. John H. J. Upham, Columbus; secretary-treasurer, and managing editor of the *Ohio State Medical Journal*, Dr. Clarence D. Selby, Toledo, and councilors—first district, Dr. Robert Carothers, Cincinnati; second district, Dr. John E. Hunter, Greenville; third district, Dr. Dana O. Weeks, Marion; fourth district, Dr. Charles W. Moots, Toledo; fifth district, Dr. Clyde E. Ford, Cleveland; sixth district, Dr. Edgar J. March, Canton; seventh district, Dr. James S. McClellan, Bellaire; eighth district, Dr. William E. Wright, Newark; ninth district, Dr. Joseph S. Rairdin, Portsmouth; and tenth district, Dr. Wells Teachnor, Columbus. Dr. George Dock, of Washington University, St. Louis, delivered the oration on medicine, the subject being, "The Thymus Gland," and Dr. Charles L. Scudder, Boston, gave the oration on surgery on "The Operative Treatment of Fracture of the Bone." Cleveland was selected as the next place of meeting.

PENNSYLVANIA

Vivisection Bill Recommitted.—"Dog Pound Bill," which would work for the promotion of animal vivisection was recommitment on third reading in the senate, May 10. This bill provides for the sale, distribution and use, for the promotion of biologic science, of unclaimed animals in public pounds, the sale figure to be \$1.

New Bill for Optometry Board.—As a consequence of a meeting held in the office of the attorney-general, May 13, a bill may be passed in the last hours of the legislature establishing a state board for the examination and licensing of optometrists. Earlier in the session a bill was passed and vetoed. The governor objected on the ground that the bill limited appointments on the proposed board to persons selected by the Pennsylvania Optical Society, and that there was no reason why the optometrists could not place themselves under the existing state Bureau of Medical Education and Licensure.—Another bill providing for the appointment of an optometric examining board, now in the house, was the subject of conference. A tentative agreement was reached, it was said, that the measure should be amended so as to provide for the appointment of a board consisting of three physicians, three optometrists and the state superintendent of public instruction, and that the actions of this board should be subject to the approval of the State Board of Medical Education and Licensure.

Philadelphia

Personal.—Dr. Hobart A. Hare, who has been ill with pneumonia, has fully recovered and has resumed his practice and hospital work.—Dr. Willy Meyer of New York addressed the Philadelphia Clinical Association on May 17, and after the meeting was the guest of honor at a reception held at the Mercantile Club.

New Hospital for Babies.—A gift of 8½ acres of ground and several buildings on Manoa Avenue near Llanerch, Delaware County, has been made to the Babies' Hospital of Philadelphia, by a friend whose name has not been disclosed. The property has been altered to care for the hundreds of babies under 3 years old, suffering with "summer complaint." For four summers the hospital has used the buildings of the Children's Hospital at Wynnfield.

Penny Lunches in Schools.—Beginning next September the pupils in twenty-five elementary schools in South Philadelphia will be able to buy penny lunches at the morning recess. The superintendent of schools has been authorized to equip each building with luncheon counters. The home and school league for eight years has carried on luncheon rooms in nine schools, feeding 5,800 children.—A sample menu for the luncheons is as follows: One cent lunch—cocoa, graham wafers, milk, three pretzels, five stewed prunes, bean soup, rice pudding, sweet chocolate. Three cent lunch—bean soup, bread, stewed peaches or ham sandwich, cocoa, graham wafers, or hamburg steak in gravy, rice, bread.

Paris Hospital Staff Named.—Announcement has been made by Dr. J. William White of the personnel of the group of surgeons who will assume charge of the American Ambulance Hospital in Paris for the months of July, August and September, succeeding the Harvard group which has been in charge since April 1. Dr. James P. Hutchison will be managing head. The expedition is to be financed by volun-

tary contributions. About \$10,000 is needed of which \$5,000 has already been received. The physicians will pay their own expenses and serve without salary. The members of the group are, surgeon, Dr. James P. Hutchison, adjunct professor of surgery of the University of Pennsylvania; neurologist, Dr. Daniel J. McCarthy, professor of medical jurisprudence in the university; assistant surgeon, Dr. Edmund B. Piper, former chief resident surgeon of the University Hospital; Dr. Walter E. Lee, assistant surgeon at the Bryn Mawr and Germantown hospitals; Dr. Arthur E. Bitting, assistant surgeon, Pennsylvania Hospital; Dr. Peter McKeating, Wawa, assistant attending surgeon at Bryn Mawr Hospital; bacteriologist, Dr. Samuel Goldschmidt Girrin, fellow in research medicine, University of Pennsylvania.

TEXAS

Malta Fever at Uvalde.—Five members of a family who were brought to Uvalde for treatment, April 30, have been found to be suffering from malta fever.

Tuberculosis Cottages Open.—The eight new tuberculosis cottages at the Fort Worth County Poor Farm were opened for occupancy, May 1. The city of Fort Worth has agreed to pay one half the expenses connected with the care of the patients.

New Officers for County Secretaries.—The Association of Secretaries for County Medical Societies of Texas held its annual meeting in Fort Worth, May 6, and elected Dr. James C. Loggins, Ennis, president; Drs. Bacon Saunders, Fort Worth, and Frank Paschal, San Antonio, vice-presidents; and Dr. Holman Taylor, Fort Worth, secretary, ex officio.

Hospital to Open.—Physicians of Oak Cliff met April 23, and formed the Oak Cliff Medical and Hospital Association for the purpose ultimately of securing the establishment of a hospital in the Oak Cliff section of Dallas. Dr. Bert E. Greer was elected president; Dr. Albert Wilkinson, vice-president, and Dr. Homer Donald, secretary of the association.

Northwest Texas Physicians Meet.—At the annual meeting of the Northwest Texas Medical Association held in Wichita Falls, April 13 and 14, the following officers were elected: president, Dr. James H. Eastland, Mineral Wells; vice-president, Dr. Claud F. Young, Bowie, and secretary, Dr. Robert A. Duncan, Graham. Mineral Wells was chosen as the next place of meeting.

Plea for County Hospitals.—Dr. William B. Collins, Lovelady, state health officer, has issued a statement calling attention to the importance of establishing county hospitals in the various counties of the state, and especially for those suffering from communicable diseases. The county hospital law, passed by the legislature in 1913, which permits any county to construct a hospital for the care of its sick, has been employed by only six counties up to date.

Personal.—Dr. John S. Cooper, Dallas, sailed for Liverpool, May 1, as surgeon on the Booth Line steamship *Alden*.—Dr. John C. Cassity, San Antonio, was shot and painfully wounded in an affray at Eminence, Ky., May 5.—Dr. James M. Nicks, Ranger, fell in Fort Worth, May 4, fracturing his left forearm.—Dr. D. Clinton Burkes, Belton, has entered on his duties as assistant in the Southwestern Hospital for the Insane, San Antonio.—Dr. Albert G. Clopton, Jefferson, is reported to be critically ill with pneumonia, at the home of his son in Washington, D. C.

State Association Meeting.—At the forty-ninth annual meeting of the State Medical Association of Texas, held in Fort Worth, May 4, 5 and 6, the following officers were elected: president-elect, Dr. James M. Inge, Denton; president, Dr. George H. Moody, San Antonio; vice-presidents, Drs. Murff F. Bledsoe, Port Arthur; Hardy C. Black, Waco, and Thomas D. Frizzell, Quanah; trustee, Dr. William R. Thompson, Fort Worth; councilors, first district, Dr. Felix P. Miller, El Paso; fourth district, Dr. Stoyell C. Parsons, San Angelo; twelfth district, Dr. Cleve C. Nash, Palestine; thirteenth district, Dr. Charles B. Williams, Mineral Wells, and fourteenth district, Dr. Alva W. Carnes, Hutchins; delegates to the American Medical Association, Drs. Andrew B. Small, Dallas; Holman Taylor, Fort Worth, and Manton M. Carrick, Dallas; and alternates, Drs. Frank Paschal, San Antonio; Edward H. Cary, Dallas, and John H. Foster, Houston. Galveston was selected as the next place of meeting.

German-American Doctors Prosecuted.—In the United States court at Houston early in April six men practicing as the German-American Doctors in Houston and two sten-

ographers were convicted of using the mails to defraud and were sentenced to the United States prison at Leavenworth for various terms varying from three years to a year and a day. Among those convicted were Nathan and T. W. Hughes, Walter P. Pegram, A. S. Olsen and O. F. Bourque. The defendants were placed in the Houston jail. Drs. N. A. and T. W. Hughes, April 3, furnished bail in the sums of \$3,000 and \$2,000, respectively, and were released. A writ of error was allowed in the federal court at New Orleans on the application of the parties named, but all of the defendants except N. A. and T. W. Hughes were unable to furnish bond and remained in jail. At the trial it is said it was brought out that the defendants caused to be mailed typewritten letters exactly alike to all who made out and sent in diagnosis blanks, no matter what their symptoms might be. The treatment was said to be the same in each case, the "medicine" being mixed by a negro porter in the offices of the German-American Doctors, who testified to this fact, it is said. The case against the doctors was worked up by U. S. government secret agents.

WISCONSIN

Smallpox.—Eight cases of smallpox in one family were discovered in Castle Rock, April 30.—An order compelling the vaccination of all Madison schoolchildren was issued by the Madison Board of Health, April 30, on account of the existence of 14 cases of smallpox in that city.

Wisconsin Surgeons Meet.—At the annual meeting of the Wisconsin Surgical Association held in Milwaukee May 5 and 6, the following officers were elected: president, Dr. F. Gregory Connell, Oshkosh; vice-presidents, Drs. Alfred H. Levings, Milwaukee; John M. Dodd, Ashland; Karl W. Doege, Marshfield; and Dennis J. Hayes, Milwaukee; secretary-treasurer, Dr. Daniel Hopkinson, Milwaukee; and regents, Drs. William C. F. Witte and Alfred H. Levings, Milwaukee. During the session of the association, clinics were held at the various hospitals of the city.

Personal.—Dr. Fern A. Rice, Delavan, is reported to be seriously ill as the result of hemorrhage of the stomach.—Dr. Leo J. Dretzka, Milwaukee, has been appointed superintendent of the new Detroit City Hospital.—Dr. Jesse Y. Potter, New London, who was operated on in Appleton, in March, has returned home convalescent.—Dr. Henry A. Pfeiffer, Jackson, sustained severe injuries by being thrown from his automobile near Jackson, Wis., April 21.—Dr. John R. Currens has been elected for the third term, mayor of Two Rivers.—Dr. Edward C. Fish, Mosinee, is reported to be seriously ill.

News About Hospitals.—Sunnyview, the new Winnebago County Tuberculosis Sanatorium which is being erected near Oshkosh, at a cost of about \$30,000, is nearing completion.—A stock company has been formed at Wausau to build a forty-room hospital, to cost \$75,000.—Contracts for the Deaconess Hospital, Green Bay, have been awarded to the Appleton Construction Company. The building will cost \$65,000.—Bids have been invited for the construction of a third wing to the Milwaukee Isolation Hospital on Mitchell Street. The building is to cost \$100,000. It will have two departments, one for diphtheria and one for smallpox. The diphtheria ward will accommodate from 45 to 90 patients and the smallpox ward, from 55 to 110 patients.

GENERAL

Harvard Alumni at San Francisco.—At the coming meeting of the American Medical Association in San Francisco there will be a table d'hôte luncheon at the University Club, the date to be announced later, for members of the Harvard Medical Alumni Association. Dr. William P. Lucas of the University of California, San Francisco, is in charge of the arrangements.

Gorgas Prize Medal.—Referring to the Gorgas Prize Medal, to be awarded yearly by the Association of the Medical Reserve Corps, U. S. Army, New York State Division, the Board of Award announces that the competition is open to officers of medical corps of the Army, of the Medical Reserve Corps of the Army and of the Organized Militia. The medal will be awarded for the paper submitted which shows the most important advance in medicine or surgery on a medical or medico-military subject; preference being given to papers on a medico-military subject. The Board of Award consists of three members of the Faculty of the Army Medical School, appointed by the Surgeon General. All papers should be submitted by March 31 of each year, and should be

addressed to the President of the Board of Award, Gorgas Prize Medal, Army Medical School, Washington, D. C. The award will be announced at the graduation exercises of the Army Medical School, on May 31 of each year.

FOREIGN

Adoption of Age Limit for University Professors.—A bill is now pending in the Italian legislature, after favorable report by a committee, decreeing an age limit without any exceptions for all the professors in the universities throughout Italy.

The Campaign Against Alcohol.—The authorities at Milan are planning the organization of eight anti-alcohol drinking places as a further step in the systematic campaign against alcohol. It is proposed to grant to private parties the concession for operating these municipal alcohol-less saloons.

Italian Research on Pellagra.—The *Policlínico* states that the government commission for the study of pellagra is now investigating the theory as to the origin and treatment of pellagra advanced by Alessandrini and Scala. Pellagrins will thus be given systematic courses of sodium citrate, on the one hand, and the region will be drained and otherwise treated in prophylaxis on the basis of Alessandrini's theory of the transmission of the disease.

The Campaign Against Alcohol in Russia.—The *Policlínico* of Rome relates that lotions and medicines containing alcohol and denatured alcohol are being consumed in Russia in large amounts since the supply of liquor has been cut off. A number of deaths have occurred in consequence of drinking these substitutes. The prefect of police issued a decree March 31 that no remedies containing alcohol could be dispensed without a physician's prescription. This raised such a storm of protests that the decree was rescinded and a new one issued to the effect that not more than 30 gm. of any medicinal preparation containing alcohol could be sold to one person.

Tobacco Forbidden to All Under Sixteen at Lübeck.—A decree was issued at Lübeck, March 9, 1915, which forbids persons under the age of 16 to smoke tobacco, cigars or cigarettes. The parents or guardians of the young people are also held responsible for the enforcement of the decree. The sale of tobacco, pipes, cigars or cigarettes to persons under 16 is forbidden, or their supply. The young persons themselves and their parents or guardians are alike held responsible for this. Penalties up to \$15 or a jail sentence up to two weeks are provided for infraction of these regulations. The *Medizinische Klinik* comments that the outcome of these regulations, the first of the kind in Germany, will be watched with great interest. Lübeck is a separate state, an independent member of the German empire, a territory of 115 square miles, with a democratic constitution. The anti-tobacco decree is signed by the Public Health Service, the *Gesundheitsamt*.

WAR NOTES

Death of de Cérenville.—The *Revue Médicale de la Suisse Romande* appears with a mourning border on account of the death of the fourth member of its editorial staff, Prof. E. de Cérenville of Lausanne, aged 72. He was for a long time the sole editor of the *Bulletin*, the predecessor of the *Revue*, and a member of the medical faculty of the university.

Hospital Trains Donated to Germany.—Three motor trains for carrying wounded have been presented to Germany by friends in America. Each consists of a motor truck and two trailers, and is equipped to carry ten severely wounded or seventeen slightly injured. One has been despatched to the army under the Crown Prince, another to Hindenburg's army, and the third to the eighteenth army corps.

Italian Inspection of Sanitary Service in German and French Armies.—Prof. B. Rossi of Milan has been making an official tour of inspection of the workings of the army medical and Red Cross service in France and Germany. He was given every facility by the German and French authorities, and has been addressing the profession at Rome since his return.

German Surgical Congress Held at Brussels.—The annual meeting of the German Surgical Association was supposedly postponed on account of the war, but the surgeon-general of the army sent out a recent summons for the meeting to be held at Brussels. Hundreds of surgeons flocked to the meeting, which commenced at Brussels, April 7. All the sessions were devoted to military surgery and a number of new points learned from practical experience were brought out. A fine

exhibition of roentgenograms was one of the features of the meeting. Garré, Körte, Payr and Bier delivered the leading addresses.

Aid for Belgian Physicians.—The report of the treasurer of the committee of American physicians for the aid of the Belgian profession, for the week ending May 15, 1915, lists the following contributions:

Dr. Franklin B. Miller, Pittsburgh, Pa.....	\$ 25.00
Dr. N. S. Jarvis, Captain U. S. A., New York, N. Y.....	15.00
Dr. Charles G. R. Jennings, Elmira, N. Y.....	23.00
Dr. H. E. Jenkins, P. A. Surgeon, U. S. N., Port Royal, S. C..	5.00
Dr. Luther G. Paul, Boston, Mass.....	5.00
Dr. M. C. Smith, Lynn, Mass.....	5.00
Arkansas Medical Society, Little Rock, Ark.....	50.00
Dr. Charles Henderson Miller, Chicago, Ill.....	10.00

Receipts for the week ending May 15.....	\$ 140.00
Previously reported receipts.....	6,720.50

Total receipts.....	\$6,860.50
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Previously reported disbursements:	
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1,625 standard boxes of food at \$2.20.....	\$3,575.00
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1,309 standard boxes of food at 2.30.....	3,010.70
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Total disbursements.....	\$6,585.70
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Balance	\$ 274.80
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F. F. SIMPSON, M.D., Treasurer,
7048 Jenkins Arcade Bldg., Pittsburgh, Pa.

LONDON LETTER

LONDON, April 30, 1915.

The War

AN AUTHORITATIVE MEDICAL HISTORY OF THE WAR

Notwithstanding the tremendous strain on their energies, the authorities have shown commendable forethought with regard to the history of the war. A committee, under the presidency of the director-general of the Army Medical Service, has been formed to provide the necessary coordinating authority for the compilation of an adequate medical history of the war. For each of the chief subdivisions of the work, military and civilian members have been appointed, except in the case of the Section of Hygiene, both members of which are military. The constitution of the committee is as follows: Medicine, Lieut.-Col. O. L. Robinson and Prof. Sir William Osler. Surgery, Lieut.-Col. E. M. Pilcher and Col. F. F. Burghard. Pathology and Bacteriology, Col. Sir William Leishman and Capt. F. W. Andrewes. Statistics, Lieut.-Col. H. P. W. Barrow, Dr. John Brownlee and Lieut.-Col. W. N. Barron. Hygiene and Sanitation, Col. W. H. Horrocks and Lieut.-Col. W. O. Beveridge. Historical and Secretarial, Capt. F. S. Brereton and Dr. W. M. Fletcher.

DRINK AND THE WAR: GOVERNMENT PROPOSALS

In a previous letter to THE JOURNAL the effects of drink in interfering with the output of urgently required munitions of war was described. Mr. Lloyd George has brought forward proposals for dealing with it which are moderate and fall far short of the demands of the teetotal party. He could not agree to the total prohibition of whisky, as it is a beverage of particular localities, such as Scotland and Ireland, and the appearance of being unfair should be avoided. The mischief from the drinking of spirits, however, especially in its undiluted form, was incalculable. In order to restrain as much as possible the sale of spirits and of the most alcoholic beer, he proposed to levy a surtax on spirits and on all beers containing more than 7 per cent. of proof spirit. Saloonkeepers are not allowed to sell spirits without notice to the purchaser if they are lower than 25 per cent. underproof. In future the limit would be lowered to 35 per cent. underproof. Wines would be taxed on the same scale, which means quadrupling the duty. In areas producing war material there would be more control on the liquor trade, as in spite of the increased duty the men are earning such wages that they can buy quite enough to incapacitate them. There will be power to close any saloon, the presence of which is considered prejudicial to the output of munitions, the transport of material, or the discipline of the troops. As one of the causes of drunkenness is the fact that men cannot obtain reasonable refreshment near the works, there would be power to use either saloons or other premises for this purpose. There would also be power to suppress the sale of spirits and of heavy beer in these areas.

Vital Statistics: Increase of Cancer

The report of the Registrar General on births and marriages for the year 1913 has just been issued. The delay in publication is explained by the war having decreased

the staff of workers in the department. The population of England and Wales at the middle of 1913 is estimated to have been 36,919,339, made up of 17,857,014 males and 19,062,325 females. The marriage rate for the year was 15.5 per thousand, being the same as in the preceding year, and 0.1 above the average in the ten years 1903-1912. The marriage rate in 1912 and 1913 showed an increase on those in the four preceding years. The provisional figures for 1914 indicate a further rise of 0.3 per thousand. The birth rate was 23.9 per thousand, that is, 2.4 below the average for the preceding decennium, and was, with the exception of that of 1912, the lowest on record. The provisional figures for 1914 indicate a further fall of 0.3 per thousand. The death rate, 13.7 per thousand, though higher than in 1910 and 1912, was 1.2 below the average for the ten preceding years. Infant mortality was 108 per thousand births, which was a slight increase over 1912, owing to an increase of mortality from diarrhea and enteritis. Mortality from all the principal epidemic diseases was below the average, that from typhoid fever and whooping cough being the lowest recorded. The death rate of tuberculosis was the lowest on record, and generally the mortality from diseases affecting the lungs was very low. On the other hand, cancer caused a higher death rate among both males and females than in any preceding year. The mortality among single women from ovarian cancer has been twice as great as that among the married, and cancer of the breast 45 per cent. greater; but uterine cancer shows a mortality among married women 73 per cent. higher than among unmarried women. Cancer of the breast is claiming a rapidly increasing number of victims, while uterine cancer is diminishing. As child bearing seems to increase the risk of the latter and diminish that of the former, it is suggested that the phenomenon is connected with the present decrease of fertility.

PARIS LETTER

PARIS, April 29, 1915.

The War

SANITATION OF BATTLEFIELDS

At one of the last sessions of the Conseil supérieur d'hygiène publique de France, M. J. Brissac, director of public hygiene under the department of the interior, made an important report on the sanitation of battlefields, especially the removal of dangers to health resulting from the hasty burial of the bodies of human beings and animals.

A mission of inspection ordered by the minister of the interior January 22-25 last determined that the burials of the bodies of soldiers, French, allies and enemies and of the carcasses of horses and cattle have in many cases been done under unsatisfactory conditions, sometimes by the enemy himself, sometimes by our troops, sometimes by inhabitants who have returned to their homes and sometimes under the direction of the rearguard stations and services. The haste with which in most cases these interments have necessarily been made has not always permitted the taking of the proper hygienic precautions. A large number of graves and burial mounds are too near dwelling places, sometimes only a few yards away or have been made as chance may dictate in the midst of cultivated land, or even in the ditches along the roads. In general, these graves are much too shallow. In the cases of many burial mounds, the bodies are covered by a layer of soil not over 20 or 30 cm. (6 or 10 inches) thick. Moreover, when the burial has been made in clayey or marshy soil above shallow subterranean springs, the corpse is not quickly decomposed. The consequences are likely to become serious. Not to speak of the persistent odors of putrefaction, it is inevitable that the graves scattered among cultivable lands will soon be profaned. What is most to be feared, however, is the contamination of underground springs, fountains of potable water and public or private wells.

The administration has, therefore, planned the application, as early as possible, of measures of sanitation in the zones of the extreme rear, to be extended as rapidly as the national territory is liberated. In the first place, the exact location of all the graves and burial mounds in each commune will be ascertained and the data submitted to the geologic service for study with a view of determining the exhumations necessary for the protection of potable waters and inhabited places. The best locations for hygienically unobjectionable reinterment will be determined in advance by the geologists. Wherever possible, the new graves will be grouped in the village cemeteries. The most minute precautions will be

taken for the identification of the body, if possible, at the time of exhumation. A record will be kept of all the data tending to identification, and the data recorded will be communicated to the municipalities. Thus all precautions possible will be taken to comply with the legitimate desire of families to identify lost members at the end of the hostilities.

The carcasses of horses, cattle and other animals will be disposed of by treatment with quicklime.

THE THERMAL STATIONS AND THE WOUNDED IN WAR

It is well known that certain posttraumatic articular lesions as well as wounds that cicatrize slowly are greatly benefited by appropriate treatment with mineral waters. Many thermal stations are provided with excellent outfits of mechanotherapeutic appliances capable of doing excellent service in cases of wounds which have healed but which have been followed by functional troubles. Dr. Fluteau, director of the medical service of the sixteenth region, the center of which is Montpellier, has addressed all the head physicians of hospitals within the region, inviting them to send to Lamalou and Balaruc the wounded and sick who are capable of receiving benefit from thermal treatment such as is given at these stations. The director of the medical service has delegated a physician on the staff to arrange with the secretary general of the Institut d'Hydrologie, for the general extension of similar measures.

Dr. F. Garrigou, former professor of hydrology at the Faculté de médecine de Toulouse, has just published in the *Revue* an article in which he mentions that France possesses the richest and most varied mineral springs; the Pyrenees especially possess the most varied sanatoriums in the world within a surface of a few kilometers. It would be possible to care for thousands of patients there.

ASSISTANCE FOR FAMILIES OF PHYSICIANS PLACED IN NEED BY THE WAR

Many families of physicians are now without resources either because of the sudden loss of the head of the family or because they have had to flee before invasion into the interior of the country. Therefore the Oeuvre parisienne de secours immédiat et d'assistance à la famille médicale decided at its last general assembly to create a fund for the duration of the war under the heading of Secours de guerre à la famille médicale (war assistance for medical families).

EMPLOYMENT OF GREASED TULLE FOR THE TREATMENT OF WOUNDS

Since dressings of sterilized gauze have the disadvantages of adhering to wounds and of being difficult to detach, it has occurred to M. A. Lumière of Lyons to use compresses of tulle with a mesh of 2 mm. These compresses separated from each other by paper are sterilized by heat for an hour in a mixture composed of petrolatum, wax, castor oil and balsam of Peru. Thus prepared they do not adhere to the wounds while the secretions pass through the meshes of the tulle and are absorbed by the wadding of the dressings.

THE UTILIZATION OF RICE FLOUR IN THE MANUFACTURE OF BREAD

Although our stock of wheat is amply sufficient for the present, it is interesting to mention a communication made during a recent session of the Académie de médecine by Dr. Maurel, professor of experimental pathology at the Faculté de médecine de Toulouse. Maurel advises the use for bread of a mixture of 20 per cent. rice flour to 80 per cent. wheat flour. Such a mixture has no hygienic disadvantages. It gives a bread with nutritive qualities approximately equal to those of pure wheat bread; the loaf, moreover, looks and tastes good.

An important consideration is the fact that our rice from Cochin China offers a means of supplying the deficit in our future harvest of wheat. Maurel believes that the country would make great economy by employing rice flour in this manner, for a million tons of rice flour would cost France only 270,000,000 francs (\$54,000,000) while a million tons of wheat flour would cost 420,000,000 francs (\$84,000,000).

Dr. Armand Gautier, former professor of organic and inorganic chemistry at the Faculté de médecine de Paris, approves of Maurel's suggestion and suggests that the Japanese war bread, which is the best of all war bread, contains from 10 to 12 per cent. of rice flour. This bread is not subject to attack by insects and keeps its edibility and its good taste almost indefinitely. Notwithstanding, it must be recognized that bread containing rice flour is a little less nourishing than bread composed entirely of wheat since rice contains less gluten than wheat does.

Association News

THE SAN FRANCISCO SESSION

Changes in Schedules of Special Trains

Attention is called to a change in the schedule of the American Medical Direct Route Special which has just been announced. Instead of one train leaving Chicago at 5:30 p. m. Friday, June 18, as previously stated, there will be two trains over this route: first, an extra fare train (extra fare \$10), leaving Chicago Friday, June 18, at 7 p. m., and arriving in San Francisco Monday, June 21, at 10:10 a. m., and second, a train leaving Chicago Thursday, June 17, at 9:30 p. m., and arriving in San Francisco at 8:55 p. m. Sunday, June 20. The latter is a regular fare train.

The special train for San Francisco, for members of the Sections on Ophthalmology and on Laryngology, Otology and Rhinology who will be in attendance on the meeting of the American Laryngological, Rhinological and Otological Society, will leave Chicago at 8:05 p. m., June 16, instead of June 15, as originally stated. The itinerary of this train will be the same except that it will be one day later than the schedule previously announced, arriving in San Francisco on Sunday, June 20, instead of on Saturday, June 19.

For the announcement of other special trains, see *THE JOURNAL*, May 15, 1915, page 1707.

Take Extra Wraps to San Francisco

The local Committee on Arrangements desires to emphasize the suggestion already made to Fellows who plan to attend this meeting, that the mornings and evenings in San Francisco are usually windy and chilly and that there may be cold fogs. It is advisable, therefore, for visitors to provide themselves with medium-weight clothing and to have at hand suitable wraps and overcoats.

Deaths

Jerome Henry Salisbury, M.D. Rush Medical College, 1878; a Fellow of the American Medical Association; died suddenly at his home in Wheaton, Ill., May 14, from cerebral hemorrhage, aged 61. He was born in Fitchburg, Wis. He was valedictorian of his class in Wisconsin University, from which he graduated in 1876; soon after his graduation in medicine he began his teaching career as professor of chemistry in the Northwestern University Woman's Medical School, Chicago, later becoming assistant professor of chemistry and then assistant professor of medicine in Rush Medical College. He also occupied the chair of medicine in the Illinois Post-Graduate School. Dr. Salisbury's contributions to medical literature were extensive and varied. His acquaintance with foreign languages, added to his knowledge of medical writings, made him a valued consultant in the editorial positions which he occupied for several years. He was coeditor with Dr. Frank Billings of the *Section on General Medicine* of the "Practical Medicine Series," and also coauthor with the late Prof. C. S. N. Hallberg of the "Physicians' Manual of the Pharmacopeia." He was also connected with the editorial staff of several other medical publications and since 1907 has been a member of the staff of *THE JOURNAL*. In the latter relationship his kindly manner and sympathetic aid won him the esteem and love of all his associates, who learned to value highly his extraordinary mental faculties and extensive medical knowledge.

Brigadier General William Henry Forwood, M.D., formerly surgeon-general, U. S. Army; University of Pennsylvania, Philadelphia, 1861. In August of the same year he entered the Army as assistant surgeon, and passing through the various grades became brigadier general and surgeon-general on June 8, 1902, and was retired by operation of law on reaching the age of 64 years on September 7, of the same year. He served in the Civil War, in which he was severely wounded in battle. He also served as president of the Army Medical School and was president of Army examining boards. During the Spanish-American War he built and was in charge of the hospitals at Montauk Point, L. I. He was

a Fellow of the American Medical Association, the American Academy of Medicine, the Philadelphia Academy of Natural Sciences and many other scientific bodies. He also was professor of surgical pathology in the Georgetown University, Washington, D. C., and professor of military surgery in the Army Medical School. After General Forwood's retirement he made his home in Washington, where he died, May 11, after a prolonged illness, aged 76.

Catherine B. Patrick Slater, M.D. Northwestern University Woman's Medical School, Chicago, 1879; a Fellow of the American Medical Association; president of the Fox River Valley Medical Association in 1901-02; said to have been the first woman physician to gain entrance to the Berlin College of Medicine; surgeon to the Aurora City Hospital and for eighteen years a member of the Board of Education of Aurora, Ill.; died at her home in that city, May 10, from cerebral hemorrhage, aged 71.

Charles Calvin Knight, M.D. New York University, New York City, 1855; a Fellow of the American Medical Association, and the oldest practitioner of Peekskill, N. Y., where he had practiced for more than fifty-seven years; president of the medical board of the Peekskill, N. Y., Hospital; president of the Peekskill Savings Bank and a director of the Westchester County National Bank; died at his home in Peekskill, May 5, from a ruptured aneurysm of the abdominal aorta, aged 82.

Jay Webber Seaver, M.D. Yale University, New Haven, Conn., 1885; a Fellow of the American Medical Association; for twenty years physical director of the Yale University gymnasium; once president of the American Association of Physical Directors and of the Society of College Gymnasium Directors; eminent as a writer on physical development and physical education; died suddenly in Berkeley, Cal., May 6, aged 60.

Ralph Rollin Chase, M.D. University of Minnesota, Minneapolis, 1889; a Fellow of the American Medical Association; local surgeon of the Chicago, Milwaukee and St. Paul Railway at Eau Claire, Wis.; formerly president of the Eau Claire County Medical Society; for nine years health physician of Eau Claire; died at his home, May 4, from cerebral hemorrhage, aged 54.

Frederic Shurtleff Coolidge, M.D. Harvard Medical School, 1891; a member of the Illinois State Medical Society and American Orthopedic Association; a specialist in orthopedic surgery of Chicago; who moved to Pittsfield, Mass., about ten years ago on account of prolonged illness due to infection from an operation wound; died in New York City, May 15, from pneumonia, aged 49.

Robert W. Warner, M.D. Albany, N. Y., Medical College, 1880; a member of the Medical Society of the State of New York; coroner of Herkimer County; health officer of Ilion; first lieutenant and assistant surgeon of the Thirty-first Separate Company, N. G. S., N. Y.; local railway surgeon and postmaster of Ilion from 1898 to 1906; died at his home in Ilion, April 18, aged 56.

Bernard G. Maercklin, M.D. University of Pennsylvania, 1887; formerly a member of the Wisconsin State Medical Society; one of the founders of the Milwaukee Medical College, in which he filled the chair of oral surgery; later professor of oral surgery in Marquette University, Milwaukee; died in the Radium Hospital, Milwaukee, April 30, from carcinoma, aged 67.

Seth Wight Kelley, M.D. Harvard Medical School, 1874; a member of the Massachusetts Medical Society; at one time chairman of the Woburn, Mass., Board of Health; a member of the school board and first president of the board of directors of the Choate Memorial Hospital; died at his home in Woburn, Mass., May 5, from cerebral hemorrhage, aged 66.

George Warren Spencer, M.D. University of Michigan, Ann Arbor, 1878; professor of physiology, dermatology and chemistry in the Cleveland Homeopathic Medical College; dermatologist to the Huron Road Hospital and a member of the general staff of the Cleveland City Hospital; died suddenly at his home in Cleveland, May 1, aged 64.

Alpheus Butts Simmons, M.D. University of Georgia, Augusta, 1884; an honorary member of the Georgia Medical Society and a well known and much esteemed practitioner of Savannah, Ga., who retired from practice several years ago; died at his home in Montgomery Road, Savannah, February 11, from cerebral hemorrhage, aged 50.

William Bell, M.D. United States Medical College, New York City, 1880; formerly a member and president of the Michigan State Board of Medicine and Registration; a practitioner of Ionia County, Mich., for more than forty years; died at his home in Belding, Mich., May 1, from cerebral hemorrhage, aged 68.

Calvin H. Reed, M.D. Starling Medical College, Columbus, O., 1868; a veteran of the Civil War; one of the organizers of, and professor of obstetrics in, the Northwestern Ohio Medical College; for several terms a member of the Board of Education; died at his home in Toledo, May 4, from heart disease, aged 74.

Thomas Shriner, M.D. Jefferson Medical College, 1869; one of the best known practitioners of northeastern Philadelphia; for forty-six years physician to the Penn Widows' Home; a member of the board of managers of the Northern Dispensary; died at his home in Philadelphia, May 2, from heart disease, aged 72.

George Prosser Griffing, M.D. Bellevue Hospital Medical College, 1873; a member of the Medical Society of the State of New York, and for more than forty years a practitioner of the Greenpoint section of Brooklyn; died at his summer home in South Jamesport, L. I., April 5, from heart disease, aged 62.

Archibald Elexis McDonald, M.D. Harvard Medical School, 1865; a member of the Massachusetts Medical Society; a practitioner of Boston for many years; at one time surgeon of the Ninth Infantry, Mass., V. M.; died at his home in Jamaica Plains, Boston, April 28, aged 88.

William Austin Polglase, M.D. Chicago Homeopathic Medical College, 1878; of Brooklyn, N. Y.; formerly lecturer on nervous and mental diseases in the University of Michigan; died in the Presbyterian Hospital, New York City, May 4, after a surgical operation, aged 59.

Robert Cottingham, M.D. Rush Medical College, 1877; a member of the Wisconsin State Medical Society; a pioneer practitioner of Chippewa County, Wis., and for several years president of the Board of Education of Bloomer; died at his home in Bloomer, Wis., April 17, aged 67.

Israel Wood Powell, M.D. McGill University, Montreal, 1860; a member of the Legislative Assembly; first president of the Provincial Board of Education and vice-president of the Canadian Confederation League; died at his home in Victoria, B. C., February 25, aged 75.

William Leslie McCandless, M.D. Rush Medical College, 1872; for more than forty years a practitioner of Pinckneyville, Ill.; a banker and postmaster of that city; died in St. John's Hospital, St. Louis, May 2, from pneumonia, aged 66.

Edward Garrett Altvater, M.D. University of Maryland, Baltimore, 1911; assistant at the Baltimore Quarantine Station; died in the University Hospital, Baltimore, May 2, a day after an operation for appendicitis, aged 30.

Patrick S. Donnellan, M.D. Royal College of Physicians and Surgeons, Ireland, 1886; for several years a practitioner of Philadelphia and laryngologist to St. Agnes' Hospital; died at Twyford Abbey, London, England, recently.

Joel Franklin Henry, M.D. Cincinnati College of Medicine and Surgery, 1883; a pioneer practitioner of the Fruitvale section of Oakland, Cal.; died at his home in Fruitvale, May 3, from disease of the kidney, aged 74.

Francis Button Marr, M.D. Cleveland University of Medicine and Surgery, 1869; College of Physicians and Surgeons of Ontario, Toronto, 1871; died at his home in Ridgetown, Ont., February 19, aged 74.

Vincent Cumming Cornwall, M.D. Victoria College, Coburg, Ont., 1867; for a number of years reeve of Omemee, Ont., and warden of the County of Victoria; died at his home in Omemee, March 12, aged 83.

Samuel Sylvester Selvey, M.D. Miami Medical College, Cincinnati, 1869; a practitioner since 1856; in 1877 a member of the Indiana State Legislature; died at his home in Dunkirk, Ind., March 2, aged 82.

Job R. Barker (license, Ohio, years of practice, 1897); for forty-four years a practitioner of Ashtabula, O.; a veteran of the Civil War; died at his home in Ashtabula, May 2, aged 70.

Willard Solomon Gayman, M.D. Miami Medical College, Cincinnati, 1894; died at his home in Canal Winchester, Ohio, March 20, aged 48.

Charles Rolph Clement, M.D. Long Island College Hospital, Brooklyn, 1878; died at his home in Groveport, Ohio, April 30, aged 62.

Marmaduke Allen Wood, M.D. University of Pennsylvania, Philadelphia, 1874; died at his home in Philadelphia, April 28, aged 65.

John H. Bell, M.D. Jefferson Medical College, 1858; a physician and druggist of Due West, S. C.; died at his home, April 19, aged 83.

Joseph D. Larimore, M.D. Medical College of Ohio, Cincinnati, 1868; died at the home of his son in Muncie, Ind., April 28, aged 79.

Gregory Arvide Martin, M.D. University of Vermont, Burlington, 1879; died at his home in Franklin, Mass., March 9, aged 72.

Tazewell Bradley, M.D. Medical College of Virginia, Richmond, 1884; died at his home in Roxbury, Va., February 26.

Clayton A. Button, M.D. University of Buffalo, N. Y., 1888; died at his home in Holland, N. Y., February 24, aged 61.

George Frederick Horn, M.D. Jefferson Medical College, 1914; died at his home in Darby, Pa., April 29, from neuritis, aged 22.

James Alfred Gaffney, M.D. Baltimore (Md.) University, 1898; died at his home in Bridgeport, Conn., April 26, aged 39.

Charles Wilkin Beemer, M.D. Trinity Medical College, Toronto, 1893; died at his home in Kenosha, Wis., May 2, aged 44.

John Cary Wells, M.D. Cincinnati, 1855; died at his home in Birmingham, Iowa, March 6, from heart disease, aged 86.

George W. Gregory, M.D. Albany (N. Y.) Medical College, 1879; died at his home in Elmira, N. Y., February 26.

Eli Wesley Fairman, M.D. Rush Medical College, 1872; died at his home in Brodhead, Wis., March 29, aged 68.

Francis August Schulte, M.D. St. Louis University, 1904; died at his home in St. Louis, February 1, aged 50.

Correction. The notice of the death of Dr. John D. Dickerson of Stockton, Md., which appeared in THE JOURNAL of May 1, is incorrect. Dr. Dickerson writes under date of May 10, that he does not know where the report originated.

Marriages

THERESA CHESTORA SNYDER, M.D., Chingtu, West China, to **PHILIP E. HOFMANN, M.D.**, of Shanghai, China, at Tzechow, China, Dec. 16, 1914.

WALTER HAROLD MCNEILL, Jr., M.D., to Miss Vivian Marguerite Peck, both of Mt. Vernon, N.Y., at Bronxville, N. Y., April 14.

HAROLD WILLIAMS WILEY, M.D., South Haven, Mich., to Miss Helen G. Usher of Newburyport, Mass., at New York City, May 1.

FREDERICK A. STEELE, M.D., Oakland, Cal., to Miss Harriet Martin of Fresno, Cal., at Oakland, Cal., April 27.

GEORGE PHIPPEN SANBORN, M.D., to Miss Adalyn P. Henderson, both of Boston, at Methuen, Mass., May 7.

MABLE C. LAWRENCE FAULDS, M.D., to Mr. Henry Williams, both of Gary, Ind., at Crown Point, Ind., May 4.

ARTHUR HUSSER, M.D., Hingham, Mont., to Mrs. Bertha Rachel McCrary of Havre, Mont., April 20.

GEORGE CYRUS KINDLEY, M.D., to Miss Florence May Goodman, both of Galveston, Tex., May 18.

HERBERT T. BARNES, M.D., Pewaukee, Wis., to Miss Hazel Ryan of Fond du Lac, Wis., April 28.

WILLIAM J. CARSON, M.D., Atlanta, Ga., to Miss Elizabeth Gunning of Cumberland, Md., May 4.

HUGH P. DORSEY, M.D., Chicago, to Miss Guila Grace Chatron of Capac, Mich., May 4.

MAX WILLIAM TRENTZSCH, M.D., to Miss Leone Kreul, both of Highland, Wis., April 27.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

VENARSEN

Report of the Council on Pharmacy and Chemistry

The report which appears below was sent to the Intravenous Products Company for consideration. Having considered the firm's reply, the Council has authorized publication of its report along with the explanation sent by the Intravenous Products Company in reference to the variable composition reported for Venarsen, namely, that "only the first few experimental ampoules, sent to the doctors for clinical tests, were made without the Mercuric Iodide."

W. A. PUCKNER, Secretary.

This product is prepared by the Intravenous Products Company, Denver. The advertising circulars contain inconsistent statements as to its composition. According to one circular Venarsen is

"... a comparatively non-toxic organic arsenic compound, 0.6 Gm. representing 247 Mg. ($3\frac{3}{4}$ grains) of metallic arsenic in chemical combination. . . ."

According to another circular Venarsen is

"... a comparatively non-toxic organic arsenic compound, 0.6 Gm., representing 247 Mg. ($3\frac{3}{4}$ grains) of metallic arsenic and .78 Mg. ($\frac{3}{250}$ grain) metallic mercury in chemical combination."

Neither one of these statements gives any information as to the actual composition of the product. Inquiry addressed to the manufacturers elicited the reply that:

"Venarsen contains in each 5 c.c. 0.6 Gm. Sodium Dimethyl Arsenate, .0016 grams of Mercuric Iodide, .0048 grams of Sodium Iodide in solution in a suitable vehicle for intravenous administration."

The following report of the examination of Venarsen is submitted by the Association's Chemical Laboratory:

LABORATORY REPORT

Three ampules of Venarsen were examined. The first ampule was labeled

"A comparatively non-toxic organic arsenic compound, representing 247 Mg. ($3\frac{3}{4}$ grs.) of metallic arsenic in chemical combination. 5 c.c. — 0.6 Gm."

Practically the same statement appeared in an advertising circular wrapped around the ampule. The second and third ampules bore labels identical with the first. The circulars differed from that accompanying the first ampule in that the presence of mercury is also announced, thus:

"Venarsen is a comparatively non-toxic organic arsenic compound, 0.6 Gm., representing 247 Mg. ($3\frac{3}{4}$ grains) of metallic arsenic and .78 Mg. ($\frac{3}{250}$ grain) metallic mercury in chemical combination and is so prepared and enhanced as to present the ingredients to the blood in their most acceptable form."

Thus, although the potent elements said to be contained in Venarsen are named, its chemical character (the combination in which the elements occur) is not disclosed.

The ampules contained a transparent, odorless solution, possessing the yellow color of salvarsan solution (an aqueous solution of sodium cacodylate, mercuric iodid and sodium iodid in the amounts said to be present in Venarsen is colorless). Qualitative tests demonstrated the presence in each of the three ampules of sodium cacodylate (sodium dimethyl arsenate), and the absence of arsenites, arsenates, phosphates, arsanilates (atoxyl, soamin) and arsenphenolamins (salvarsan, neosalvarsan). Titrated with normal hydrochloric acid, using methyl orange as indicator (as outlined in New and Nonofficial Remedies, 1915, p. 40), the three ampules were found to contain the equivalent of respectively, 0.219, 0.253 and 0.216 Gm. or an average of 0.244 Gm. arsenic. (According to statements of the firm each 5 c.c. of Venarsen contains 0.6 Gm. sodium dimethyl arsenate (sodium cacodylate), equivalent to 0.247 Gm. arsenic or 41.66 per cent. Sodium dimethyl arsenate, as described in New and Nonofficial Remedies, contains 3 molecules of water and 35 per cent. arsenic. This indicates that the sodium dimethyl arsenate used in Venarsen con-

tains less water of crystallization than the N. N. R. product).

Neither mercury nor iodid could be found in the first ampule. (The company has since explained that mercury was absent only from the first experimental samples.) The second and third ampules contained iodid and mercury in small amount. The exact quantity was not determined because, on the basis of the mercury content declared, a single accurate mercury estimation would have required the purchase of something like 25 to 100 ampules. As each ampule sells for two dollars, the cost of the material was considered prohibitive.

From the foregoing we conclude that the first ampule examined consisted essentially of a solution containing 0.625 Gm. of sodium cacodylate, N. N. R., while the second and third ampules contained 0.722 Gm. and 0.617 Gm. sodium cacodylate, respectively, and in addition, a mercury compound, probably mercuric iodid, dissolved by sodium iodid.

In other terms, Venarsen as now marketed is a simple solution containing approximately 9 grains of sodium cacodylate, $\frac{1}{40}$ grain of mercury "biniodide" and $\frac{3}{4}$ grain of sodium iodid to each full dose.

In the past the preparation has been in conflict—especially serious because of the potent character of the drug—with Rule 1 (secrecy of composition). The manufacturers have removed this conflict by furnishing a statement of composition; and it is to be expected that they will likewise take steps to remove the manifestly erroneous impression now likely to be gathered from the circulars, namely, that the preparation is rather analogous to salvarsan. These conflicts, however, call for comment, since physicians have doubtless used the material under misapprehensions.

As to therapeutic claims, the preparation is said to be effective and safe in syphilis; "lower toxicity and greater spirochaetacidal power than other known arsenic compounds" are among the claims. No real evidence for either of these claims is presented. Sodium cacodylate has been tried as an antisyphilitic, but with indifferent success; certainly the results have not been comparable to those of salvarsan. The mercury could conceivably enhance its effect, but the dosage appears too small and the course too short for this influence to be pronounced. Moreover, a careful physician would not give arsenic and mercury in fixed proportions.

The claim of comparative non-toxicity is probable enough from what is known about the cacodylate. No physician should feel "safe," however, when injecting intravenously 0.6 gm. of sodium cacodylate every four to six days. Aside from the grave dangers of intravenous injection in general, the possibility of idiosyncrasies to arsenicals should always be borne in mind.

Finally, Venarsen is claimed to be "indicated" in pellagra, tuberculosis, anemia, etc. No evidence is presented on which to base an opinion as to its efficiency in pellagra. Those who have studied that disease would not be likely to resort to this treatment. In tuberculosis and anemia, there is no sufficient advantage in giving the cacodylate intravenously.

To summarize, Venarsen treatment consists essentially in the intravenous injection of large doses of sodium cacodylate. The other ingredients, as well as the name, merely constitute so much mystification. While the cacodylate probably has some effect on the conditions for which it is advised, there is no evidence that its value even approaches that of salvarsan in syphilis, or that the intravenous use is preferable to the ordinary methods. The dangers are manifest, although they may not be so great as with salvarsan. No justification has been established for its use in tuberculosis and pellagra.

Physicians who wish to try intravenous cacodylate administration should have a full realization of the dangers of such treatment, and in order to avoid further risks, will do well to refrain from combining other drugs with the cacodylate in fixed proportions.

It is recommended that Venarsen be held in conflict with Rule 6 (unwarranted therapeutic claims), Rule 7 (poisonous ingredients not stated on label), Rule 8 (name does not express the chemical composition) and Rule 10 (unscientific combination) and that this report be published.

Correspondence

Wassermann Reaction as a Clinical Test

To the Editor:—On page 1463 of THE JOURNAL for May 1, 1915, Dr. Heimann discusses several statements made in my contribution to THE JOURNAL of March 6. Of the many reasons for scientific discussion, that which holds the place of second importance is the speaking of different languages; and this I take to be the cause of the present disagreement.

The object of my contribution was not to enforce the generally accepted rules of Wassermann evidence, but rather to call the attention of the practitioner to a few relatively exceptional points not always clearly understood. Had Dr. Heimann written his contribution in advance of my own, I might, indeed, have taken it for a text.

Let us consider his conclusions:

"1. The Wassermann is negative at times in active syphilis, but only under definite and characteristic circumstances, and when this is understood, no confusion should arise."

Surely no practitioner could admit the universal truth of such a statement. It is well known that the gravity of the Wassermann reaction, though it usually runs almost parallel with the gravity of the known somatic lesions, does not quite parallel them. Quite recently I have seen two cases, the one with a pustular, the other with a papular skin lesion, both with negative Wassermanns, both promptly cured by antisyphilitic treatment (one verified by biopsy). By no combination of "definite and characteristic circumstances" can the negative Wassermann in such cases be predicated.

But this point is much more brilliantly illustrated by the doctor's second conclusion:

"2. The Wassermann test may be positive in the absence of syphilis, in certain other diseases, and under certain conditions easy to recognize and exclude."

So far as I know only one single series of over 100 cases supposedly nonsyphilitic and tested by the Wassermann reaction has revealed results that the reporter could fully explain. Inevitably there crops up the small percentage of cases with no vestige of the disease, but with a positive Wassermann reaction.

It has, indeed, been generally accepted that some 1 or 2 per cent. of males infected with syphilis give no early history, and the worst that has been alleged of any American or highly civilized European community is that some 10 per cent. of its citizens are syphilitic. If but 2 per cent. of these syphilitics do not know they are diseased, we may expect an error of two per thousand in our Wassermann reactions on supposedly healthy males. The actual error is anywhere from twenty times as much upward.

Dr. Heimann's final conclusion is that "matrimony should be withheld from individuals with a positive Wassermann test." With this conclusion I most heartily disagree. I recognize the dangers that threaten the syphilitic with a positive Wassermann reaction far more clearly, I think, than Dr. Heimann does those that threaten the syphilitic with a negative Wassermann reaction. Neither can be guaranteed absolutely safe from relapse in his own person. We need not pretend to disagree on the necessity of exerting every effort to make the Wassermann reaction negative, whether the patient is to be married or not. But this is purely a personal matter of fortifying the patient himself against possible relapse of his disease.

Although we all know that every lesion of syphilis is caused by spirochetes, and that sections from syphilitic tissue removed from a patient many years diseased are infectious when injected into monkeys, yet the clinical fact remains that the lapse of time sufficient to carry the patient beyond the period when he is likely to have eroded papules in the mouth or in the genitals will assure him against the possibility of infecting better than any early demolition of his positive Wassermann reaction. That syphilis may be transmitted from husband to wife after the fifth year of disease is perfectly well known as a clinical rarity, to be

looked for only in those patients with persistent relapses of the secondary type; relapses that, of all others, are the most controllable by our modern methods.

But what I am arguing for is mercy to the unfortunate individual whose Wassermann reaction remains positive in spite of our most furious efforts to keep it negative. I do not feel that his positive reaction should stand in the way of matrimony after a sufficient time has gone by to protect his wife from infection.

When all is said and done, however, the difference between Dr. Heimann's point of view and my own is perhaps that infinite difference between those who are dazzled by the splendors of twentieth century science and make science a creed; regard her tentative hypotheses as certainties; her Wassermann reactions such that "no confusion should arise" in their interpretation—between them, on the one hand, and on the other hand those clinicians who, while acclaiming with great joy all the help that science can offer, do not feel that the microscope lends infallibility to the eye or the test tube to the finger. To these seekers after the grain of truth which lies hidden in the turbulent forefront of scientific progress, I submit my case.

Very possibly my contention is quite wrong, but wrong or not, I know—nothing.

EDWARD L. KEYES, JR., M.D., New York.

Stay Stitch for Deep Wounds

To the Editor:—In THE JOURNAL, April 17, 1915, p. 1317, under the caption, "A New Stay Stitch for Deep Wounds," Dr. Edmond Bonnot of St. Louis describes and illustrates a stitch which I have been using for many years and which has been adopted by many of my colleagues. By some it is named for me, but it is not mine. I saw it described years ago, but have forgotten the name of the magazine and the author, remembering only that it came from one of the nearer Southern States, perhaps Virginia. I have called it the mattress suture on edge, have described it frequently while operating before my classes at Bellevue and elsewhere, and have always taken pains to disclaim any credit for its invention.

It is a useful stitch, particularly in all locations in which there is a tendency for edges to be inverted, along median depressions, over the sacrum, over the sternum, indeed, in almost any place where the skin is thick. It is also of value where the tissues are relaxed, for instance, in perineal sutures, because, no matter how much the tissues are folded, the edges cannot be turned in. As a rule, I use three or four in the ordinary celiotomy incision, afterward closing the edges of the skin with a running suture of fine intestinal silk. I think Dr. Bonnot's suggestion, that it should be tied over tubing, takes away a good deal of its value, because the tubing is liable to cause eversion of the edges of the skin, and one wants neither eversion nor inversion.

GEORGE DAVID STEWART, M.D., New York.

Deaths from Laxative Tablets Containing Strychnin

To the Editor:—The coroner of Macon County reports four deaths of children in the last four years from eating laxative tablets containing strychnin; in addition to this I have knowledge of several other near deaths from the same cause. If this is the report for one county in Illinois, what must be the fatalities in the United States where the use of the favorite "A. S. B." and the "Hinkle" tablet, each containing 1/60 grain of strychnin, is so common?

The red color of the Hinkle tablet is especially attractive to children, and in one of the fatal cases reported, the victim had eaten fifteen of these tablets; the poison or caution label on the box had no deterrent effect on either the child or the careless mother. The thought occurred to me, Why put strychnin in laxative tablets, and of what value is strychnin in these combinations? Admitting the value of strychnin in repeated doses in atonic conditions of the intestines, of what value can the usual single evening dose of 1/60 grain have?

In the fatal cases also the toxic effect of the belladonna was very evident. With the large number of nonpoisonous laxatives available, such as cascara, aloin, rhubarb and phenolphthalein, there is no sense in adding the poisonous strychnin.

I am sure that the child's welfare societies can do no better work than to check this useless "slaughter of the innocents" through the use of these strychnin-containing laxative pills or tablets.

EVERETT J. BROWN, M.D., Decatur, Ill.

[COMMENT.—Accidents of the character reported have frequently occurred in the past. There seems to be no remedy, except to urge greater care on the part of physicians who prescribe these preparations and on the part of parents and others who keep them on hand. It would be of decided advantage if these small but dangerous pills or tablets could be dispensed in containers—phials—of special shape, with the word "POISON" distinctly marked on the container; certainly there should be some method of marking that would definitely indicate the dangerous character of the contents.—Ed.]

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

ACONITE IN PNEUMONIA

To the Editor:—Will aconite or its alkaloid break up pneumonia?
J. M. OUSLEY, M.D., Lost Creek, Tenn.

ANSWER.—The older pathology of pneumonia regarded it as an intense disturbance of the circulation which eventuated in an inflammatory exudation into the alveoli of a fibrinous mass containing a large number of red blood cells and a proportionally larger number of leukocytes. The initial congestion was regarded as due to the deranged action of the heart and blood vessels. Hence it was believed by many that if we could overcome or oppose this abnormal change in the circulation, the disease could be aborted. This was the basis for the practice of bleeding in the early stages, of the use of blisters, of local bloodletting and of the administration of aconite and veratrum viride. The use of these remedies has been compared to bleeding; an old saying has it that by aconite we bleed the patient into his own veins.

With a later conception of pneumonia as an infectious disease, the use of such measures becomes less rational. We now conceive of the congestion as a reaction on the part of the general system against the presence in the lung of bacteria, some of which have usually penetrated from the alveoli into the blood accompanied by their toxins, which incite the nervous system and through it the circulation to throw out an exudate of blood to destroy the micro-organisms and neutralize their toxic products. Under this conception we do an injury and hinder the recuperative processes of nature when we attempt to hinder this application of a curative serum to the invading bacteria.

Experience has shown that pneumonia patients do as well or better without the depressing measures designed to weaken the heart and lessen the congestion, by retarding the circulation or diverting the blood elsewhere. Attempts to abort pneumonia have proved futile. Some observers have thought that they were able by means of aconite or veratrum viride to check the disease in its first stage. There is no reliable evidence that warrants such belief.

DENTAL CLINICS

To the Editor:—Can you give me information as to cities in which dental clinics have been established by a board of education directly, or in connection with a board of health? Also, what success has met their efforts and what opposition has been encountered on the part of the parents? I would furthermore be interested in any details with which you might supply me in the establishment or management of such institutions.
R. B.

ANSWER.—Through Dr. W. G. Ebersole, secretary and treasurer of the National Mouth Hygiene Association, Cleveland, and others interested in mouth hygiene, the following information has been obtained:

Cleveland has seven dental clinics. These are supported by an auxiliary of the National Mouth Hygiene Association

and by funds raised by the principals of the schools of that city. Cincinnati has three clinics supported by the municipality. Detroit has ten clinics operated under the board of health and financed by annual appropriation. Rochester has four clinics. Formerly these were supported by the local dental society, but recently the municipality has made appropriation for the work. Buffalo has four clinics supported by the municipality. Philadelphia has several clinics supported by the city. New York City has a number of school clinics maintained by the board of education, and there are four clinics in connection with the various hospitals, maintained by cooperation of the dentists and various philanthropic organizations of that city. Morristown, N. J., has recently established a school dental clinic supported by the united efforts of the dentist and welfare organizations of that city. Several years ago the Odontographic Society of Chicago organized dental clinics in connection with a few of the schools. Later Mr. Julius Rosenwald equipped seven clinics and the dentists three others. For one and one-half years Mr. Rosenwald supported these ten clinics. In 1914 the city took them over, employing ten dentists at a salary of \$100 a month each, for ten months in the year. Dr. Molt, a dentist, is a member of the board of health, and has special charge of the dental clinics.

Other clinics are being organized by the National Mouth Hygiene Association in Canton and Dayton, Ohio; Kansas City, Mo.; Louisville, Ky.; Joliet, Ill.; Washington, D. C.; Jacksonville, Fla.; Atlanta, Ga., and Lynchburg, Va.

The work of the established clinics seems to progress reasonably well, but the clinics are wholly inadequate to the needs of the communities in which they operate, since only a small percentage of the children needing dental attention in large communities can be served owing to the lack of funds and dentists. Antagonism by parents against examination and care of their children's teeth is not serious, and need deter no one from entering on this work.

Further information as to the methods of organization and management of dental clinics may be obtained from Dr. W. G. Ebersole, Secretary National Mouth and Hygiene Association, Schofield Building, Cleveland, Ohio.

DEPENDENCE OF DISEASE ON FAULTY DIGESTION

To the Editor:—Has any physician of recognized authority ever stated, or intimated in any way, that from 75 to 90 per cent. of all diseases are due primarily to faulty digestion, or that a derangement of the digestive organs is the first cause of that percentage of diseases? In other words, if digestion and physical resistance were normal, would it render us immune from 90 per cent. of the present diseases?

An answer to this, or any information as to how far a derangement of the gastro-intestinal canal, and organs bearing direct relation to the same, is responsible for the onset of disease, or its first cause, will be very gratefully received.

J. W. LOWE, M.D., Mentor, Ohio.

ANSWER.—So far as can be determined, no authority has published a statement that from 75 to 90 per cent. of diseases are due primarily to faulty digestion. Apparent health and good digestion are not proof against infections, since persons in robust health may fall victims to infectious diseases. An abnormal state of the mucous membrane of the gastro-intestinal tract in certain cases renders it more liable to permit the entrance of micro-organisms and toxins which may cause systemic symptoms, but there is little evidence that this abnormal condition is necessarily associated with any definable disease of the gastro-intestinal tract. It is probable that the healthy digestive tract permits the entrance of poisons in certain cases, without suffering any immediate damage. Lead may produce disorders of the nervous system, although the intestine through which it is absorbed is not affected. In the present state of our knowledge, it would be impossible to say what percentage of disease is due to imperfection in the digestive processes or disease of the digestive organs.

SHORTENING OF THE WORD "FEEBLEMINDEDNESS"

To the Editor:—I have understood that among some writers the word "feeble-mindedness" is being shortened to "feblemindness." It has appeared in a recent issue of the *Survey*. Do you know of any authority for such a simplification, which seems to change the force and sense of the word?

G. S., M.D., New York.

ANSWER.—We know of no authority for shortening the word "feeble-mindedness" by omitting the participial suffix. As our inquirer states, such a change is a radical departure, and somewhat modifies the sense of the word.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

CALIFORNIA: San Francisco, June 15-18. Sec., Dr. Charles B. Pinkham, 727 Butler Bldg., San Francisco.

DELAWARE: Dover and Wilmington, June 15-17. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

FLORIDA: Jacksonville, June 15-16. Sec., Dr. E. W. Warren, 102 Front St., Palatka.

GEORGIA: Atlanta and Augusta, June 2-4. Sec., Dr. C. T. Nolan, Marietta.

ILLINOIS: Chicago, June 24-26. Sec., Dr. C. St. Clair Drake, Springfield.

IOWA: Iowa City, June 10-12. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.

KANSAS: Kansas City, June 8-10. Sec., Dr. H. A. Dykes, Lebanon.

KENTUCKY: Louisville, June 8-10. Sec., Dr. A. T. McCormack, Bowling Green.

LOUISIANA: New Orleans, June 3-5. Sec., Dr. E. L. Leckert, 716 Machea Bldg., New Orleans.

MARYLAND: Baltimore, June 21. Sec., Dr. J. McP. Scott, Hagerstown.

MARYLAND: Homeopathic, Baltimore, June 15-16. Sec., Dr. O. N. Duvall, 1817 N. Fulton Ave., Baltimore.

MICHIGAN: Detroit, May 27-29; Ann Arbor, June 8-10. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

MINNESOTA: Minneapolis, June 1-4. Sec., Dr. Thomas McDavitt, Lowry Bldg., St. Paul.

MISSISSIPPI: Jackson, June 15-16. Sec., Dr. E. H. Galloway, Jackson.

MISSOURI: St. Louis, June 21-23. Sec., Dr. J. A. B. Adcock, State House, Jefferson City.

NEBRASKA: Lincoln, June 10-11. Sec., Dr. H. B. Cummins, Seward.

NEW JERSEY: Trenton, June 22-23. Sec., Dr. H. G. Norton, 429 E. State St., Trenton.

NEW YORK: Albany, Buffalo, New York and Syracuse, May 25-28. Mr. Harlan H. Horner, Chief, Examination Division, State Education Bldg., Albany.

NORTH CAROLINA: Greensboro, June 8. Sec., Dr. H. A. Royster, Raleigh.

OHIO: Columbus, June 8-11. Sec., Dr. George H. Matson, Columbus.

PENNSYLVANIA: Philadelphia and Pittsburgh, June 1-3. Sec., Dr. Nathan C. Schaeffer, Harrisburg.

RHODE ISLAND: Providence, July 1. Sec., Dr. Gardner T. Swarts, State House, Providence.

SOUTH CAROLINA: Columbia, June 8. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

TEXAS: Austin, June 22-24. Sec., Dr. M. P. McElhannon, Belton.

VERMONT: Burlington, July 1-3. Sec., Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, June 22-25. Sec., Dr. J. N. Barney, Fredericksburg.

WISCONSIN: Milwaukee, June 29-30—July 1. Sec., Dr. John M. Beffel, 3200 Clybourn St., Milwaukee.

Michigan Reciprocity Report

Dr. B. D. Harison, secretary of the Michigan State Board of Registration in Medicine, reports that 18 candidates were licensed in Michigan, through reciprocity, from Jan. 11 to April 16, 1915. The following colleges were represented:

College	Year Grad.	Reciprocity with
Northwestern University.....	(1911) (1914)	Illinois
Rush Medical College.....	(1894) New York; (1902)	Indiana
University of Illinois.....	(1913,2)	Illinois
University of Louisville.....	(1910)	Kentucky
University of Maryland.....	(1909)	Maryland
Harvard University.....	(1909)	Maine
Univ. of Michigan, Dept. of Medicine and Surgery..	(1910)	Washington
St. Louis College of Physicians and Surgeons.....	(1910)	Texas
Cleveland College of Physicians and Surgeons.....	(1911)	Ohio
Miami Medical College.....	(1908)	Ohio
Pulte Medical College.....	(1889)	Kentucky
Jefferson Medical College.....	(1905) New Jersey; (1912)	Illinois
Medical College of the State of South Carolina.....	(1908)	S. Carolina
Marquette University.....	(1914)	Wisconsin

California January Reciprocity Report

Dr. Charles B. Pinkham, secretary of the Board of Medical Examiners of the State of California, reports that 27 candidates were licensed through reciprocity at the examination held at Sacramento, Jan. 12-13, 1915. The following colleges were represented:

College	Year Grad.	Reciprocity with
College of Physicians and Surgeons, San Francisco...	(1911)	Nevada
Columbian University.....	(1902)	Washington
George Washington University.....	(1914)	Dist. Colum.
Chicago College of Medicine and Surgery.....	(1910)	Penna.

Hahnemann Medical College and Hospital, Chicago..	(1897)	Illinois
Northwestern University.....	(1906,2) (1914)	Illinois
Rush Medical College.....	(1904) (1908) Arizona; (1900)	Illinois
University of Illinois.....	(1914)	Illinois
Johns Hopkins University.....	(1902)	Montana
University of Michigan, Dept. of Med. and Surg....	(1907)	Michigan
University of Minnesota.....	(1891)	Minnesota
Barnes Medical College.....	(1897)	Michigan
St. Louis College of Physicians and Surgeons.....	(1906)	Illinois
University Medical College, Kansas City, Mo.....	(1904)	Kansas
John A. Creighton Medical College.....	(1911)	Nebraska
College of Phys. and Surg. in the City of New York..	(1906)	New York
Homeopathic Med. Coll. of the State of New York..	(1868)	New York
Long Island College Hospital.....	(1876)	Wisconsin
Syracuse University.....	(1876)	U. S. Army
University and Bellevue Hospital Medical College....	(1903)	New York
University of Buffalo.....	(1903)	New York
Willamette University.....	(1905)	Washington
Medical College of Virginia.....	(1914)	Virginia

Iowa January Report

Dr. Guilford H. Sumner, secretary of the Iowa State Board of Medical Examiners, reports the written examination held at Des Moines, Jan. 19-21, 1915. The total number of subjects examined in was 8; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 13, of whom 11 passed and 2 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery.....	(1914) 88,	94,	94
Hahnemann Medical College and Hospital, Chicago....	(1908)		89
Northwestern University.....	(1911) 90; (1912) 93; (1913)		91
University of Illinois.....	(1914)		89
Hospital College of Medicine, Louisville.....	(1885)		82
Harvard University.....	(1915)		90
John A. Creighton Medical College.....	(1914)		87

FAILED

Hahnemann Medical College and Hospital, Chicago....	(1909)	82*
Rush Medical College.....	(1885)	75*

* Conditioned in one subject.

Wisconsin January Report

Dr. John M. Beffel, secretary of the Wisconsin State Board of Medical Examiners, reports the practical and written examination held at Madison, Jan. 12-14, 1915. The total number of subjects examined in was 24; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 19, of whom 13 passed and 6 failed, including 1 osteopath. Twenty-eight candidates, including 6 osteopaths, were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
George Washington University.....	(1907) 84; (1914) 84,		84
Chicago College of Medicine and Surgery.....	(1914)		85
Cornell University.....	(1914)		84
Jefferson Medical College.....	(1913) 82,		89
University of Vermont.....	(1914)		82
Marquette University.....	(1913) 75; (1914) 83; (1915)		81
Queen's University.....	(1914)		78

FAILED

Chicago Coll. of Med. and Surg..	(1910) 59; (1914) 75;*(1915)	73
Marquette University.....	(1913)	69
Royal University of Genoa.....	(1908)	57

* Conditioned in one subject.

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Georgetown University.....	(1913)		Illinois
Chicago College of Medicine and Surgery.....	(1913)		Michigan
Coll. of Phys. and Surgs., Chicago....	(1901) (1907) (1912)		Illinois
Northwestern Univ..	(1903) Illinois; (1912) Missouri	(1913)	Illinois
Rush Medical College.....	(1911) (1913)		Illinois
University of Illinois.....	(1913)		Illinois
University of Louisville.....	(1905)		Kentucky
Boston University.....	(1891)		Arkansas
Detroit College of Medicine.....	(1894)		Michigan
St. Louis College of Physicians and Surgeons.....	(1906)		Illinois
University Medical College, Kansas City.....	(1911)		Illinois
Long Island College Hospital.....	(1898)		New York
Starling Medical College.....	(1886)		Ohio
Jefferson Medical College.....	(1913)		Penna.
University of Pennsylvania.....	(1901)		Penna.
Memphis Hospital Medical College.....	(1909)		Tennessee
University of Tennessee.....	(1914)		New Mexico

Book Notices

JOHN SHAW BILLINGS: A MEMOIR. By Fielding H. Garrison, M.D. Cloth. Price, \$2.50. Pp. 432, with illustrations. New York: G. P. Putnam's Sons, 1915.

If those of us who were practicing medicine twelve or fifteen years ago were asked to-day what John Shaw Billings had done to make him so well known, many of us, we feel very sure, would answer that his great life work was that connected with the Surgeon-General's Library at Washington, and with those wonderfully practical guides to medical literature, the "Index Catalogue of the Library of the Surgeon-General," its offshoot, the "Index Medicus," and the "National Medical Directory." And we would be justified in this, for he practically created that library, and was at its head for nearly a third of a century; in more senses than one, he made the "Index Catalogue," and was responsible, with the late Dr. Fletcher, for the "Index Medicus." These accomplishments are certainly worthy of commemoration. Still, these were mere incidents in the life work of John Shaw Billings, as one will realize on reading this biography.

To John Shaw Billings, more than to any other man except the donor himself, must be given the credit for Johns Hopkins Hospital and Medical School. He it was who worked out the general plans of the buildings and superintended their construction. He it was, also, who worked out the underlying principles on which the combined institutions, the hospital and medical school, should be and are conducted. He had much to do, too, with the selection of at least two of the faculty, Dr. W. H. Welch and Dr. William Osler. A most interesting chapter in this biography is that describing the founding of Johns Hopkins Hospital.

Then again, his connection with the Medical Department of the University of Pennsylvania, 1891-1896, is known to but few, and yet here he left his impress. He was selected as the director of the Laboratory of Hygiene, which he planned, and of the University Hospital. He was lecturer on, and later professor of hygiene and vital statistics. Except for the last year, his work in Philadelphia was carried on in connection with his Washington duties; but in 1895 he moved to Philadelphia, intending to make that his future home and his duties at the University of Pennsylvania his life work.

Within a year, however, he was called to do bigger things—he was invited to take charge of the New York Public Library. Simply stated, this sounds and means little; actually, the magnitude of the undertaking was stupendous. It meant the consolidation of the Astor, Lenox, Tilden and other great libraries into one, that one to be equal in magnitude and superior in arrangement to any library anywhere in the world. It meant working out a general scheme for a library whose initial number of books aggregated over 350,000 volumes, and whose ultimate number was to be "on a footing with the British Museum, with nearly two million books, or the Bibliothèque Nationale of France, with its three million." It meant also planning the buildings and overseeing, in a general way, their construction.

In 1905 "he was engaged by the corporation of the proposed Peter Bent Brigham Hospital in Boston to lay out . . . plans for suitable buildings for a hospital to accommodate at least two hundred beds, and a general scheme of organization, and details regarding its alliance with Harvard University." This work required three years, and was supplementary to that in connection with the New York library.

When the Civil War broke out, Dr. Billings was demonstrator of anatomy in the Medical College of Ohio, and was beginning to get considerable surgical practice. As his biographer says, "Billings would no doubt have become one of the leading surgeons of Cincinnati, and of the United States"; but his career, like that of thousands of others, was changed by the war. He joined the medical corps of the U. S. Army, with which he remained for over thirty years. About a third of the book is devoted to an account of his experience and work in the army. His war journals follow Grant's campaign of 1864 very closely and minutely. The finished account of the Battle of the Wilderness on pages 128 and 129 (from

McParlin's report, but probably written by Billings himself) may have given some points to the later historians. While his life and work in the field were, on the average, the same as that of other army surgeons, one faculty seems to have revealed itself in Dr. Billings at the very beginning—that of organization; the opportunity was construction and management of base and field hospitals.

Few men have had a greater influence on medical education in this country. As already stated, to him as much as to any one, is due the high standard adopted by Johns Hopkins at its beginning, as well as the practical and stimulating methods of instruction inaugurated by that institution. If such a man can be said to have specialized in any branch, Dr. Billings specialized in public hygiene. At least until he undertook the great work connected with the New York library, his main efforts were expended on matters of public health.

The biography of men who have done things is always instructive and informing, especially if the biography is what it should be. This is the case here. We are given a history of the development of the Surgeon-General's Library from the day of small things to what it is today; of the growth of a small alphabetical list of books to the immense "Index" of today; of the creation and demise of the National Board of Health, which was "in a sense premature, as being forced into existence through a yellow fever scare." We are given the essential facts connected with the origin and development of Johns Hopkins Hospital and Medical School, of the Laboratory of Hygiene of the University of Pennsylvania, and of the Peter Bent Brigham Hospital of Harvard. Of much public but of less medical interest is the history of the great New York Public Library. With working up of the plans of each of these institutions, Dr. Billings went to Europe to study similar institutions of the Old World. This gave him a broad view of things, and introduced him to many of the principal workers there. We get little regarding these trips, except quotations from letters to Mrs. Billings and to a few friends; one wishes there could have been more, but evidently he was not a letter writer. One wishes also that there might have been more of the intimate life of the man in his home, among his close friends; but this, presumably, was impossible. Dr. Garrison has done a service to American medicine in giving us this account of one of the influential men in the medical profession of the United States. We believe we are not overstating when we say that this is one of the most valuable additions to medical biography and to American medical history that has thus far been made, if not the most valuable one.

THE HISTORY OF SMALLPOX IN AUSTRALIA, 1788-1908. Compiled from Various Sources by J. H. L. Cumpston, M.D., D.P.H., Director of Quarantine. Paper. Pp. 182. Melbourne: Government Printer, 1914.

Quarantine Service Publication No. 3 of the Australian Commonwealth gives a history of smallpox in that country from its settlement in 1788 to 1908. Though the records are incomplete, there is in this publication much detailed information gathered and compiled from various sources. There are recorded imperfect histories of three distinct and fatal epidemics of the disease among the aborigines since the opening of the country, and eleven epidemics among the population in the settlements. The latter epidemics have been small, the largest including only about 154 cases, and the total number of cases down to 1908 amounting to only about 500. In almost all instances the disease has been introduced by vessels plying at the various ports, though it has been endemic to a slight extent since its first introduction. The disease has been introduced 182 times in a period of eighty years. It has shown a very short range of infection, as a rule, in Australia, and actual personal contact is ordinarily necessary for infection. Interesting is the suggestion of Dr. McCrae of the Central Health Board of Victoria, in 1872, of the agency of flies in the spread of smallpox. On account of the small number of cases, the factor of exhaustion of susceptible material has not applied to Australia, and vaccination, even at present, is not compulsory in all of the states, some having practically no legislation with reference

to this measure. The history of such legislation is given in the report. Estimates made from the imperfect data available indicate that in the last fifty years about 32 per cent. of the population have been vaccinated. The effects of vaccination in the epidemics recorded are in line with the history of vaccination in other countries, the vastly largest percentage of the mortality, which has not been great, occurring among the unvaccinated, next among those not revaccinated within the recognized period of immunity, and least among the recently vaccinated or those revaccinated within a proper interval before exposure. Among the latter it is said that almost permanent immunity is attained. The report does not include the history of the last epidemic in 1913, which was, like the others, shipborne into the country.

AN INTRODUCTION TO THE STUDY OF COLOR VISION. By J. Herbert Parsons, D.Sc., F.R.C.S., Ophthalmic Surgeon, University College Hospital, London. Cloth. Price, \$3.75 net. Pp. 308, with 75 illustrations. New York: G. P. Putnam's Sons, 1915.

In this book, which is the most recently published treatise on the subject of color vision, the author wisely deals with facts first and theories later. In a natural order of procedure, Part I of the book describes the chief facts of normal color vision from its physical, anatomic and psychologic bases. Then follows the spectrum as seen both by the light-adapted and the dark-adapted eye, and the various phenomena and color effects on the retina. The last section of Part I considers the evolution of color vision, including the development of color vision in the child, and containing also an interesting chapter on comparative psychology of color vision. Part II takes up the chief facts of color blindness, with brief historical references. Part III is devoted entirely to the various theories of color vision. Realizing that no theory has ever been advanced which explains all the facts of this department of science, the author takes up briefly the theories which still have followers, pointing out the strong as well as the weak features of the different ones. Researches based upon the Young-Helmholtz and the Hering theories are described. In conclusion there is briefly outlined a description of seven of the most recently advanced theories of color vision. The book is a valuable contribution to the literature of color vision, particularly because the author treats of the various theories from an absolutely unbiased point of view, which cannot be said of the majority of writers on this subject.

CLINICAL DIAGNOSIS. A Manual of Laboratory Methods. By James Campbell Todd, Ph.B., M.D., Professor of Pathology, University of Colorado. Third edition. Cloth. Price, \$2.50 net. Pp. 585, with 179 illustrations. Philadelphia: W. B. Saunders Company, 1914.

The scope of this book has been enlarged and its size increased in order to permit the inclusion of many important advances in laboratory technic. Each section has been carefully revised, additions being especially made to those on sputum, urine and animal parasites. Among the newer methods noted are Weisz' test for urochromogen, Ponder's stain for diphtheria bacilli and the urease method for urea. A new chapter on serodiagnostic methods has been added by Dr. Ross C. Whitman. While this manual is not so complete as many of the works on clinical diagnosis, it is sufficiently comprehensive for the student (for whom it is intended) and for the general worker who may wish to become familiar with the more common as well as with the newer methods of laboratory examination. The text is clear and concise. The illustrations are adequate and instructive.

LEAD POISONING FROM THE INDUSTRIAL, MEDICAL AND SOCIAL POINTS OF VIEW. Lectures Delivered at the Royal Institute of Public Health. By Sir Thomas Oliver, M.A., M.D., M.R.C.P., Attending Physician, Royal Victoria Infirmary. Cloth. Price, \$2. Pp. 294. New York: Paul B. Hoeber, 1914.

This book consists of lectures delivered by Dr. Oliver at the Royal Institute of Public Health, London. The author has had a wide experience and has made a special study of lead poisoning. His book will be of value to all interested in the subject. In the appendix are published the factory and work shop orders, as used in England, relating to lead poisoning.

Medicolegal

Malpractice in Treatment of Oblique Fracture of Clavicle— Care Required—Amount of Damages

(*Craghead vs. McCullough (Colo.)*, 146 Pac. R. 235)

The Supreme Court of Colorado affirms a judgment in favor of the plaintiff for \$650 damages for alleged malpractice in the treatment of an oblique fracture of the clavicle. The court says that, briefly, the defendant's treatment consisted in putting the ends of the bone in place and bandaging and holding the arm and shoulder in a position with the aid of a fulcrum, the object of this treatment being to prevent overlapping. All the surgeons called as witnesses who testified on the subject stated that the method employed was the usual and proper one to treat such a fracture. Employing the method to reduce a fracture generally recognized by surgeons as proper is not negligence. But there was substantial testimony from which to deduce one of two conclusions; either the defendant did not place the fragments in proper place in the first instance, or, if he did, he failed to exercise ordinary care from time to time to ascertain whether they remained in place and in keeping them in proper position. In the absence of a special contract, the law implies that a surgeon employed to treat an injury contracts with his patient that he will exercise reasonable and ordinary care to accomplish the purpose for which he is employed. He does not warrant a cure and is not responsible for want of success, unless it results from a failure to exercise ordinary care, or from want of ordinary skill. True, as stated in many well-considered cases, the failure to exercise ordinary care in treating a fracture is not established by proof of the result alone, but must be shown by other evidence. The original verdict was for \$1,000, but, while a motion for a new trial was pending, the plaintiff filed a remittitur of \$350. The court does not think that the verdict was excessive. That an operation was necessary in order to relieve the plaintiff from the condition he was in as the result of the overlapping of the fracture must be conceded. The surgeon who performed the operation testified that he made an incision down to the bone, and then by the use of instruments refractured it where the union had taken place, made a hole in each fragment, and inserted a silver wire, and wired the bones together so that they would remain in place and prevent overlapping until a new union was effected. Considering the pain and suffering, expense, and loss of time this operation necessarily entailed, and also the fact that there was sufficient testimony from which it could be inferred that the defendant had not exercised the degree of care the law required in treating the fracture, it could not be said that the verdict was excessive, or in any sense the result of bias or prejudice. The trial judge did not find that the award of \$1,000 was excessive. He did not direct that the verdict would be set aside unless the plaintiff consented to remit the sum of \$350. The reduction was voluntary on the part of the plaintiff. The testimony was sufficient to sustain the award of the jury.

Insured Failing to Give Notice Because of Information Withheld by Physician—Having More than One Disease

(*National Life Insurance Co. vs. Bean (Ga.)*, 84 S. E. R. 152)

The Court of Appeals of Georgia affirms a judgment for plaintiff Bean on a policy of health insurance, although he failed to give the required notice of his sickness for the alleged reason that his physician had withheld from him information with regard to it. The court says that the policy provided for the payment of an indemnity for a certain period during which the insured should be disabled by various diseases, including peritonitis. The policy also contained the stipulation: "Written notice of any injury, fatal or non-fatal, or sickness covered hereunder must be given to the company . . . within twenty days from date of accident

or beginning of illness on which claim is based, unless such notice may be shown not to have been reasonably possible, and failure to give such notice shall invalidate all claims under this policy." There was evidence that the plaintiff, who was so insured, was treated by a physician for malaria resulting in peritonitis, and was confined to his room and bed, and was unable to attend to any business for about thirty days; that information as to the nature of the disease or sickness from which he suffered was withheld from him by his physician until after his recovery; that he did not know that he had an attack of peritonitis, or that this was one of the diseases covered by his policy, until he recovered sufficiently to go to his place of business and examine his policy, which was deposited there, and thereafter interviewed his physician; that written notice of his illness was not given to the insurance company within twenty days from the beginning of the illness on which his claim was based, but was given within twenty days from the date when the plaintiff discovered what had been the nature of his illness. It is held that, under the evidence and the stipulation in the policy, the policy was not, as a matter of law, forfeited because of the failure to give the notice within the time limit of twenty days, but it was for the jury to say whether the plaintiff had given the required notice as soon as reasonably possible under all the facts and circumstances. Nor did the trial judge err in failing to charge the jury that, should they find that the plaintiff had more than peritonitis at the time he had it or preexisting the peritonitis, and that such other sickness was partly the cause of the plaintiff's being confined to his home, he could not recover the indemnity. The issue was: Did the plaintiff have peritonitis? And, if so, how long was he confined to his house and continuously and wholly disabled solely by that disease, and by no other disease? Seldom does one have a serious physical ailment not complicated by other diseases or physical disturbances; and if proof of a preexisting disease, or of some concurrent ailment, would prevent recovery for disability caused solely by another disease flowing therefrom and a consequence thereof, for and during the period when the last disease was the sole then existing cause of the disability of the claimant, a policy insuring one against certain specific diseases would be worse than valueless.

Damages Recoverable—Need Not Submit to Operation for Nerve Tumors—Loss of Sexual Power

(*Otos vs. Great Northern Railway Co. (Minn.)*, 150 N. W. R. 922)

The Supreme Court of Minnesota says that it is not disposed to further disturb the amount of a verdict in the plaintiff's favor, which was reduced by the trial court from \$35,000 to \$30,000. The plaintiff's left leg was amputated within 2 inches of the hip joint, so close to the body that the use of an artificial leg was impossible. There was not sufficient skin to cover the stump, and scar tissue formed. Four different operations were performed for the purpose of ingrafting skin on the stump. Several more were performed to remove cinders or to open abscesses that had formed. Two nerve tumors formed on the stump, caused by the ends of the nerves being imbedded in the scar tissue. These were intensely painful to the slightest touch, and caused intense spasms of pain on pressure or movement. From some cause, perhaps because of these tumors, the plaintiff suffered intense pain in the small of the back so that he could neither sit up nor use a crutch.

The defendant contended that there was a practical way of improving the plaintiff's condition, by removing the nerve tumors by an operation, which would remove the cause of pain in the stump and in the back, and to all intents and purposes restore the plaintiff's general health. The defendant claimed that it was the plaintiff's duty to submit to such operation, or, if he chose not to do so, the injuries which might be remedied by an operation should not be considered in measuring his damages. The court, however, is of the opinion that the plaintiff was entitled to an assessment of damages based on the condition he was in at the time of the

trial. A person who sustains damage at the hands of another, whether through breach of contract or through tort (wrongful act), is required to take all reasonable measures to reduce his damage, but the court cannot carry this doctrine to the extent of holding that this plaintiff, who had already submitted to an amputation which a great proportion of men do not survive, and a lot of lesser operations, was under any obligation to submit to another surgical operation of the character described in pursuit of an uncertain prospect of lessening his injury and his damage.

There was some evidence that the plaintiff's injury had caused permanent impotence, due to the interruption of the course of certain nerves. Injury of this sort is easy to feign or exaggerate and hard to disprove. Temporary loss of sexual power is the usual concomitant of almost every severe injury or illness, and cannot usually be considered as a distinct element of damage. At the same time, when there is tangible proof that by reason of direct injury to the generative organs or the nerves that prompt their action, impotence results, no good reason exists why this element may not be considered. When the proof rests on opinion evidence, it should be closely scrutinized, but it cannot, in all cases, be rejected entirely. In this case there was evidence of injury to the pudic nerve, also that every known test indicated present impotence, and expert evidence, based on this alleged organic injury, that impotence would be permanent. The court cannot say as a matter of law that this evidence should have been wholly disregarded. However, it seems to the court that this verdict could be sustained without resting largely on this claim. Aside from this element of damage, the case was in no sense parallel to those involving the mere loss of one leg.

Liability of Sanatorium for Negligence of Nurse

(*Pensacola Sanitarium vs. Wilkins (Fla.)*, 67 So. R. 124)

The Supreme Court of Florida affirms a judgment in favor of plaintiff Wilkins for \$1,000 damages for a burn on his leg caused by a hot water bottle having been left in the bed where he was a patient in the sanatorium. The court holds that, as the damages were claimed for actual negligence of a nurse who was an employee of the private corporation for profit, there was no error in excluding evidence as to the competency of the nurse, or in refusing to charge the jury as to the care used in selecting nurses at the sanatorium. In other words, where, in an action for personal injuries, the damages claimed are solely for alleged actual negligence, it is not error to exclude evidence as to the competency of the negligent employee.

Money Paid for License Fee Not Recoverable

(*Longstaff vs. State (S. D.)*, 150 N. W. R. 1100)

The Supreme Court of South Dakota sustains a demurrer to the complaint in this action, brought by the assignee of the claim of one Doran to recover from the state \$500, with interest. The court says that the complaint alleged, among other things, the conviction of Doran for the violation of the statute against practicing medicine as an itinerant physician without first having obtained a license, the imposition of sentence pursuant thereto, and his appeal therefrom. That immediately after the entry of said sentence Doran, being threatened by the State Board of Medical Examiners with further prosecutions on their complaint for past violations of said law, and being by reason of said prosecution and threats of the board unable to further practice his profession in the state as his only means of livelihood pending the appeal of said case in the Supreme Court, did pay to the state of South Dakota, namely, the board of medical examiners of said state, under and in pursuance of Chapter 176 of the session laws of 1903, under compulsion and protesting the same, \$500, which was the sum in the law named and designated as the license fee of itinerant physicians. That said sum was paid to the state and its said board on the express agreement, understanding and condition that it should be held subject to the decision of the Supreme Court in said

appeal, wherein it was claimed by Doran that the law requiring such payment was unconstitutional and void. That thereafter the Supreme Court, in *State vs. Doran*, 28 S. D. 486, held that said Chapter 176, so far as it required the payment of said license fee, was unconstitutional and void, and that the state had no power or legal right thereunder to require the payment of the same. It was contended by the plaintiff that the agreement with the board of medical examiners set forth in the complaint was valid, and that the payment of the fee by Doran was involuntary. But the court is of the opinion that the plaintiff was wrong in each of his contentions. The agreement alleged to have been made by the board of medical examiners was clearly beyond its authority. The board had no authority, express or implied, to make a binding agreement such as alleged; not only that, but it is expressly provided by law that all moneys received by the board shall be paid to the state treasurer and credited to the general fund. After the money has been so deposited, it can only be withdrawn by warrant pursuant to an appropriation.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, SAN FRANCISCO, JUNE 21-25.

American Academy of Medicine, San Francisco, June 25-28.
American Climatological and Clin. Association, San Francisco, June 18-19.
American Laryngological Association, Niagara Falls, June 1-3.
American Laryn., Rhin. and Otol. Society, Chicago, June 15-16.
American Ophthalmological Society, New London, Conn., July 6-7.
American Otological Society, Niagara Falls, June 3-4.
American Pediatric Society, Lakewood, N. J., May 25-27.
American Society of Tropical Medicine, San Francisco, June 14-16.
American Surgical Association, Rochester, Minn., June 9-11.
Arizona Medical Association, Prescott, June 17-18.
Maine Medical Association, Poland Springs, June 9-10.
Massachusetts Medical Society, Boston, June 8-9.
Montana State Medical Association, Bozeman, July 14-15.
Nat'l Assn. for the Study and Prev. of Tuberculosis, Seattle, June 14-16.
Nevada State Medical Association, Reno, June 17-19.
New Jersey Medical Society, Spring Lake, June 22-24.
North Carolina State Medical Society, Greensboro, June 16.
Rhode Island Medical Society, Providence, June 3.

MEDICAL SOCIETY OF THE STATE OF NEW YORK

One Hundred and Ninth Annual Meeting, held at Buffalo, April 27-29, 1915

The President, DR. GROVER W. WENDE, in the Chair

Intestinal Stasis

DR. ALLEN A. JONES, Buffalo: Acute stasis results only when intestinal obstruction is positive and is brought about by a pathologic state causing blocking or constriction, or by a complete intestinal paralysis from some interference with the neuromuscular function of the bowel. Chronic stasis may be caused by adhesions from localized peritonitis due to gallbladder or gallduct disease, pancreatic or retroperitoneal disease, appendicitis, diverticulitis, ulcers, carcinoma or pelvic disease, veils or membranes in the ileocecal region, intestinal displacement, atony, pressure on the intestine, hernia, cicatrices, enteroliths, foreign bodies or fecal impaction and spasm, as in dynamic ileus. Postoperative intestinal stasis may occur after extensive resections, with the vicious circle, in spreading peritonitis, after ileosigmoidostomy, from the development of kinks, in cases of paralysis of the bowel, and after cautery resections from dense adhesions surrounding pockets of pus. How does enteroptosis affect or deplete health? 1. By its toxic effects. 2. By interfering with the splanchnic circulation. 3. By exciting unhealthy conditions of the colonic mucosa. 4. By its possible effect in causing appendicitis and pelvic displacement. 5. By its drag on the mesentery, causing backache and misery. 6. By its effects on the mind, the vasomotor circulation and the whole nervous system. 7. By its induction of premature old age because of its interference with the nutrition of the heart, the arteries and body musculature.

Intestinal Prolapse and Adhesions

DR. HENRY W. BETTMANN, Cincinnati: A certain hereditary predisposition does exist. Constitutional debility and maldevelopment play important rôles. Pregnancy, emaciation and improper dress are often the deciding influences. The early symptoms are those of atonic dyspepsia, although the prolapsed viscera may functionate perfectly and all the symptoms be absent. There is nothing at all characteristic about the early symptoms. In more advanced cases, disturbances of motor functions, headache, constipation, dragging, backache and emaciation are common. The third stage is reached when the nervous system yields and a state of neurasthenia ensues. Especial attention must be paid to neurotic children, particularly to those presenting the habitus enteropticus. Physical exercises and correct gymnastics are exceedingly valuable. Dress reform, the care of convalescence, especially when emaciation is present, and the proper attention to the abdominal walls after childbirth are all of the highest importance. General hygienic measures combined with an appropriate diet are often sufficient. Many patients are made permanently neurotic by having their attention directed too persistently to the position of their abdominal organs. A well-fitting abdominal bandage is exceedingly helpful in many cases. It is certainly not indicated in every case. In the young, corrective gymnastics are to be preferred. Massage is often helpful. As to the theory of colon stasis and alimentary toxemia, it would seem to a critical mind that the burden of proof should rest strongly on those who would have us believe that toxic materials are actually absorbed in damaging quantities from the colon.

Organic Obstruction of the Ileum as a Cause of Gastric Disturbance

DR. GRAHAM CHAMBERS, Toronto: The close anatomic and physiologic relationship between the stomach and the small intestine has an important bearing on the etiology of ileal stasis, for one should expect that both viscera would be affected alike by nervous disturbances. In marked cases of ileal stasis of organic origin in the lower end of the ileum characterized by high peristalsis of the ileum and impaction of the barium in the ileum against the cecum, the latter is frequently found empty, although there is frequently barium in the splenic flexure of the colon and rectum. It would appear from this that the high peristalsis in the ileum in some way brings about excessive peristalsis with the cecum. In organic obstruction of the pylorus, in the early stage at least, the same phenomena are observed. Spasm of the pylorus is a very common cause of gastric stasis. The characteristics of the pain in the region of the stomach in ileal stasis due to organic obstruction are very variable. This is probably dependent partly on the degree of stasis and partly on the nervous state of the patient. In some cases, the time of appearing after eating and the intensity and nature resemble similar characters of the pain observed in gastric or duodenal ulcer. This feature often renders it difficult to determine whether the particular state is one of intestinal stasis alone or intestinal stasis associated with peptic ulcer. Symptoms referred to the stomach in ileal stasis of organic origin are determined to a considerable extent by the associated conditions or complications. Some of the latter are diseases of the stomach itself, such as peptic ulcer; others are diseases of the adjacent organs, such as duodenal ulcers and gallstones, which are prone to produce gastric symptoms; and others again are disturbances of the nervous system, such as neurasthenia and hysteria. Any one of these may be characterized by a group of gastric symptoms.

DISCUSSION ON PAPERS OF DRS. JONES, BETTMANN AND CHAMBERS

DR. L. T. LE WALD, New York: If one undertakes to make a roentgenologic examination of the gastro-intestinal tract, he must start at the mouth and finish at the anus, and not be satisfied by giving a bismuth injection of the colon and drawing conclusions from it. I have known of at least two cases in which the colon was not the seat of the trouble. In one case, in which an ileosigmoidostomy was done, the stomach was not examined at all; but while the patient was relieved

temporarily of the gastric trouble, roentgenoscopy disclosed a serious obstruction at the outlet of the stomach. I believe a large majority of these cases have a congenital rather than an acquired element.

DR. ROBERT T. MORRIS, New York: Dr. Jones said that most of these patients suffering from chronic intestinal stasis are amenable to medical treatment. He is quite right. There is too much surgery, but also too little surgery. Half of these patients come under the observation of internists who want to give them something. If the diagnosis in these cases is made early and proper medical treatment is resorted to promptly, very little surgery will be required.

DR. J. T. CASE, Battle Creek, Mich.: Carcinoma of the colon is found particularly in two places—in the pelvic colon and in the cecum. We also find stasis in the pelvic colon and cecum, and sometimes in the right half of the colon.

The Infected Colon and Its Surgical Therapy

DR. JOHN W. DRAPER and DR. JEROME M. LYNCH, New York: From a surgical standpoint, it is necessary to include under autointoxication not alone the lesions caused by substances formed through the vital processes of the organism, which is Coombe's conception, but also those arising from destructive infection of the bowel wall, which in a sense is not true autointoxication, but essentially a surgical disease. Surgeons can at present do no better than to find a means to prevent the absorption of the toxins from a given part of the bowel, however these poisons may have been created. Most acute and chronic purulent colonic infections are surgical from the start, and the future functional efficiency of the organ and of the individual depends on early recognition and proper treatment. Acute streptococcic embolic septic colitis, chronic torpid ulcer, slowly progressive colitis and acute diphtheroid hemorrhagic colitis yield only to surgical therapy. No good purpose can be served by partial removal, because the colon is, as a rule, diseased from the ileocecal valve to the anus, and no one would think of extirpation. Colonic resection, in order to succeed, must be based on surgical physiology.

What are the indications for ileostomy, what for colostomy and what for resection? Acute purulent hemorrhagic and the acute purulent inflammations of the colon differ in this respect. The first is usually a general infection of the entire colon and rectum, ending in death under ordinary treatment. There is no condition more certain to yield a brilliant result if ileostomy is done in time. Appendicostomy and cecostomy will not cure. They are inadequate, and are contraindicated because unphysiologic. Another rare condition previously treated by irrigation and medication and occasionally by colostomy is multiple polyposis. Ileostomy is the proper therapy. This lesion we believe to be secondary to an infection, and the histologic findings tend to support this view. The causative relationship of infection to polyposis is further supported by the fact that after ileostomy the inflammation subsides and the tumors disappear.

The indications for laparotomy in cases not yielding to colonic vaccines and other suitable forms of medical therapy are chronic intractable constipation or diarrhea plus the characteristic mental lesions, together with Roentgen-ray findings and often with slow crepitation over the cecum. Resection is indicated if a nonfused, inflamed, thickened, dilated, infected cecum, often with a mesentery studded with enlarged lymphatic glands is found. As yet we have not been able to decide positively on resection until after laparotomy. As "resection" is a vague term, not indicative of any particular technic, we have suggested the term "developmental reconstruction." This embodies the resection *en masse* at the terminal ileum, appendix, and cecocolon to the region of the middle colic artery. When completed, it places the ileocolic juncture in the position occupied before birth, which is the adult position in the dog and may be termed developmental. This operation carried a mortality which is far from negligible, and has been practiced by us only on individuals who have had years of unremitting, unavailing medical treatment and who were in every way unfit. Of a series of thirteen, 23.1 per cent. died; 46.2 per cent. were cured; 23.1 per

cent. improved, and 7.7 per cent. not improved. Reaction is apt to be severe in proportion to the amount of handling in the neighborhood of the second portion of the duodenum. Reaction, if present, is apt to be delayed until after the fiftieth hour. At least one among our cured cases was unquestionably saved through the administration of autogenous vaccine.

The most careful differentiation of all colonic inflammations is necessary, not alone as to character, so far as that be possible, but particularly as to distribution. Some infections are general, others segmental; the therapy rests largely on this, an ileostomy being indicated for the one, a colostomy or a developmental reconstruction for the other. Many segmental infections, unless surgically treated, even though relieved and apparently cured by medical treatment, invariably relapse. Cessation of symptoms for a time does not mean cure. Such infections almost invariably end in stricture, so its preventive treatment is the early recognition and surgical treatment of the cause. Whatever the nature of the primary infection, it always becomes mixed after a short time. This principle underlies the therapy of the colon just as thoroughly as it does that of the lungs.

DISCUSSION

DR. MARTIN B. TINKER, Ithaca, N. Y.: The trend is decidedly against a complete colectomy among the progressive surgeons of the country. Ileosigmoidostomy has been discarded by the progressive surgeons of this country. On the other hand, there are a number of men who have taken up the less radical operations very similar in character to what has been described by Dr. Draper. Dr. W. J. Mayo recently advocated a very similar procedure and reported some satisfactory results. I believe this less radical procedure has a limited field of usefulness, and most of us have seen patients who are not likely to be permanently benefited by it. In many of these cases of colon infection, medical measures have been futile, and very little has been suggested in a surgical way. Ileostomy seems to be a simple thing to do, and I feel sure some of us will be inclined to try it in these desperate cases.

DR. JEROME M. LYNCH, New York: The early diagnosis of cancer is an extremely difficult problem in the hands of the best men. The Roentgen ray, except in the late cases, is not valuable. The diagnosis between diverticulitis and cancer is almost impossible in some cases. Indigestion is a very early symptom of cancer of the colon.

Early Recognition of Cancer of the Stomach

DR. JULIUS FRIEDENWALD, Baltimore: Unless the diagnosis of cancer is made early, surgical intervention can be only in the nature of relief and not of cure. The earlier the stage of the growth, the less positive are its manifestations. Even though the disease assumes considerable proportions, many of the important symptoms may be absent, so that at this stage a correct diagnosis may be impossible. Patients developing this disease are not, as a rule, chronic dyspeptics. The most important symptoms are anorexia, vomiting, pain, hematemesis, melena and occult blood in the stools; dysphagia; loss of flesh; the presence of a palpable tumor; dilatation of the stomach; ascites and edema of the extremities; certain roentgenologic findings and serodiagnosis by the Abderhalden method. Vomiting is of frequent occurrence in gastric cancer. Pain was present in 93.1 per cent. of 1,000 cases, and extended more or less over the entire abdomen. Hematemesis occurred in 22 per cent. of cases; in 87 per cent. the hemorrhages were multiple, and in 10 single. Melena appeared in 18 per cent. of the cases. Occult blood in the stools was present in 64.2 per cent. Dysphagia existed in 6 per cent. of the cases. Loss of flesh is a sign of considerable value and occurred in 98 per cent. of the cases, the loss of flesh varying from 5 to 78 pounds. In only 30 per cent. could a mass be palpated in six months after the appearance of symptoms. Dilatation of the stomach occurred in 40 per cent. of the cases, and this condition, when present early, is of great diagnostic value. Ascites and edema of the extremities appeared in 21 per cent. of the cases.

What Stomach Symptoms Justify Surgical Intervention?

DR. MARTIN B. TINKER, Ithaca: A reduction of the present high death rate from stomach cancer and stomach or duodenal ulcer can be accomplished only when agreement can be reached between internists and surgeons as to indications for operation. Frequently, at the onset of the trouble, the symptoms are clear and distinctive, while later the clinical picture is obscure because of the symptoms resulting from adhesions, extensive involvement of surrounding organs and impairment of general health. Common to all the chronic dyspeptic troubles, such as gallstones, appendicitis and various intra-abdominal forms of cancer, are complaints of pain, vomiting, gas and distention, burning sensations and eructation of sour or bitter material. In a number of these cases it may be possible to get the early history of pain localized in the region of the appendix or under the right costal border, more or less distinctive of appendix or bile tract involvement, while in the stomach or duodenum cases the pain is more commonly located in the epigastrium. Pain is, perhaps, the earliest and most persistent of symptoms.

Examination of the abdomen early in the disease may give valuable information. Tenderness on pressure over the ulcer, usually in the epigastrium, in the vicinity of the pylorus, when present, is very suggestive, although not nearly so constant as are the points of tenderness and pain over the appendix and gallbladder. Later on, visible peristalsis may show beginning of obstruction from developing cancer or adhesions about chronic ulcer. The cases of cancer in which definite tumor is present, Czerny many years ago pronounced inoperable; and this still holds good in the great majority of cases, but some small movable tumors are readily operable and occasionally a mass of adhesions about chronic ulcer may be mistaken for cancer and justify exploration in doubtful cases. The general appearance is also suggestive. Although there is general agreement that we cannot depend on gastric contents analysis for either a positive or a negative diagnosis, it seems to deserve a place among methods of investigation. There is a constantly growing belief in the value of roentgenologic study of the stomach. The Roentgen ray gives accurate information regarding the size, position and shape of the stomach, the acidity of peristalsis and the time of emptying.

In a series of twenty-nine personal cases in which symptoms referred to the stomach were the most prominent features, the following conditions were found: cancer of the stomach, 4; ulcer of the stomach, 2; cancer of the duodenum, third part, 1; ulcer of the duodenum, 9; perforating ulcer of the duodenum, 1; cancer of the transverse colon, near stomach, 2; chronic inflammation of the bile tract, 3; chronic appendicitis, 3; tuberculosis of the cecum, 1; movable kidney, 3. In one of the movable kidney cases the displaced kidney was adherent directly over the duodenum. While it may be impossible to arrive at a positive diagnosis in many of these cases, it is almost always possible to say that serious trouble is present inside the abdomen, and that the symptoms are of sufficient gravity to justify surgical intervention. Almost always it will be possible to determine with some degree of certainty whether the stomach and duodenum are at fault or whether the stomach symptoms are caused by lesions elsewhere in the abdomen. All modern means of diagnosis should be employed and the lesion located as definitely as possible so that in the majority of cases the operation is not really exploratory; but we may be able to attack the lesion, causing the symptoms without undue handling of the intestines or manipulation inside the abdominal cavity.

DISCUSSION

DR. L. T. LE WALD, New York: There is one important point in the diagnosis of gastric and duodenal ulcer which should be considered, and that is the question of syphilitic lesions. We have had eight cases at St. Luke's Hospital in the last two years which ordinarily would have been considered ulcer or carcinoma. Dr. Meyer reported a case in which he had resected for a supposed carcinoma at the pyloric end of the stomach. The patient succumbed to the operation. A microscopic examination showed it not to be

carcinoma, but a syphilitic lesion of the stomach. In another case a fatal hemorrhage of the stomach ensued. The case was supposed to be one of ulcer, but it proved to be a syphilitic infiltration of the stomach.

DR. ROBERT T. MORRIS, New York: During the past two months I have seen operation performed in two cases by famous surgeons for gastric symptoms warranting operation, but nothing was found. These patients continued to suffer and were examined by an ophthalmologist and found to have eye strain. One patient improved so rapidly that evidently the cause of her trouble was eye strain. While the percentage is not large, a definite percentage of cases with gastric symptoms are cases of eye muscle imbalance, and we must get negative or positive testimony in these cases.

DR. HENRY L. ELSNER, Syracuse: Charges are brought against the internist that these cases do not reach the surgeon soon enough. A very important reason for not delivering these cases to our surgical friends is the fact that they do not come to us. The stomach is exceedingly tolerant. A man who has a slight indigestion does not promptly seek a physician. When these patients do come, over 90 per cent. of them already have a palpable tumor. They are easy of diagnosis. Careful examination proves that they have metastases of the glands. We do not need the Roentgen ray in such conditions.

DR. JAMES PILCHER, Brooklyn: Cancer of the stomach and cancer of the breast occurring in young people have a greater malignancy usually than when occurring in older people, for the reason that as a person progresses in life and reaches the age of 45, from then on the lymphatics become more or less sclerotic and do not carry metastases so fast. The older the patient is, the better chance the surgeon has for effecting a cure.

DR. CHARLES G. STOCKTON, Buffalo: When a patient represents the features so clearly described by Dr. Elsner, he is often beyond the early stage of cancer. When a man of middle age has loss of appetite, sudden disturbance of the function of the stomach for the first time in his life, and is losing weight, I would not hesitate to say that that man should submit to an exploratory operation. I feel very often that when that condition is reached, the cancer is so far advanced that our surgical friends criticize us. I believe that adenocarcinoma starting in the submucosa goes on silently, metastases begin to develop and a state of affairs is produced which we cannot recognize definitely by the means we now have. In that class of cases, the early diagnosis of carcinoma of the stomach is an accident. Occasionally we make the diagnosis, but very often we do not.

DR. PARKER SYMS, New York: The early diagnosis of carcinoma of the stomach is almost impossible, and Dr. Stockton has pointed out that it is made accidentally. The results in operating on carcinoma depend on an early attack, and if we are to assume that the early diagnosis of carcinoma of the stomach deliberately made is almost impossible, certainly deliberate surgery for the cure of this disease must fail very largely.

DR. ALLEN A. JONES, Buffalo: A very useful and simple procedure in diagnosis in gastric conditions is the thread test of Einhorn.

The Rôle of the Superior Mesenteric Vessels in Abdominal Disease

DR. J. N. HALL, Denver: I have seen several cases of marked chronic dilatation of the upper portion of the duodenum in connection with narrowing below from the pressure of the superior mesenteric vessels, but my diagnosis in these cases has generally been that of pyloric or duodenal ulcer. One such obstruction was corrected by the performance of a duodenoduodenostomy by Dr. Freeman. The exact diagnosis is less important than a realization that a mechanical type of duodenal obstruction exists, and demands surgical relief. The exact method of relief concerns the surgeon rather than the internist. The statement of Spence and Graham that possibly the cyclic vomiting of children and the so-called hysterical vomiting may at times be due to chronic gastromesenteric ileus deserves our closest attention.

Similar obstruction may occur below the duodenum, as in a case in which operation was performed by Dr. Freeman. Under my diagnosis of partial obstruction in the middle portion of the small bowel, he had a gastro-enterostomy performed for duodenal ulcer four years before. Several feet of the upper small intestine were much distended, while below a point at which the ileum was compressed under the root of the mesentery, and the superior mesenteric vessels, the intestine was empty. The bowel was practically uninjured. The anastomotic opening was patent; the induration about the duodenal ulcer had disappeared, and everything in this connection seemed entirely normal. The appendix was removed, the adhesion separated, the patient instructed to lie in the right prone position, and a normal convalescence followed.

Immunization Against Measles

DR. CHARLES HERRMAN, New York: Infants under 5 months of age are relatively immune, and in exceptional cases in which they are infected with the disease, it appears in a mild and atypical form. One attack of measles usually protects for life. The nasal discharge contains the virus twenty-four hours before the appearance of the eruption. Having convinced myself that infants under 5 months of age are relatively immune, I obtained the consent of a mother to inoculate her infant then 4 months old. It seems logical to assume that as the infant at that age is not absolutely immune, direct inoculation will convert a temporary into a more or less permanent immunity. At no time did the child present any evidence of injury, and I then proceeded to inoculate others. The material for inoculation was obtained from otherwise healthy children, taken twenty-four hours before the eruption of the measles appears. A small quantity of the mucus from the nose is collected on swabs of cotton. Only perfectly healthy infants under 5 months of age are inoculated. The swab is applied gently to the nasal mucous membrane. Forty infants were thus inoculated. The majority showed no distinct reaction, fifteen had a slight rise of temperature, and in a few instances a small number of spots were noted on the face or body. Of the forty patients, four over 1 year of age had come in contact with cases of measles and had not contracted the disease.

Pyelitis: Its Clinical Significance

DR. EDWARD J. WYNKOOP, Syracuse: In girls the infection may gain entrance through the urethra more often than in boys, or it may be carried from the intestinal tract. It may occur as a complication of some other condition; or it may be an independent disease. The bladder need not necessarily be infected. The classical symptoms of chill, fever and pain in the kidneys may not be present. In relapsing cases the chill may not be repeated. In any case with irregular fever, intestinal symptoms, frequent micturition, and anemia, it is well to bear in mind the possibility of pyelitis. In examining the urine a twenty-four hour specimen only should be taken. Symptoms referable to the urinary tract and anemia should always make one suspicious of pyelitis. This is a condition more frequent than we have believed, and should be borne in mind as not every illness in children is to be attributed to the intestinal tract. In the treatment of pyelitis, I have found hexamethylenamin and potassium citrate very valuable. My preference is for the use of potassium citrate. Plenty of water and attention to hygienic rules are a great help. Vaccines have not proved as effective as we might have expected. The treatment should be persisted in as long as pus is found in the urine, even though the symptoms have disappeared.

DISCUSSION

DR. W. L. CARR, New York: In most instances, pyelitis is an infection of the colon bacillus type; but the peculiarity of the attack requires some consideration, as it does not always seem to be associated with intestinal disturbances that attract attention, nor does it always show itself after a colitis. Many of the cases are seen after influenza, and yet cultures of the urine show pure colon infection. While there is a preponderance of cases among females, there are more cases among the males than has hitherto been supposed. As

the condition in the male can hardly result from an ascending infection, it is well to study more carefully the influence of the blood-stream infection. During the acute attack I use irrigations and such laxatives as are called for. The elimination of milk from the diet, if there is constipation or foul stools, is most important, and the administration of castor oil at such a time is of unquestionable benefit.

Basal Celled Epithelioma

DR. ROBERT F. BARBER, Brooklyn: Of 200 specimens examined, fourteen showed epithelial pearls and only two epithelial bridges. They are said to spring from the germinal cells of the skin, and are described as having different potentials. These are called the cellular potential, evident in the various types of tumors, glandular potential, accounting for the cystic tumors, and the pigment potential manifested by the pigment in growths. The types are described as (1) simplest—a nest of cells in the derma; (2) alveolar, with a small amount of stroma; (3) scirrhus, with a large amount of stroma, and (4) adenomatous, with glands and cysts. The increase in the connective tissue is interpreted as evidence of inflammation. Previous lesions were called pimples in 44, warts in 5, and burn in 1, and the pressure of eye-glasses in 1. The frequency in these cases is 100 in women and 100 in men. The average age was 56 years. There were 2 cases in the third decade and 4 in the fourth decade. The average preoperative duration was six years, the greatest being twenty-eight years and twenty-five years, respectively, the shortest six weeks. The mean size of the lesion was 3 cm., the largest 8 cm.; the smallest under 1 cm.

Cancer of the Bladder

DR. J. BENTLEY SQUIER, New York: Operative measures for cancer of the bladder are palliative, excision and resection. It is essential to remove at times ureteral vesical opening and internal meatus, and in the event of muscular invasion of the bladder by the tumor, to remove the glands as well. The vesical neck should not be resected. It is very difficult to diagnose cancer of the bladder through a cystoscope, and often impossible after the removal of a piece of the tumor. Fulguration is a method of treatment that should be resorted to in cases of benign growths.

Hydrocephalus: Treatment by Cisterna-Sinus Drainage

DR. IRVING S. HAYNES, New York: The injection of phenol-sulphonphthalein provides a means of determining something in reference to the type of case with which one is dealing and whether operation promises hope for alleviation of the condition, and also the type of operation to be performed. I have operated on twelve patients; all but two were totally blind. The only logical means of draining the cisterna is into the blood stream. This I effected by means of a silver cannula with a short and a long arm at right angles with each other. While I have been able by this method to establish drainage and in some cases to improve somewhat the contour of the child's head and to prolong life, I am by no means enthusiastic, because there seems to be little or no improvement in the mental or physical condition of these children.

DISCUSSION

DR. G. R. PISEK, New York: There are certain types of hydrocephalus, some operable and others not. If it were possible to get the child before he is damaged mentally, or after an attack of acute meningitis when hydrocephalus develops as a complication, this operation may offer hope of accomplishing something. The technic is not simple and requires a surgeon skilled in brain surgery.

DR. CHARLES W. HENNINGTON, Rochester: The operation described by Dr. Haynes seems to be in line with what we have found in laboratory work in hydrocephalus. It seems that in this operation we have the solution of the problem as to whether or not the dura and arachnoid should be punctured from the reverse side. I agree with Dr. Pisek that if these cases are brought early for treatment and the phenol-sulphonphthalein test employed to determine the type of obstruction, some good results may be obtained.

PHILADELPHIA COUNTY MEDICAL SOCIETY

Meeting held April 28, 1915

The President, DR. E. E. MONTGOMERY, in the Chair

SYMPOSIUM ON EMERGENCY TREATMENT

Convulsions

DR. GEORGE E. PRICE: Convulsions divide themselves naturally into two groups: functional and organic. While the same treatment is applicable to the majority, no one treatment will apply to all. A diagnosis, or at least an approximate diagnosis is, therefore the first essential. There are certain practical aids to diagnosis which can be obtained quickly: approximate age, general appearance of the patient, character of the convulsion, presence or absence of consciousness, of distinctive odors, such as in uremia or the odor of alcoholic excess; character of the breathing, history of prior attacks, history of traumatism, overindulgence in alcohol, and the taking of poison. When called to attend an infant in convulsions, if the "pride of the family" is not already in a hot bath, the physician should at once place the child in a warm bath or pack with an ice-cap to the head. If this does not suffice, chloroform will terminate the convulsion and bring about relaxation, which allows emptying of the bowel by a simple enema. This can be followed by the rectal administration of chloral and bromid in dose suited to the age of the patient, and as soon as the child becomes conscious, a purge such as calomel, followed by castor oil or rhubarb, should be given by the mouth. The hot bath is contraindicated if the fever is high or there are signs of lung involvement. Excellent results have been reported by lumbar puncture, which has been recommended in severe cases. Holt advocates the use of oxygen, and Sanders of morphin in place of chloroform. Oxygen is not readily procured, and I should certainly hesitate to use morphin with a small child unless every other measure had failed. In the epileptic attacks there should be no difficulty in diagnosis. If the patient is in bed, the matter of treatment is simplified; if on his feet, he should be lowered quickly to the floor; this is best done by approaching the patient from the rear, which I recommend as being safer for the attendant. A pillow should be slipped under the head, the clothing loosened about the neck, and a small article, such as a brush handle, slipped between the teeth to protect the tongue. In the average attack, no other measures are as a rule necessary. It is in the rapidly recurring attacks that other measures must be resorted to, as described in the treatment for infantile spasm. In the treatment of hysterical attacks, the room should be cleared as quickly as possible. Use suggestion; assure the family in the hearing of the patient that the condition is not serious and that the convulsion will soon cease. Quiet will often abate the attack. A hypodermic of water is sometimes effective. Inhalation of amyl nitrite is of value, especially as it makes a profound mental impression. In uremic convulsions, if the temperature is high, the patient should be placed in bed, wrapped in a sheet wrung out of water at from 70 to 80 F., and this covered by a dry blanket. If the temperature is not high, we can resort at once to the hot pack at intervals, followed, if necessary, by chloroform and the other usual remedies. Morphin should not here be used. If the blood pressure is very high, nitroglycerin in 1/100-grain doses every four hours should be given. If the patient becomes cyanotic, venesection, followed by intravenous injections of normal saline, is of value. Among other forms of convulsions, we have those of tetanus and of strychnin poisoning. In tetanus, the antitetanic serum is the chief remedy; first, intraspinally; and, after the acute stage, subcutaneously. If necessary, chloroform, morphin, chloral and bromid may all be used.

Pulmonary Hemorrhage

DR. JOHN D. McLEAN: Few pulmonary hemorrhages have a fatal termination. The patient should be in a half-reclining position to facilitate the easy expulsion of blood, and should be absolutely at rest, not even lifting the hand. A hypodermic injection of one-fourth grain of morphin quiets

the heart action and calms the patient. If bleeding persists, repeat the dose in two hours. An ice-bag may be placed over the point of bleeding if known, but do not try to find it, and over the heart. One dram of the fluidextract of ergot may be given, but the dose not repeated. Cracked ice in the mouth is much to be preferred to salt, and will not tend to produce nausea. If the hemorrhage is large, salt solution by the bowels is desirable; but first decide whether the mental quiet will not be upset. After three or four days, examine the chest for lung involvement. The proper treatment at the first signs of incipient tuberculosis is more important than anything else. After all bleeding has ceased, the patient should continue to rest in bed for one week and should receive easily digested food, with the exclusion of tea, coffee and all alcoholic drinks. The bowels should be kept open with the proper laxatives.

Efficient Treatment of Urgent Cases in the Hospital
Accident Ward

DR. JOHN B. ROBERTS: The administrator of anesthetics and the intern who gives first aid to injured should have had at least one year's experience in practical work, and training under a superior officer accustomed to the dangers of anesthetic agents and the surgery of accident emergencies. Burns and wounds should be sterilized, and usually are better dressed dry than wet. Patients with crushed limbs should not have a tourniquet or rubber band placed around the limb far above the injured portion, because the hemorrhage should be controlled at the region already more or less devitalized. Otherwise, the surgeon when he comes to amputate after reaction of the patient, may find gangrene of flaps occur because of unwise constriction of the limb in the effort to check hemorrhage. Gunshot wounds and abdominal injuries should not be probed, nor should enemas be given to patients with suspicious traumatism to the abdomen, lest a ruptured intestine allow the enema to flow into the peritoneal cavity. It is possible that many fingers have been unnecessarily amputated because a young intern did not realize that a plastic operation could be used to cover bones stripped of integument. Acute abscesses and furuncles should be treated by incision to evacuate pus, but should not be plugged with gauze. Gauze does not drain pus, but becomes dry, and obstructs the opening like a cork. Therefore, it causes pain by increasing tension. Open fractures should be sterilized and treated with retentive apparatus. It is unnecessary to do spinal puncture to establish the diagnosis immediately of brain injury. Examination of the spinal fluid is frequently unnecessary, and when necessary, puncture should be done with absolute asepsis and by a trained hand, two essentials difficult to obtain in the usual accident room in charge of an inexperienced resident physician. The usual fracture of the lower end of the radius should not be treated with a splint until thorough reduction has been accomplished. Fractures of the neck of the femur should not be exposed to active manipulation in the endeavor to make a diagnosis. This is particularly true in these fractures occurring in the old, in whom impaction is frequently a blessing in disguise.

Compound Fractures

DR. GEORGE P. MULLER: Compound fractures of the skull may involve the vault or the base. Fractures of the base require no immediate treatment, except cleansing and protection of the openings leading to the cranial cavity. The ear after cleansing should be plugged with gauze. These fractures occasionally require a decompressive operation. I agree with Dr. Roberts that spinal puncture for the determination of blood in the spinal canal in such injuries is rarely necessary. In compound fractures of the vault, we usually have comminution or decompression of the fragments, and the immediate treatment differs in no way from the emergency treatment of fracture of other bones. In fractures of the lower jaw, a chin-trough and a Barton bandage and a mouth wash constitute the emergency treatment; to be followed by reduction and the use of a perfectly fitting interdental splint. In compound fractures of the long bones, we are confronted with various degrees of fracture. The most

important duty of the physician first called to attend a compound fracture is simply to put a sterile dressing over the site of injury, and firmly hold it in place by a bandage. Tincture of iodine may be poured into the wound, but beyond this nothing else should be done. If shock is to be treated, the common habit of injecting strychnin is to be condemned. Morphine should be given, to be followed by heat and the head-down position, and the use of saline solution as soon as convenient. Some of these cases will come under the care of the family doctor. The patient should be anesthetized, the limb raised and the bed or table covered with the rubber sheeting, on top of which is laid a sterile sheet or towels. The entire limb is painted with tincture of iodine, and the first-aid bandage cut off and the dressing removed. The remainder of the limb is painted with iodine and the limb laid down on the sterile sheet. Foreign bodies should be removed. The wound will usually require enlarging. Small pieces of bone should be removed, but large pieces preserved. Shreds of tissue should be cut away, and the entire cavity of the wound, particularly the ends of the fragments, should be swabbed with tincture of iodine. It is essential that every open space be reached by the iodine. Provision should be made for drainage with small pieces of rubber dam. The advantage of dependent drainage should be remembered, and counter openings made where feasible. Partial closure of the wound is done, and then the fracture should be carefully and accurately reduced. The rubber dam may be removed in some cases at the end of twenty-four hours; in others it may be necessary to replace it with rubber tubes. The various fractures will be splinted in accordance with their locality. I was much impressed by a recent article advocating no splint in compound fracture of the humerus, simply slinging the wrist close up to the neck and using the weight of the elbow as an extending force during the time that daily dressings are necessary. Most compound fractures of the leg should be treated by a swinging splint, such as the Hodgson or one of its modifications. I do not like plaster of Paris as an early dressing, and never use the circular bandage unless the wound is mostly healed. If plaster of Paris is used, the cast should be covered with shellac, and after making the opening over the wound, a mixture of cotton and rubber should be packed between the plaster and the skin so as to seal off the limb from the wet dressing and discharge. It will be necessary to plate certain fractures, but that should be done only in a hospital and by one who has the proper armamentarium and technic. Drainage should be removed gradually. It is the emergency treatment that determines the amount of infection and the necessity for secondary operation.

Emergency Treatment of Ruptured Uterus and Ruptured Ectopic Pregnancy

DR. RICHARD C. NORRIS: The obstetric emergencies—rupture of the uterus and of ectopic pregnancy—practically become a discussion of the conservative versus the radical treatment of these two conditions. Rupture of the uterus is said to occur once in from 1,000 to 4,000 labors. Untreated, the maternal mortality is 90 per cent., the infant mortality, 95 per cent. Under appropriate treatment the mortality has been reduced to 50 or 60 per cent. The violence of operative procedures when the uterus is firmly contracted, or failure to recognize an obstacle to labor, has been the cause, with one exception, of all the cases of rupture during labor that I have seen in twenty-five years of active obstetric work. When a multipara suddenly recognizes a sharp, tearing pain, and labor pains cease abruptly, accompanied by the rapid appearance of signs of hemorrhage and shock; when, after an attempt at version for a cross-birth the patient falls into collapse, the merest tyro in obstetrics should recognize at once this most serious calamity of labor. The indications are to deliver the child and control hemorrhage and prevent infection. My advice to the man of average experience with operative obstetrics is to weigh carefully the well-known danger of moving the patient to a hospital, to note the degree of shock and collapse, and if provided with the means of surgically clean work, to examine carefully to learn the

location and extent of the rupture and decide whether he is capable of delivering the patient and applying the conservative treatment by tampon. This work demands the best surgical technic. Like all the emergencies in obstetrics, if the first aid fails to protect from infection, the subsequent skill called to the case may utterly fail to save the patient. Even temporary control of hemorrhage cannot be accomplished until the child is delivered. If the greater part of the fetus has escaped into the abdomen, nothing short of an abdominal operation can be considered, and treatment in the hospital offering the promptest aid is necessary. If the child is still in the uterus and the rupture has occurred during attempts at delivery, if the head is within reach, apply the forceps, perforate the skull of the dead fetus and carefully extract it. Deliver the placenta manually at once. Explore the rent carefully to avoid a complete rupture. Firmly tampon the rent after applying tincture of iodine to it; then the entire uterine cavity and vagina should be firmly plugged. If the laceration is on the anterior wall, suspect injury to the bladder. Hold the uterus anteфлекed by a firm abdominal binder and pad. If the rent is on the posterior wall, retroflex the uterus and hold it thus by the pad and binder. If the bladder has been torn, introduce a self-retaining catheter. Freely stimulate the patient only after reaction has appeared, giving first and at once salt solution in moderation by hypodermoclysis and enteroclysis. The tampon in the uterine tear may remain in place not less than seventy-two hours, when it may be gently removed, and if necessary, replaced. The danger of transporting a patient with rupture of the uterus is a very grave one, and the statistics of treating incomplete rupture and small complete ruptures warrant this conservative treatment at the bedside of the patient, in clean cases treated by a clean obstetrician. Cases badly shocked show a high mortality from operation; and this conservative treatment, temporarily used, may make operation after reaction much safer in such cases. Cases that come to section may sometimes be safely treated by suture of the uterus, but usually will be more safely treated by hysterectomy, and the cervical stump should be made extraperitoneal by suture in the lower angle of the abdominal incision, if the prior handling of the case presupposes infection.

Contrasting the conservative treatment of ruptured ectopic pregnancy with the prompt surgical treatment by laparotomy, there is in my judgment less to be said in favor of the conservative treatment. A diffuse hematocele of small size that sometimes follows tubal abortion from the fifth to the seventh week in which a tubal mass cannot be felt, and the clinical signs of continued bleeding are not present, may be treated expectantly with the hope of ultimate absorption of the blood mass; but these cases are rare. Intravenous transfusion of salt solution even during transit to hospital has saved many desperate cases in my hands. A quick, clean section, exsection of the offending tube, removal of the large blood-clot by sponging, and rapid closure without drainage is the usual operation of choice. The mortality rate of ruptured ectopic pregnancy under surgical treatment varies from 3 to 4 per cent.

DISCUSSION

DR. JOHN C. HIRST: I think we have all seen after delivery in a rather hard long-delayed labor with or without instruments a moderate amount of postpartum hemorrhage with an immoderate amount of shock. These cases are often due to rupture and incomplete rupture of the uterus in the lower uterine segment going up behind the bladder and not through the peritoneum. The cervix is split so that you can feel the ring posteriorly and feel nothing anteriorly, and above that can be felt the contracted internal os. Here there is apt to be prolonged and fatal hemorrhage with infection of both sections of the broad ligament. A case of that kind does not, as a rule, require operation, but careful packing. Many of such cases come to us infected which could have been saved by early packing removed every twenty-four hours. Two weeks are usually sufficient to control as a case of that kind. Under such conditions I have seen two cases of rupture in the last two weeks by the immoderate use of pituitary extract in which the cervix was thought to be

easily dilatable. There is a tendency to forget the expulsive action of pituitary extract, and a full dose under these circumstances is apt to produce this accident. If the symptoms of rupture justify the diagnosis of rupture before the head has passed down to the vagina, I believe such a patient is safer if moved to the hospital with the baby undelivered, as the child acts as a plug to prevent bleeding and prevents also prolapse of the intestines. In the undoubted rupture of extra-uterine pregnancy, I think we cannot emphasize too strongly the need of immediate operation in the very great majority of cases.

DR. JOHN M. FISHER: I am reminded of a patient with ruptured ectopic pregnancy operated on by the president of this society at the Jefferson Hospital. The woman was supposed to be in a dying condition. She was pulseless when placed on the table. She was given an intravenous injection of salt solution, and although she was gasping for breath at the time of operation, she made a rapid recovery. The case made me feel that there is no time that we may consider a patient so far gone from internal hemorrhage in ruptured ectopic gestation that operation is contraindicated. The point of importance is not the ruptured ectopic pregnancy at the time of rupture, but the making of the diagnosis after the rupture has occurred. In many cases which I have seen, diagnosis was not made previous to operation, and in reviewing the history there should have been no doubt of the condition.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

May, CXLIX, No. 5, pp. 625-780

- 1 *Experimental Study in Exclusion (Functional) of Pyloric Antrum. W. Bartlett, St. Louis.
- 2 *Gastric Headaches. W. F. Cheney, San Francisco.
- 3 *Use of Dahlia in Infections. J. Ruhräh, Baltimore.
- 4 Tuberculosis in Aged. J. B. Hawes, 2d, Boston.
- 5 *Generalized Telangiectasia in Association with Syphilis, with Pathologic Picture of Peripheral Vascular Sclerosis. J. H. Stokes, Ann Arbor, Mich.
- 6 *Use of Strychnin in Broken Cardiac Compensation. L. H. Newbargh, Boston.
- 7 *Multiple Neuritis as Complication or Sequel of Typhoid. T. A. Claytor, Washington, D. C.
- 8 Postoperative Nervous and Mental Disturbances. J. M. Aikin, Omaha, Neb.
- 9 Study of Urinary Nitrogen and Sulphur Partition in Case of Rheumatoid Arthritis Treated with Intravenous Injections of Radium Salts. J. Rosenbloom, Pittsburgh.
- 10 Case of Endocarditis of Pulmonic Valve Caused by Micrococcus Endocarditidis Rugatus. G. R. Callender, U. S. Army.
- 11 Herpes Zoster of Cephalic Extremity, with Special Reference to Geniculate, Auditory, Glossopharyngeal and Vagal Syndromes. N. Sharpe, New York.
- 12 Case of Pilous Cerebral Adiposity; New Syndrome. W. M. Kraus, New York.

1. **Exclusion of Pyloric Antrum.**—Bartlett has excluded the pyloric region twenty-seven times on the human subject. The first fifteen patients were operated on by transverse section of the stomach with blind closure, as first suggested by Doyen, with which no other method has been definitely proved experimentally to compare in efficiency. These experiences convinced Bartlett that the technical difficulties and dangers attendant on this procedure warranted experiments, looking toward a simpler and safer method which could guarantee the same result. The details of his experiments are given at length.

2. **Gastric Headaches.**—Cheney calls attention to headaches due to disturbance of the stomach; to the fact that they are not an infrequent occurrence; that they present characteristics which fairly well identify them; that it is possible by stomach investigation in these cases to prove the existence of gastric disorder, as well as by other examinations to exclude disease elsewhere; and that the headaches can be made to disappear by therapy directed to the underlying gastric disturbance. The headaches due to gastric disease are usually periodic. They repeat themselves throughout months

or years. They may occur but once in a month, or once or several times in a week. Over certain periods they may become practically constant, during which periods headache is never entirely absent, though worse or better at certain times in the day. But the most common story is of sudden unexpected attacks of pain in the head, coming after days or weeks of good health. Such headaches, Cheney points out, are of variable duration, but rarely last over twenty-four hours. The patient awakens with the pain in the morning, and it grows more intense as the day goes on; or it may come on in the evening, persist during the night, and pass off after the patient rises. These headaches may be so severe and prostrating as to incapacitate the sufferer for any kind of work while they last; but more often they are not so violent as to prevent the patient from going about his usual occupation, even though he feels miserable and unfit. Sometimes nausea and vomiting accompany the pain, giving rise to the popular term "sick headaches"; but in other cases there may be no disturbance whatever of the stomach to make the digestive organs even suspected. The attack results in no disturbance of health, unless it be a sense of soreness over the scalp at the site of previous pain and a feeling of mental uncleanness and confusion; but these sensations are transient and the paroxysm is usually followed by complete restoration to normal. Repetition of these attacks may go on indefinitely before the real cause is discovered.

The most common type of pain is hemicrania, though not always on the same side. The pain is described as boring in character, through one eye or temple; or it may be the entire half of the head, even back to the base and the nape of the neck, that aches and throbs while the opposite side is entirely free from discomfort and as clear as ever. But this one-sided headache is caused frequently by the auto-intoxication of chronic intestinal stasis; it is the characteristic type of the paroxysm known as migraine; and it sometimes occurs as a manifestation of uremia. On the other hand the headache of gastric origin often involves the whole forehead and vertex with a throbbing distention and fulness, not limited to any one area; so that it becomes absolutely impossible to construct any diagnostic chart of headaches, as has been attempted, in which certain locations of pain serve to determine infallibly the diseased organ giving rise to the pain.

In the diagnosis of gastric headaches, the history makes one only suspect, the gastric analysis makes one reasonably certain; but only after elimination of all other possible causes can this one be accepted as the basis for therapy. Laxatives alone do not remove the symptoms; a proper diet seems the essential feature in treatment, the determination of what is proper depending on investigation of the gastric functions. This arrangement of dietary with other measures to overcome gastric atony and faulty secretion are often sufficient to regulate the bowels without the addition of laxatives.

3. **Use of Dahlia in Infections.**—Ruhräh says that a saturated (about 4 per cent. solution) can be applied to the mucous membranes of the throat or in fact other parts of the body without producing either pain or subsequent irritation. The drug seems to penetrate only to short distances and for the deeper seated affections has no value, but for superficial involvement of the mucous membranes whether the infection is due to streptococcus or to other organisms the effect is quite striking. In some cases but little effect is noted, it is true, but in others there is marked lessening of the intensity of the inflammation and coincidently a marked lessening of the constitutional symptoms. It has the advantage over other applications in that it is not painful, does not produce irritation and is markedly antiseptic. The only disadvantage is the color, which will stain fabrics with which it comes in contact, although most of these stains can be removed if the garment is immediately washed out in cold water. For ulcerations about the mouth it may be used either by applying a saturated solution or a mouth wash varying in strength from 1:1,000 or 1:10,000 may be used. The stronger solutions need not be used very frequently. The dahlia not only kills the offending organism but it has a marked stimulating effect on the healing. Externally on skin surfaces the drug may be used with marked benefit, particularly on ulcerations.

Ruhräh has used it with remarkable benefit on vaccinations which were slow in healing, and on other abraded surfaces, especially those which are infected.

5. **Generalized Telangiectasia with Syphilis.**—Cardiovascular degenerative conditions, among which syphilis is most conspicuous in Stokes' opinion appears to stand in etiologic relation to a considerable percentage of the obscure dermatoses heretofore grouped under the meaningless terms "essential," "idiopathic," and "primary" telangiectasia. The conception of a low-grade inflammation due to definite etiologic factors, such as syphilis, lead, alcohol, hyperthyroidism, etc., forms a more substantial starting point for further study than relatively intangible angioneurotic theories of the etiology of generalized telangiectases. Much of the existing confusion in the classification of telangiectatic cutaneous lesions is ascribed to over reliance on purely clinical data, whose value as exclusive criteria in these cases is open to grave doubt.

6. **Strychnin in Broken Cardiac Compensation.**—Newburgh states positively that neither pharmacologic nor clinical evidence justifies the use of strychnin in the treatment of acute or chronic heart failure.

7. **Multiple Neuritis and Typhoid.**—Claytor collected from the literature twenty-five cases which are sufficiently fully described to be of value, which, with his own, make a series of twenty-six. Symptoms of the condition were recognized during the course of the fever in 14 instances; after the fever had subsided, in 12. The earliest was the second week of fever. It is impossible from the data to say what the longest period after apparent complete recovery at which the symptoms of neuritis first appeared, but usually it was a few days to a week after the temperature had become normal. Pain was present 17 times, absent 9 times. There was altered sensation in 19, no change in 4, and no mention of this condition was made in 3 instances. Paralysis was noted 25 times; in one case it was not mentioned. The reflexes were lost in 9, exaggerated in 4, diminished in 2, normal in 1, and not noted in 1. There were no contractures in 20, while in 6 they were noted. The cranial nerves were involved in 7, not affected in 19; the spinal in 24, not so in 2, while both were affected in 5 cases. Fourteen cases showed atrophy, 2 none; in 10 there was no mention made of the condition. The duration varied from three months to fourteen in which complete recovery occurred. Unqualified recovery took place in 11, improvement in 7, death in 2, and the result was not given in 6 cases. It must be remembered, however, that many of these reports were probably made before the final result was known, and it seems likely that quite a fair proportion of those recorded as improved ultimately recovered.

American Journal of Physiology, Baltimore

May, XXXVII, No. 2, pp. 177-451

- 13 *Experiments on Origin and Conduction of Cardiac Impulse. Relation of Nodal Tissue to Chronotropic Influence of Inhibitory Cardiac Nerves. B. H. Schlomovitz, J. A. E. Eyster and W. J. Meek, Madison, Wis.
- 14 Axial Gradients in Early Development of Starfish. C. M. Child, Chicago.
- 15 *Analysis of Experimental Edema in Frogs. A. R. Moore, Bryn Mawr, Pa.
- 16 Studies on Light Production by Luminous Bacteria. E. N. Harvey, Princeton, N. J.
- 17 *Cardiac Inhibition During Vomiting Evoked by Stimulation of Gastric Vagus. F. R. Miller, London, Canada.
- 18 Macrophages of Mammals. H. M. Evans, Washington, D. C.
- 19 Threshold Stimulus of Cervical Sympathetic in Relation to Vaso-dilatation, Vasoconstriction and Salivary Secretion. C. M. Gruber, Philadelphia.
- 20 Studies on Intestinal Rhythm. W. C. Alvarez, San Francisco.
- 21 Studies on Permeability of Internal Cytoplasm of Animal and Plant Cells. G. L. Kite, Chicago.
- 22 Influence of Eye-Movements in Judgments of Number. R. MacDougall, New York.
- 23 *Physiology of Stomach. Cause of Variations in Gastric Hunger Contractions with Age. T. L. Patterson, Baltimore.
- 24 *Diurnal Variations in Arterial Blood Pressure. A. W. Weyssse and B. R. Lutz, Boston.
- 25 Conditions of Conduction of Excitation in Irritable Cells and Tissues and Especially in Nerve. R. S. Lillie, Worcester, Mass.
- 26 *Analysis of Nitrous Oxid for Physiologic Work. W. M. Boothby and I. Sandiford, Boston.

- 27 *Effect of Work on Percentage of Hemoglobin and Number of Red Corpuscles in Blood. W. N. Boothby and F. B. Berry, Boston.
- 28 *Determination of Circulation Rate in Man at Rest and at Work. W. M. Boothby, Boston.
- 29 Late Effect of Division of Pulmonary Branches of Vagus on Gaseous Metabolism, Gas Exchange and Respiratory Mechanism in Dogs. W. M. Boothby, Boston, and V. N. Shamoff, Petrograd, Russia.
- 30 Distension of Lungs; Its Effect on Respiration in Man and in Normal and Vagotomized Dogs. W. M. Boothby and F. B. Berry, Boston.

13. **Relation of Nodal Tissue to Cardiac Inhibition.**—This work is offered by the authors as leading confirmatory evidence to the hypothesis of chronotropic vagus action previously put forward, namely, that the vagus produces its chronotropic effect on the heart by local depression of automaticity in the nodal tissues, causing the seat of impulse initiation to undergo progressive shifting to regions of lower automaticity.

15. **Experimental Edema in Frogs.**—From the experiments described by Moore it seems clear that, in the normal frog, the water which is being continually absorbed through the skin is removed by the lymphatics and veins. When a limb is completely ligated, liquid rapidly accumulates under the ligature. This liquid is composed of transudate and of water absorbed through the skin by osmosis. Removal of the superfluous liquid is prevented because both veins and lymphatics are closed. The lymph therefore tends to become more and more dilute and the muscle correspondingly swollen with the continued absorption of water. In short, the phenomena of edema develop below a complete ligature because lymph and tissue take up water osmotically, and the avenues for its removal are blocked. In the case of edema produced by a lymphatic ligature, the lymph formed in the normal fashion is retained while the absorbed water passes into the capillaries and is removed.

17. **Cardiac Inhibition During Vomiting.**—It appears from Miller's experiments that in the dog the vomiting center when active is able to influence the cardio-inhibitory center in a powerful manner. The fall in blood pressure during vomiting in the dog, while, no doubt, in part produced by the factors effective in the cat, is materially increased by cardiac inhibition.

23. **Gastric Hunger Contractions.**—According to Patterson the variations in the gastric hunger contractions are dependent on two factors, namely: The actual age of the stomach and the rate of metabolism of the animal. The latter seems to be of the greater importance in determining the activity of the gastric motor mechanism.

24. **Diurnal Variations in Arterial Blood Pressure.**—Weyssse and Lutz found that a rise of maximum pressure averaging 8 mm. Hg occurs immediately on the ingestion of food. A gradual fall then takes place until the beginning of the next meal. There is also a slight general rise of the maximum pressure during the day. The average maximum blood pressure for healthy young men in the neighborhood of 20 years of age is 120 mm. Hg. This pressure obtains commonly one hour after meals. The higher maximum pressures occur immediately after meals, and the lower, as a rule, immediately before meals. The range of maximum pressure varies considerably in different individuals, but the highest and lowest maximum pressures are practically equidistant from the average pressure of any one individual. The minimum blood pressure is very uniform throughout the day, and is little affected by the ingestion and digestion of meals. When it is affected a rise or a fall may take place. There is a tendency for a slight general lowering of the minimum pressure throughout the day. The average minimum blood pressure for healthy young men in the neighborhood of 20 years of age is 85 mm. Hg. Thus the authors get an average pulse pressure of 35 mm. Hg. Pulse pressure, pulse rate and the relative velocity of the blood flow are increased immediately on the ingestion of meals. They attain the maximum, as a rule, in half an hour, and then decline slowly until the next meal. There is a general increase in each throughout the day. The average pulse rate in the authors' investigations proved to be 72 beats per minute.

26. **Analysis of Nitrous Oxid.**—The details are given by Boothby and Sandiford of analysis of nitrous oxid by the method of combusting with hydrogen with the use of a modified Haldane apparatus.

27. **Effect of Work on Hemoglobin and Red Cells.**—Experimental data are given by Boothby and Berry showing that the percentage of hemoglobin and the number of red blood corpuscles, and therefore the oxygen carrying capacity of a unit volume of blood, are increased under conditions of work, causing an appreciable amount of perspiration. If no perspiration occurs there is no such increase.

28. **Circulation Rate in Man.**—A series of sixty-one determinations of the blood flow in one subject at rest and at various degrees of work are reported by Boothby. It is shown that the circulation rate increases proportionately with the oxygen consumption in a manner corresponding to the increase in the total ventilation. It is suggested that the main controlling factor in the regulation of the circulation rate is the hydrogen-ion concentration of the arterial blood and that this regulation is one of great delicacy. By comparing the increase in the circulation rate with the increase in the total ventilation, Boothby was able to estimate that on the subject studied an increase in the blood flow of 3.3 liters per minute, which is a doubling of the circulation rate, is caused by a rise in the total acidity of the blood corresponding to 2.0 mm. of carbon dioxide. This figure would correspond to a rise in the hydrogen-ion concentration of the arterial blood of about 0.013×10^{-7} .

Archives of Ophthalmology, New Rochelle, N. Y.

May, XLIV, No. 3, pp. 221-368

- 31 Discrete Lymphoid Infiltration of Orbit. G. Coats, London.
- 32 Lymphoma and Lymphosarcoma of Conjunctiva. G. Coats, London.
- 33 Anomalous Nerve Heads with Good Vision. M. Goldenburg, Chicago.
- 34 Plasmoma of Lacrimal Sac. F. H. Verhoeff and G. S. Derby, Boston.
- 35 Acute (Bacillus Tularensis) Conjunctivitis. R. Sattler, Cincinnati.
- 36 Removal of Eyeballs. H. S. Gradle, Chicago.
- 37 Changes in Blood and Aqueous Humor in Methyl Alcohol Inhalation. H. H. Tyson and M. J. Schoenberg, New York.
- 38 Pathology of Bell's Phenomenon. E. Kraupa, Prague, Germany.
- 39 Case of Bilateral Acute Serous Tenonitis. F. Pincus, Cologne, Germany.

Boston Medical and Surgical Journal

May 6, CLXXII, No. 18, pp. 657-692

- 40 Tuberculosis Work in Connecticut, Its Development in Last Decade and Its Future Needs. D. R. Lyman, Wallingford, Conn.
- 41 *Rare Type of Bladder Ulcer in Women; Report of Cases. G. L. Hunner, Baltimore.
- 42 Epididymotomy for Acute Epididymitis, as Out-Patient Procedure. A. H. Crosbie and A. Riley, Boston.
- 43 Leprosy; With Especial Reference to Pulse and Temperature. J. A. Honeij, Boston.
- 44 Case of Autotransplantation of Bone for Nasal Deformity Due to Syphilis. L. Arkin, Boston.
- 45 Myxedema Simulating Nephritis. W. D. Reid, Newton.

41. **Bladder Ulcer in Women.**—In the eight cases cited by Hunner the ulcers were all found in the vertex or summit of the free portion of the bladder; this being one important distinction in comparing the simple solitary ulcer of Fenwick which is found on the base or fixed portion of the bladder. In three of the cases the ulcer was well forward, just back of the symphysis; in four, it was in the summit, with a tendency in three of them to occupy the posterior pole region, while in one case there was an ulcer area near the posterior pole, and another on the left anterior wall immediately back of the symphysis. A chief characteristic of these ulcers is the extremely slight mucous membrane change found in certain periods of the ulcer.

The ulcer area may easily be overlooked and the attention may first be arrested by an area of dead white scar tissue. In the neighborhood of this scar-looking area, one sees one or more areas of hyperemia which, on being touched with a dry cotton pledget, or with the end of the speculum, bleed and first show their character as ulcers. In other cases, or perhaps at subsequent examination on the same case, the ulcer may be well defined as a deeply red area with granulating base and with congested vessels surrounding the area.

In none of these cases has an individual ulcer area been more than a half centimeter in diameter, although two or three such ulcers have at times been grouped in a larger inflammatory area.

Illinois Medical Journal, Chicago

May, XXVII, No. 5, pp. 337-412

- 46 Varicosities of Pampiniform Plexus. C. D. Center, Quincy.
- 47 Acidosis. J. W. VanDerslice, Oak Park.
- 48 Digestive Disturbances of Infancy of Proteid Origin. R. R. Ferguson, Chicago.
- 49 Digestive Disturbances of Infancy of Bacterial Origin. R. A. Black, Chicago.
- 50 Myoma and Pregnancy. H. F. Lewis, Chicago.
- 51 Pseudomyopia. A. C. Ragsdale, Metropolis.
- 52 Nitrous Oxid-Oxygen Anoci-Association in Practice. D. W. Deal, Springfield.
- 53 Chronic Gonorrhea in Male. J. L. Boehm, St. Louis.
- 54 Not Very Well Known Causes of Hematuria. J. Welfeld, Chicago.
- 55 Treatment of Gestational Variety of Puerperal Eclampsia. W. A. N. Dorland, Chicago.
- 56 Choanal Fibroma. N. H. Pierce, Chicago.
- 57 Blood Pressure in Life Insurance. J. W. Fisher, Milwaukee.
- 58 Uterine Inertia and Its Management. I. H. Eddy, Chicago.
- 59 Psychotherapy in General Practice. W. S. Sadler, Chicago.
- 60 Injection of Sphenopalatine Ganglion in Some of Commoner Diseases of Nose. H. L. Pollock, Chicago.
- 61 Preliminary Report on New Method of Treatment for Cerebrospinal Syphilis. G. C. Fisher, Chicago.
- 62 Anesthetics. F. C. Vandervort, Bloomington.
- 63 Normal Childbirth and How to Obtain It. R. E. Hillmer, Crescent City.

Journal of Experimental Medicine, Lancaster, Pa.

May, XXI, No. 5, pp. 401-524

- 64 *Factors of Coagulation in Experimental Aplastic Anemia of Benzol Poisoning, with Special Reference to Origin of Prothrombin. S. H. Hurwitz and C. K. Drinker, Boston.
- 65 Histogenesis of Chronic Uranium Nephritis with Especial Reference to Epithelial Regeneration. J. Oliver, San Francisco.
- 66 Etiology of Goiter in Brook Trout. Effect of Feeding with Fresh and Stale Liver. D. Marine, Cleveland.
- 67 *Origin and Structure of Fibrous Tissue which Appears in Living Cultures of Adult Frog Tissues. G. A. Baitzell, New Haven, Conn.
- 68 *Nature of Anaphylatoxin. J. Bronfenbrenner, Pittsburgh.
- 69 *Wide-Spread Distribution of Diphtheroids and Their Occurrence in Various Lesions of Human Tissues. W. H. Harris and H. W. Wade, New Orleans.
- 70 *Diffusion and Survival of Poliomyelitic Virus. S. Flexner and H. L. Amoss, New York.
- 71 Rapid Production of Antidysenteric Serum. S. Flexner and H. L. Amoss, New York.

64. **Aplastic Anemia of Benzol Poisoning.**—Hurwitz and Drinker found that subcutaneous injections of benzol in rabbits produce marked destructive changes in the hematopoietic organs, especially in the myeloid tissue. Benzol poisoning registers a change not only in the formed elements of the blood, but also in the factors of coagulation. The circulating prothrombin is considerably reduced in amount and in most instances animals in which such a diminution occurs show aplasia of the bone marrow. The association of extreme aplasia of the marrow without a fatal diminution in the circulating prothrombin suggests one of two possibilities; either other tissues and organs in addition to the bone marrow are concerned with prothrombin formation; or a minimum amount of myeloid tissue suffices to maintain the quality of prothrombin above a dangerous level. The myeloid tissue plays no part in the production of antithrombin. Bone marrow activity is not essential for the production of fibrinogen.

67. **Fibrous Tissue in Adult Frog Tissue Cultures.**—In living cultures of various kinds of adult frog tissues, which have been made according to the hanging-drop method, Baitzell has seen in many cases, a transformation of the plasma clot by which it becomes entirely changed from a typical fibrin net both in appearance and structure. The changes in the fibrin net generally begin when the culture is from two to three days old. During these changes it appears that the elements of the fibrin net fuse or consolidate, and as a result a great number of fine wavy fibrils are formed which unite to form wavy bundles of fibers, and these freely intertwine and anastomose as they ramify through the area of the plasma clot.

Experiments show that the fibers which are formed are not outgrowths of the imbedded tissue. Also they are not

formed by an intracellular action, but arise directly by a transformation of the fibrin elements of the plasma clot. The transformation of the fibrin net will not occur unless it has come under the influence of living tissues or of living isolated cells. However, mechanical means, such as exerting tension on the clot with needles, may hasten the formation of the fibers. It is believed by Baitsell that such a reaction must play an important part in wound healing. A study of the relation between connective tissue fibers formed in wound healing and in embryonic development to the fibers formed in the plasma clot is being made by Baitsell and the results will be published later.

68. Nature of Anaphylatoxin.—The union of fresh serum of pregnant or immunized animals with the corresponding boiled protein (substratum) is accompanied by the formation of poisonous substances. The poison originates from the serum as a result of its autodigestion and not from the substratum. The process of autodigestion may be determined by the specific or nonspecific removal of the antitrypsin of the serum. The poisons originating from the serum are toxic only for homologous animals. The autodigestion of the serum, if allowed to proceed far enough may go beyond the toxic stage. The biologic properties of these poisons indicate their close similarity to the anaphylatoxin and suggest to Bronfenbrenner that the anaphylatoxin of Friedberger is a product of the autodigestion of serum and not of the protein outside of the serum.

69. Distribution of Diphtheroids.—Diphtheroids are widely distributed in nature. They are present in the air, on the body surface, and at times through contamination or are indigenous in the deeper tissues. Harris and Wade are of the opinion that diphtheroids constitute a broader field of saprophytism than is generally appreciated. While some strains may represent pathogens, their aggregate is patently not of the disease-producing variety. Diphtheroids can be cultivated from various pathologic tissues to which they bear no etiologic relation, such as lesions of tuberculosis, leprosy, blastomycosis, tertiary, syphilis and tumors of various types.

70. Diffusion of Poliomyelitic Virus.—According to Flexner and Amoss the ordinary virus of poliomyelitis present in aseptically removed brain tissue of paralyzed monkeys survives in an ascitic fluid kidney medium at the temperature of 37 C. for a period of at least twenty, but not thirty days. Under the conditions of moderate anaerobiosis, the minute micro-organism cultivated from poliomyelitic tissues tends not to develop in cultures from the brain tissue; hence its presence does not complicate the survival test. The diffusion of the ordinary poliomyelitic virus from a noncomminuted fragment of brain tissue into a surrounding medium of ascitic fluid is so slight as not to be detectable by inoculation experiments conducted with usual quantities of the fluid. The specific effects of the micro-organism cultivated from poliomyelitic tissues are not caused by an admixture in the cultures of the ordinary virus of poliomyelitis; hence they must be caused by the pathogenic action of the micro-organism itself. The minute micro-organism is therefore regarded by the authors as the specific microbic cause of epidemic poliomyelitis.

Kentucky Medical Journal, Bowling Green

May, XIII, No. 6, pp. 213-258

- 72 History of Fads and Fancies in Medicines. J. E. L. Harbold, La Grange.
- 73 Diagnosis, Management and Treatment of Lobar Pneumonia. R. C. Adams, Salyersville.
- 74 Electricity in Treatment of Pelvic Diseases. J. A. Freeman, Crestwood.
- 75 Some Phases of Trachoma. L. E. Downs, Georgetown.
- 76 Renal Tumor; Report of Case. J. T. Reddick, Paducah.
- 77 Croupous Pneumonia. J. E. Wilson, Butler.
- 78 Catarrhal Pneumonia. S. M. Hopkins, Demossville.
- 79 Influenza. H. W. Watt, Pembroke.
- 80 Ruptured Bladder. P. K. McKenna, Mt. Sterling.
- 81 Metabolic Disturbances of Intestinal Tract with Especial Reference to Food Intoxication in Infancy. E. L. Gowdy, Campbellsville.
- 82 Physician as Business Man. G. G. Thornton, Lebanon.
- 83 Some Reflections on Healing Art. J. F. Young, Monticello.
- 84 Multiple Fracture of Lower End of Humerus—Open Operation. G. P. Grigsby, Louisville.
- 85 Duodenal Lavage; Report of Case. R. R. Elmore, Louisville.

Lancet-Clinic, Cincinnati

May 1, CXIII, No. 18, pp. 481-504

- 86 Cincinnati General Hospital. What It Stands For. C. E. Caldwell, Cincinnati.
- 87 Medicolegal Aspect of Roentgenograms in Diagnosis and Treatment of Fractures and Joint Injuries. J. D. Trawick and D. Y. Keith, Louisville, Ky.
- 88 Mentally Defective Aliens; Medical Problem. H. A. Knox, Ellis Island, N. Y.
- 89 Hereditary Influences in Achondroplasia, Report of Case of Cesarean Section. J. E. Pirrung, Cincinnati.
- 90 Surgery and Life Insurance. M. Souchon, New Orleans.
- 91 Peace Movement. P. Zenner, Cincinnati.

Medical Record, New York

May 1, LXXXVII, No. 18, pp. 715-756

- 92 Twilight Sleep. J. W. Brannan, New York.
- 93 *Propagation of Pure Vaccine Virus. H. Noguchi, New York.
- 94 *Chronic Dilatation of Stomach. W. H. Barber, New York.
- 95 American Thermal Springs: Their Therapeutic Uses; Radio-Activity of Springs in Germany, Austria and Virginia; With Regime for Patients with Gout, Rheumatism and Arthritis. G. Hinsdale, Hot Springs, Va.
- 96 New Application of Ergotherapy by Kellogg-Bergonie Method in Treatment of Obesity and Other Chronic Disorders. A. J. Read, Battle Creek, Mich.
- 97 Case of Diphtheritic Tracheobronchial Casts in Woman of 50 Years of Age. A. Levinson, Chicago.
- 98 Case of Round Cell Sarcoma of Meninges of Brain. G. A. Rueck, New York.
- 99 Carcinoma in Young. R. H. Fowler, Brooklyn.
- 100 Appliance for Producing Simultaneous Suction and Pressure for Use in Tonsil and Adenoid Operations. J. G. L. Borgmeyer and C. J. Larkey, Bayonne, N. J.

May 8, No. 19, pp. 757-798

- 101 Some Common Voice Troubles in Singers. I. W. Voorhees, New York.
- 102 Human Conservation. M. Glasgow, New York.
- 103 Modern Phases and Treatment of Basedow's Disease. O. Hensel, New York.
- 104 Treatment of Epilepsy from Metabolic Disturbances in Adolescence. T. A. Williams, Washington, D. C.
- 105 Nagelschmidt Modification of Kromayer Quartz Lamp in Treatment of Diseases of Hair and Scalp. R. W. Muller, New York.
- 106 Production of Sterility by Roentgen Ray. F. B. Granger, Boston.
- 107 Case of Rupture of Prostatic Urethra. S. W. Schapira, New York.

93. Propagation of Pure Vaccine Virus.—Noguchi has succeeded in propagating in the testicles of the rabbit and calf pure vaccine virus which is absolutely free of bacteria and preserves its virulence undiminished.

94. Chronic Dilatation of Stomach.—Chronic atonic dilatation, etiologically and therapeutically considered, Barber states, is a problem in pathologic physiology. Most cases are amenable to medical treatment. Many are relieved by suspensions. Of both of these classes many are entirely correctable physiologically by carefully planned gastro-enterostomies. The position of the stoma is vitally important and depends on the following: (a) For normal or hypertrophied stomachs the pylorus is the most efficient outlet. (b) For normal or hypertrophied stomachs the nearer the artificial stoma corresponds with the physiologic point of outlet the greater is the efficiency. (c) For "moderately" atonic stomachs or stomachs with 50 per cent. impaired peristaltic power, the efficiency of the stoma is probably greatest in the pyloric antrum, while (d) for the markedly atonic stomachs, with pronounced muscular insufficiency, the pendant stoma seems to date most efficient.

Modern Hospital, St. Louis

May, IV, No. 5, pp. 295-382

- 108 Southern Pacific Company's Railroad Hospital. F. K. Ainsworth, San Francisco.
- 109 Medical Organization of State Hospitals for Insane. W. Mabon, Ward's Island, N. Y.
- 110 Relation of Ophthalmic Department to General Hospital. L. B. Whitham, Baltimore.
- 111 Agnew's State Hospital, Agnew, Cal. E. C. Reid, San Francisco.
- 112 Some Administrative Practices in Small Hospital. L. Miller, Portland, Ore.
- 113 Associated Out-Patient Clinics of New York. E. H. Lewinski-Corwin, New York.
- 114 Enthusiasm that Built Splendid Hospital. P. O. Clark, Wheeling, W. Va.
- 115 Care of Industrial Accidents in Clinic and Hospital. W. H. Lipman, Chicago.

New Jersey Medical Society Journal, Orange

May, XII, No. 5, pp. 209-260

- 116 Some Disorders of Early Infancy. L. E. La Fétra, New York.
- 117 Treatment of Acute Suppurative Otitis Media in Infants and Children. C. C. Charlton, Atlantic City.
- 118 Reduction of Infant Mortality; How Can It Best Be Accomplished? G. E. Day, Collingswood.
- 119 Alcohol Drain Treatment of Puerperal Temperature. A. F. Dowd, Newark.
- 120 Tuberculin as Diagnostic and Therapeutic Agent in Tuberculosis. B. A. Pollak, Jersey City.

New York Medical Journal

May 1, CI, No. 18, pp. 869-924

- 121 Plastic Surgery—Corrective and Palliative Repair—In Treatment of Malignant Disease. W. S. Bainbridge, New York.
- 122 Splenectomy. A. A. Kerr, Salt Lake City.
- 123 *Theory of Mechanism of Gastric and Pain Crises in Tabes. J. Byrne, New York.
- 124 What Electrotherapy Cures. H. H. Seelye, Atlantic Beach, Fla.
- 125 Clinical and Experimental Trichomoniasis of Intestine. K. M. Lynch, Charleston, S. C.
- 126 Post Partum Retrodisplacement of Uterus. T. H. Cherry, New York.
- 127 Relative Frequency of Morphin and Heroin Habits. C. B. Farr, Philadelphia.
- 128 Tonsillo-Adenectomy and Control of Hemorrhage. C. F. Adams, Trenton, N. J.
- 129 Elimination of Soluble Radium Salts Taken Intravenously and Per Os. H. A. Seil, C. H. Viol, M. A. Gordon, Pittsburgh.
- 130 Bacillus Bulgaricus in Diabetes Mellitus. P. Horowitz, New York.

May 8, No. 19, pp. 925-980

- 131 *Radical Cure of Errors of Refraction. W. H. Bates, New York.
- 132 Urinary Lithiasis. V. C. Pedersen, New York.
- 133 *Angina Pectoris Successfully Treated By High Frequency Currents. S. Tousey, New York.
- 134 Problem of Inebriety. E. H. Williams, Los Angeles.
- 135 Nephrolithiasis. G. E. Macklem, Detroit.
- 136 Night Terrors. A. Stern, New York.
- 137 Treatment of Sac in Inguinal Hernia. A. E. Sellenings, New York.
- 138 Proper Factory Ventilation and Its Effects on Worker. H. Lave-son, Washington, D. C.
- 139 Cerebral Hemiplegia; Sequel of Diphtheria. E. M. Auer, Skillman, N. J.
- 140 Possible New Test for Cerebrospinal Fluid. B. Lemchen, Dun-ning, Ill.

123. Crises in Tabes.—The gastric and pain crises of tabes are regarded by Byrne as being primarily the result of a banking of potential in the neurons distal to the lesion, namely, in the ganglion cells. This banking of potential goes on with greater or less rapidity, depending on the activity of the metabolic processes, the character of the food, mode of life, atmospheric conditions, the degree of completeness of the block in conduction at the site of the lesions, etc., until the obstruction is no longer able to prevent the passage of impulses inward toward the cord. Then individual neurons, one or any number at a time, commence discharging, and impulses reach the brain, causing pains referred to the peripheral areas of distribution supplied by the discharging neurons. In the case of the vagal and glossopharyngeal neurons the afferent impulses impinge with greatest effect on the vomiting center, causing nausea, vomiting, and the distress that accompanies them. After repeated successive discharges the cell bodies become fatigued, the potential falls below the point necessary to force a passage at the site of the conduction block, and the attack ceases for a time.

As all the neurons, however, do not discharge simultaneously, since some gather or retain their potential while others are losing it, the attacks of gastric or pain crises do not pass off immediately, except in cases in which attacks of gastric crises are temporarily aborted by such agents as morphin, pilocarpin, apomorphin, eserine, etc., and here the neurons are, to a greater or less extent discharged simultaneously soon after the administration of the drug, so that it takes some time, varying from two to forty-eight hours, before the neurons can gather sufficient potential to force the block again. In cases in which the attack has lasted some time, and in some instances in which only a certain limited group of neurons are fully, or almost fully and equally charged, the administration of morphin or of sodium salts may discharge the accumulated potential so effectively that the regathering of potential may take a long time. In such cases one administration of a remedy may permanently abort an attack. In reality, however, remedies seldom cause

complete suspension of the attack, but merely affect the simultaneous discharge of those neurons in which the potential is at, or near the point of spontaneous discharge. The attack really comes to an end only when the potential in all the ganglion cells has become so reduced that it will take a period of some length before any of the neurons can acquire sufficient potential to force the block. The duration of an attack of gastric or pain crises depends, therefore, rather on the simultaneity and equality of accumulation of potential rather than on the number of neurons involved. General exhaustion and fatigue of the body as a whole, as well as starvation, also aid in the spontaneous termination of an attack by preventing rapid reaccumulation of potential.

131. Radical Cure of Errors of Refraction.—Animal experiments made by Bates demonstrate: 1. The lens is not a factor in the production of accommodation. 2. Hypermetropic refraction is always produced by a strain of two or more of the recti by electrical stimulation or advancement, and is always prevented by relaxation of these muscles by tenotomy. 3. Myopic refraction is always produced by a strain of two obliques and is always prevented by relaxation of these muscles by tenotomy. 4. Atropin prevents, when injected deep into the orbit, the experimental production of errors of refraction. 5. The cause of all errors of refraction is a strain to see. The cure is accomplished by relaxation. Relaxation is secured by central fixation. Central fixation is obtained by eye training with the aid of the Snellen test card at 20 feet and by alternately practicing central fixation with a dot or a fine point at 20 inches or nearer. After central fixation is obtained, all errors of refraction are cured.

133. Angina Pectoris Successfully Treated.—Tousey cites a case of angina pectoris successfully treated by high frequency currents from ultraviolet ray vacuum electrodes and by vibration.

Ophthalmic Record, Chicago

May, XXIV, No. 5, pp. 223-276

- 141 False Heterophoria and Heterotropia. E. E. Maddox, Bournemouth, England.
- 142 Sclerocorneal Seton in Treatment of Glaucoma. C. A. Wood, Chicago.
- 143 Case of Traumatic Enophthalmos. H. F. Hansell, Philadelphia.
- 144 Anterior Lens-Ring Following Contusion. Report of Case with Theory Relative to Its Pathology. T. H. Cates, Little Rock, Ark.
- 145 New Pair of Lid Retractors for Cataract Operation. D. T. Vail, Cincinnati.
- 146 Hole in Disc Associated with Vibration of Overlying Membrane. T. B. Holloway, Philadelphia.
- 147 Case of Reflex Ocular Disturbances Due to Impacted Third Molars. H. V. Dutrow, Dayton, O.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Edinburgh Medical Journal

April, XIV, No. 4, pp. 241-320

- 1 New Psychiatry. W. H. B. Stoddart.
- 2 Association of Pernicious Anemia with Subacute Combined Degeneration of Spinal Cord. B. Bramwell.
- 3 Outbreak of Septic Pharyngitis. A. Goodall.
- 4 Fracture of Radius and Rupture of Radial Artery in Chauffeur. R. C. Alexander.

Indian Medical Gazette, Calcutta

March, L, No. 3, pp. 81-120

- 5 Surgical Survey of Casualties in Mesopotamia. C. H. Barber and E. E. Doyle.
- 6 Serodiagnosis of Syphilis. W. D. Sutherland and G. C. Mitra.
- 7 Studies in Malaria. (To be continued.) H. Stott.
- 8 Action of Quinin and Arsenic Preparations in Kala-Azar. S. L. Sarkar.
- 9 Significance of Arne's Leukocyte Count. H. H. G. Knapp.
- 10 Heart Strain Among Sepoys. E. H. V. Hodge.
- 11 *Iodin and Vaccination. L. B. Scott.
- 12 *Right Scrotal Fecal Fistula (Hernia). W. Vost.

11. Iodin and Vaccination.—Iodin was recently extolled as a preliminary disinfectant of the skin in vaccination. Some experiments were therefore carried out under Scott's direction in the ordinary course of preparing calf vaccine at the Shillong vaccine depot. Among the calves being vaccinated

one was occasionally taken at random and prepared with iodine instead of by the usual method of cleansing the skin. Each iodine calf was thus vaccinated along with one or more others, with the same lymph and under the same conditions. The average yield of the iodine calves was 7.7 gm. and of the others 26.6 gm. Of the iodine calves, two developed so few vesicles that no useful amount of vesicular material could be removed. The other ten yielded from 2.0 to 25.5 gm. Of the 47 control calves, one yielded none and the remainder from 9.5 to 62.8 gm.

It was plain that iodine as used in this experiment seriously interfered with the development of vesicles. This was obvious to the eye without any calculation of the weight of lymph yielded. Instead of the usual thick crop, only a few scattered vesicles formed on the scarified area. The difference lay in the number of vesicles which developed and not in their size or quality. Those which did form were normal in appearance. In none of the iodine calves did vaccination actually fail altogether, but the success rate per puncture was reduced to about 25 per cent. instead of the usual 80 to 90 per cent. Only two of the iodine calves yielded anything like a good crop of vesicles.

12. Right Scrotal Fecal Fistula.—This was an ordinary case of reducible scrotal hernia of two years' duration in a boy of 12. Nearly a month and a half before the operation by Vost the hernia became swollen, irreducible and extremely painful, and the parents thought an abscess was forming and treated it locally for the same. Then it burst, and left a fistulous opening through which fecal matter began to pour out. The boy's general health was fairly good and he was passing feces both through the anus and scrotal fistula. The operation was successful. The opening in the bowel was closed and a Bassini operation for hernia was done.

Journal of Obstetrics and Gynecology of British Empire, London

October-December, XXVI, No. 4, pp. 177-264

13. *Distribution and Significance of Parametrium. M. Moritz.
14. Origin and Phylogenetic Significance of Female Genital Passages. S. E. Wichmann.
15. Primary Echinococcal Invasion of Ovary, or Other Pelvic Hydatids Collected from Various Sources in Australia. H. C. T. Young and D. A. Welsh.
16. *Coxalgic Pelvis. H. Briggs.
17. *Etiology and Treatment of Hyperemesis and Other Forms of Pregnancy Toxemias. E. H. Tweedy.
18. Double Ureter Simulating Parovarian Cyst in Right Broad Ligament. C. Lockyer.
19. Case of Myomectomy During Pregnancy. M. H. Phillips.
20. Case of Fetal Death from Rupture of Velamentous Vessels. M. H. Phillips.
21. Acute Intestinal Obstruction Following Septic Miscarriage. W. F. Shaw.
22. Multilocular Cystic Tumor of Uterus. J. B. Hellier.
23. Case of Hydrometra. M. H. Phillips.
24. Double Uterus with Right Pyocolpos. W. E. Fothergill.
25. Three Cases of Rupture of Pregnant Uterus Through Scar of Former Cesarean Section. W. K. Walls and W. F. Shaw.
26. Marsupialization of Degenerated and Infected Fibroid. W. E. Fothergill.

13. Significance of Parametrium.—This tissue, according to Moritz, forms the vascular pedicle of the pelvic viscera. In it the vessels, nerves and lymphatics of the pelvis take their course. Its arrangement is similar to that of all mesenteries. By means of the sheaths covering these structures they are enabled to adapt themselves to the everchanging directions and dimensions of the pelvic viscera. The viscera themselves are further enabled to do this without undergoing any danger of interference with their blood supply. The densest part of this tissue is situated around the cervix uteri, and therefore that is the most fixed point of the uterus. The chief blood supply to the uterus lies just below this area. The result is that the uterus is enabled to undergo the remarkable physiologic changes to which it is subject without interference with its vascular supply.

The retroperitoneal pelvic connective tissues have been evolved in man, simultaneously with other modifications, on the assumption of the erect attitude. An examination of these tissues in lower animals (rabbits, cats, hedgehogs) shows that they are devoid of smooth muscle fibers, con-

sisting only of a loose reticular tissue with large spaces filled with fat. The tailed monkeys possess a connective tissue which is still poor in smooth muscle and supporting elements but these are present in larger amounts than in the connective tissues of quadrupeds. The pelvic connective tissues of the anthropoid apes are exceedingly rich in smooth muscle and supporting tissue. The higher up we go in the scale the richer this tissue becomes in smooth muscle and the better it thus is adapted to the mechanical duty of keeping the pelvic viscera in position.

It is also worthy of note that the chief supporting elements of the tissue are developed conversely as the pelvic floor becomes more sphincteric in its action, and is less used for the purposes of movements of the tail. Also that these tissues become of a more highly specialized nature and assume more important functions with regard to the maintenance of the position of the pelvic viscera as the erect attitude is developed. It is worthy of note that the position of the uterus as regards anteversion or retroversion is also determined by the state of the parametrium to a considerable extent. A diseased parametrium, namely, a parametrium that has lost its tone or is poor in smooth muscle, in spite of the presence of round ligaments predisposes to retroversion. If a model of a uterus be fixed round its cervical segment by numerous strands of elastic, all having as near as possible the same tension as in a pelvis in the erect attitude, the model takes up a position of anteversion. Different areas of the elastic strands being loosed causes the model womb to assume different displacements. A strong contraction of the anterior strands will cause acute anteversion just as a slackening of this group of elastic or a pull of the posterior bands will cause retroversion. The effect of periodic changes in the sizes of the rectum and bladder will not lessen to any extent the value of this experiment. The important part this tissue plays in keeping the uterus in its normal position, therefore, is seen, and one realizes why retroversions are so common in cases of prolapse.

The structure of the connective tissue, namely, the extensible vessels, strengthened by elastic masses of smooth muscle, allows all the changes of pregnancy, of full and collapsed bladder and of rectum, etc., to take place without any vascular interference with the normal state of these tissues and without vascular disturbances.

16. Coxalgic Pelvis.—Five cases are cited by Briggs, all with lateral tilting of the pelvis. In each the left half of the pelvis, the diseased side, was raised. In four the right occipito-anterior and in one the left occipito-anterior were recorded as the positions of the vertex presentations. Natural delivery was accomplished in two, forceps were used in one, induction in one, craniotomy in one. Briggs believes that the conclusion is inevitable that the diseased side is raised and that the mechanism of labor is thereby favorably influenced in the moderately contracted coxalgic pelvis.

17. Etiology and Treatment of Hyperemesis.—Tweedy directs attention to the importance of the following clinical facts: 1. Food irritation is not a factor in increasing symptoms of toxemia of pregnancy, for croton oil has no tendency to aggravate symptoms. 2. While toxic exacerbatons may possibly arise from absorption of intestinal ferment, in practice this is found to be the exception rather than the rule, for violent vomiting may be induced or eclamptic seizures started in a few minutes after milk has been given, and before it could by any possibility have undergone fermentative change. The conclusion is forced on Tweedy that absorption of food particles during the earliest stages of their digestion are the responsible agents in hyperemesis and eclampsia.

Sterile milk or other foodstuffs, if injected directly repeatedly into the blood, is apt to exercise a poisonous effect. It is said that this poisonous effect is due to an absence of specific antibodies, for those present in the blood are incapable of rendering harmless the food particles until they have been modified by first passing through the mucous surfaces of stomach or intestines. In early pregnancy a foreign albumin appears in the blood and Tweedy suggests that the

normal food antibodies are interfered with thereby. Thus the early sickness of pregnancy becomes understandable; it may be considered Nature's effort to reject food incapable of proper neutralization. It is also probably eliminatory in its effects, for its occurrence in the early morning will remove from the system the digestive excesses of the previous day. When it fails to do this, thoroughly toxemic symptoms arise. In most instances tolerance to food is eventually established, but the extent of the failure of the food particle to unite with its antibody is the measure of the severity of the toxemia. The fact that kidney inflammation is rarely seen in the early months of pregnancy may be due to the efficient eliminatory action of morning vomiting. In the worst cases of hyperemesis the alarmed stomach fails to discriminate between harmful and harmless stimuli and endeavors to reject everything; even the presence of spring water can no longer be borne, and, indeed retching can be induced by mere suggestion.

In one case of hyperemesis Tweedy tried the effect of giving olive oil before food was taken. The treatment was based on the popular belief that oil taken before a meal will prevent the most unwholesome banquet and the worst wines from disagreeing; it is supposed to do so by preventing or at least lessening the rate of absorption. The patient aborted before any data could be obtained in respect to efficiency of the method. She is now again pregnant, and in no way suffers from untoward symptoms. She attributes her immunity to the taking of petroleum in the early morning, and declares if she omits to do so vomiting recurs.

Sei-I-Kwai Medical Journal, Tokyo

January, XXXIV, No. 1, pp. 1-4

- 27 Pharmacologic and Chemical Study of Earth Worm. R. Mizoguchi.
28 *Experimental Study of Thyrotoxic Symptoms. T. Mori.
29 Observation of Kala-Azar in Chinese Child. S. Saito.
30 *Pathologic Meaning of Worms in Vermiform Appendix. Y. Matsuoka.

28. **Study of Thyrotoxic Symptoms.**—Mori produced artificially an inflammation of the thyroid in dogs and studied the subsequent symptoms. In some dogs paraffin (melting point 40 to 50 C.) was injected into the thyroid and in others after the same injection the thyroid was warmed for two to three hours, or iodid of potassium was given internally. Again, chlorid of calcium was injected into the gland instead of the paraffin. In all cases an inflammation of the thyroid with subsequent thyrotoxic symptoms was produced, and the author thinks the direct cause of the thyrotoxic symptoms was the resorption of the contents of the follicles.

30. **Pathologic Meaning of Worms in Vermiform Appendix.**—Matsuoka tried to determine whether the inflammation of the vermiform appendix can be caused by the worms which are frequently present in it, how often one meets the worms in the appendix, what changes they can produce in the tissues and what relation these changes have to the changes produced by the inflammation. He found the parasites or their eggs in 48 out of 103 removed appendixes; in 29 cases (28.27 per cent.) he found the oxyuris vermicularis and in 2 cases (1.9 per cent.) trichocephalus dispar. The oxyuris was found three times (9 per cent.) in 33 cases of acute appendicitis and twenty-six times (37.1 per cent.) in normal appendixes. Forty-five (43.7 per cent.) of the 103 removed appendixes were found to be normal. Parasites were found in 25 of these 45 cases (55.6 per cent.) and in 91.7 per cent. of these cases sent away from the surgical clinic. The 25 cases in which the parasites were found showed no signs of an inflammation although they were clinically diagnosed as appendicitis.

Matsuoka concludes, therefore, that the parasites do not cause appendicitis, although they produce symptoms which may be named appendicopathia parasitaria and which are characterized by the absence of fever and pain on pressure over the ileocecal region. The author's view is in opposition to that of Rheindorf, which accepts the causative relation between the parasite and appendicitis, and he thinks that the boring canals mentioned as of importance by Rheindorf are artificially produced slits in the tissues of the organ.

Archives Mens. d'Obstétrique et de Gynécologie, Paris

January, IV, No. 1, pp. 1-48

- 31 *Vaginal Cesarean Section. P. Bar.

February, No. 2, pp. 49-96

- 32 *Delivery with Patient's Pelvis Deformed from Congenital Dislocation of the Hip Joint. (Sur l'accouchement dans les bassins viciés par luxation congénitale de la hanche.) L. Péry and Balard.

31. **Conservative Vaginal Cesarean Section.**—Bar remarks that Dührssen's vaginal cesarean section has never found favor among French obstetricians, but that he, Bar, has found it of great service when conditions called for immediate evacuation of the uterus, as in case of uncontrollable vomiting, in failing compensation in heart disease, or other indications calling for prompt relief from the pregnancy. He says it is beyond question that vaginal cesarean section is much less dangerous than abrupt dilation of the cervix with the Bossi instrumental dilator, for example, which lacerates the cervix. He even prefers the Dührssen technic for cases requiring early abortion, if the cervix is narrow and not flexible. He prefers it to bougies for primiparae under these conditions. With eclampsia in an advanced pregnancy, it permits the extraction of the child when the cervix of a primipara is still long and narrow. The results are excellent in such cases unless the child is unusually large. The proper moment for it under these conditions is at the eighth month or two weeks later. Bar does not care to apply this technic in placenta praevia.

He gives fourteen large illustrations showing the various steps of vaginal cesarean section; it makes a surgical opening into the uterus under complete control, in a comparatively harmless region, leaving nothing to chance. It can be done under local or general anesthesia, as he describes in detail. He does not attempt to dilate the cervix beforehand, but leaves a small drain between the cervix and the bladder, if there is any dread of a thrombus. The tampon is withdrawn from the vagina in fifteen or twenty hours, and the sutures are treated as after any colporrhaphy. With the technic illustrated, he remarks in conclusion, the operation is easy. It is only very rarely that there is any serious hemorrhage from the wall of the uterus if the child is of medium size and the lower segment of normal configuration. He has never had hemorrhage of this kind but once, and then it was easily arrested by drawing down the cervix until the bleeding vessel was seen and the bleeding arrested with a single stitch. There is scarcely any danger of hemorrhage when the operation is done under local anesthesia plus a little epinephrin.

There is some danger of injury to the bladder; Hauch has statistics showing that this occurred in 11 out of 257 cases, Peterson, in 9 out of 267, and Dach 7 in 76 cases. Chirié has also reported a case in which a fistula into the bladder followed the falling off of an eschar. Bar has never had any trouble in this line and thinks there is little danger of injuring the bladder while it is being detached unless the plane of cleavage has been obliterated by old inflammatory processes. The special danger for the bladder and also of rupture of the peritoneal vesicovaginal pouch occurs when the fetus is being extracted with forceps.

32. **Delivery with Pelvis Deformed from Dislocation of the Hip Joint.**—The two cases reported by Péry and Balard confirm the view that in such cases it is not the limp nor the dislocation that is the greatest obstacle to normal delivery but the atrophy which results from the congenital luxation. The extreme slant of the pelvis in one case did not seem to interfere with the delivery; the head engaged spontaneously at the first labor contractions. Such a slant would be of serious import if forceps had to be used as they would have to be introduced perpendicularly. In this case expulsion proceeded spontaneously and rapidly, and this is the rule in a pelvis with luxation of the heads of both femora. In the second case the congenital dislocation of the left hip joint had entailed considerable atrophy of the limb and of that side of the pelvis, with complete ankylosis of the joint. All the measurements were larger than in the first case except the external bis-ischiac or transverse diameter; this was 2 cm.

smaller, measuring only 9 cm., evidently the result of the atrophy of the left side of the pelvis, verified by roentgenography. This was accepted as a sign that delivery could not proceed spontaneously, and the woman was artificially delivered at eight and a half months, with excellent outcome for both mother and child.

Presse Médicale, Paris

April 15, XXIII, No. 16, pp. 121-128

- 33 Attempts at Chemotherapy and Vaccine Therapy for Wounds in War. J. Danysz.
- 34 The Curve of the Reaction of Degeneration in Estimation of Injury and Prognosis in Wounds of the Nerves. (Quels renseignements nous fournit la réaction de dégénérescence dans les blessures des nerfs?) A. Zimmern.
- 35 *Diagnosis of Suppurating Arthritis After Fractures in War. Chaput.
- 36 Six Months' Experience at a Clearing Hospital. G. Bergasse.
- 37 Open Bridge Plaster Casts. (Plâtres à anses sans armature.) E. Pouliquen.

35. **Unsuspected Arthritis after Fractures.**—Chaput states that suppuration in the nearest joint after fracture of a long bone is common, but is frequently overlooked. Any fissure in the bone is liable to permit the suppuration to extend and involve the joint. Such fissures should be sought for with special care in operating on the fracture. Certainty can be attained by puncturing the joint and injecting enough of a 1:1,000 solution of methylene blue to distend the synovial membrane slightly. If there is a communication with the fracture focus, the pus at this point will become tinged with blue in a few seconds. Even when the joint is opened up, it may seem sound, but arthritis should be suspected if the bones are friable and the color of the cartilage, synovial sheaths and intra-articular ligaments is not quite normal.

Berliner klinische Wochenschrift

April 12, LII, No. 15, pp. 365-392

- 38 Action of Gold Salts and Radiotherapy on Tuberculous Organism. G. Spiess and A. Feldt.
- 39 *Uremia. H. Strauss.
- 40 *Diphtheria and Scarlet Fever from Sociologic Standpoint. T. Benda.
- 41 Sphygmobolometry. (Die Sphygmobolometrie Sahli's und ihre Kontrolle.) G. Ollino.

39. **Uremia.**—Strauss remarks that the last ten or twelve years have seen considerable progress in our knowledge of retention of substances by the kidneys and of uremia in general, especially of the pseudo-uremia which does not show the high proportion of residual nitrogen in the blood that is characteristic of true uremia. He classifies pseudo-uremia as that with a tendency to convulsions and that with a tendency to stupor or delirium and high blood pressure, with or without symptoms of localized irritation or of deficit. There may also be dyspepsia and bilateral twitching, but these are never prominent in this type. In the convulsion type the seizures may be like those of epilepsy. They begin suddenly, and are most common with acute or subacute nephritis in children and youths. This type is closely analogous to puerperal eclampsia not only in the manifestations but in the lack of high residual nitrogen content. (In four cases he found only 40 to 60 mg. of residual nitrogen.) True uremia, with residual nitrogen between 120 and 150 mg. or higher, is encountered mostly with vascular nephritis, and thus occurs at all ages. The severer forms are met mostly in middle life or later, although the disease can be traced back into youth.

The residual nitrogen is thus important for the prognosis, as a high figure gives an unfavorable outlook, as a rule, other things being equal. He discusses the preferable technic for its determination in the blood and also for the urea, declaring that chemical examination of the blood serum affords the only reliable information as to maximal insufficiency of the kidneys. A host of pregnant facts are awaiting discovery, he exclaims, when physicians take the trouble to investigate the type of true or false uremia to which a case belongs, and discriminate more sharply. He gives a half-page table in which the clinical pictures in true uremia and in the two forms of pseudo-uremia are compared, listing sixteen groups of symptoms in each. The blood pressure in true uremia is

generally increased, but it is very high in the arteriosclerosis type of pseudo-uremia and only moderately high in the other type.

40. **Diphtheria and Scarlet Fever from Sociologic Standpoint.**—Benda has been comparing the statistics for different districts in Berlin during the last three years, and discusses them from various standpoints. They show that diphtheria was more common among the poorer classes and scarlet fever among the well-to-do, proportionally. The mortality of both, however, is proportionally less among the well-to-do, but the individual predisposition is an important factor.

Correspondenz-Blatt für Schweizer Aerzte, Basel

April 3, XLV, No. 14, pp. 417-448

- 42 The Wounds in the Present War. (Kriegsärztliche Beobachtungen.) A. L. Vischer and P. Ryhiner.

Deutsche Zeitschrift für Chirurgie, Leipzig

March, CXXXIII, No. 1, pp. 1-112

- 43 *Anesthetization of the Abdominal Cavity. (Anästhesierung der Bauchhöhle.) L. Adam.
- 44 *Removal of Large Intrathoracic Goiters. W. Jehn.
- 45 Ileus from Tumor and from Internal Incarceration. (2 seltene Fälle von Ileus.) K. Stetter.
- 46 Operative Findings with War Wounds of Peripheral Nerves. F. Voelcker.
- 47 *Adhesive Plaster Dressing for War Wounds. (Ueber Heftpflasterverbände zur Beschleunigung der Heilung von Schusswunden.) E. Eisner.
- 48 Treatment of War Wounds of the Intestine. (Darmschüsse.) A. Krall.
- 49 *Tendon Plastic Operation for Paralytic Talipes. (Zur Behandlung des paralytischen Klumpfusses.) H. Matti.

43. **Local Anesthetization of Abdominal Cavity.**—Adam shows that for operations on the abdomen to be possible without pain, it is necessary to anesthetize the skin, the layers of the abdominal wall, the parietal peritoneum, the mesentery and the lesser omentum. Then he discusses the innervation and the points at which conduction can be blocked, and relates his experience with operations done without pain under paravertebral blocking of nerves. This does not include his operations for appendicitis or on one kidney or breast, done under paravertebral blocking of one side only. No disagreeable by-effects were noticed except in three cases; one patient had a hysteric spasm after the first injection, and two others grew pale and the pulse ran up to 120, but all returned to normal by the end of the operation. In another group of 95 cases, operations were done on the cecum under direct local anesthesia.

To anesthetize the entire abdomen it is necessary to inject the anesthetic to block the nerves from the fifth dorsal to the third lumbar vertebrae. Three injections each are made with one introduction of the needle, pointing it in different directions. An illustration is given to show the technic on the seated patient as practiced in Dollinger's service at Budapest. The experiences with it are said to have been very encouraging. The aim is to block the nerve at the point from which it controls the largest area. The patients do not feel the depression common after general anesthesia, and vomiting is extremely rare and never protracted. There is further no tendency to postoperative dilatation of the stomach nor to aspiration pneumonia. The numerous injecting points and the large amount of the anesthetic used, from 120 to 160 c.c. of the 1 per cent. solution of novocain, are drawbacks that may be reduced with improved technic. The experiences to date, however, show that local anesthetization of the abdomen can be realized.

44. **Large Intrathoracic Goiter.**—In Jehn's five cases at Zurich the goiter removed measured 6 by 10 by 11 cm. in one case, and 7 by 13 in another. The goiters weighed from 170 to 500 gm. All the patients were immeasurably relieved by the removal of the goiter, but one woman succumbed three weeks later to pulmonary embolism. The tumors were so vascular that it would have been dangerous to cut into them, so they were shelled out whole. In order to do this, the manubrium was slit and it spread at once enough for the purpose. The operation was much facilitated by being done

under positive pressure in Sauerbruch's air cabinet. The operation was under local anesthesia alone in four cases.

47. Overlapping Adhesive Plaster Dressings for War Wounds.—Eisner has revived this old method of treating wounds. He applies it when the region is beginning to heal and the temperature is normal or only slightly above. He found the method useful in particular for extensive, shallow wounds. The best results were obtained with an adhesive plaster made with admixture of scarlet red.

49. Tendon Plastic Operation for Talipes.—Matti reports the success in paralytic talipes of an operation in which a strip of the tendon of the peroneus longus is slit off and utilized to provide a second attachment for the tibialis anticus on the lateral margin of the foot at the head of the fifth metatarsal bone. This does not interfere in the least with the normal dorsal extension or supination action of the tibialis anticus, but it compensates perfectly for the pronation defect and hence the abnormal lifting of the side of the foot. He refrains from using the flexor or supinator muscles of the posterior group, when only the extensor and pronator group are at fault. Some cases may require shortening of the peroneus tendon or substitution of the peroneus function by grafting a lateral flap from the tibialis anticus on the tendon of the peroneus longus in the leg. Still other cases are corrected more smoothly by dividing the tendon of the peroneus longus, drawing it out through a buttonhole back of the head of the fifth metatarsal bone and grafting it on the tendon of the tibialis anticus above the ligamentum cruciatum, after tunneling under the fascia on the dorsum of the foot. The exact technic of various measures to meet different indications is described, with illustrations of a few typical cases of paralytic talipes, a sequel of poliomyelitis or of unknown origin.

Medizinische Klinik, Berlin

April 11, XI, No. 15, pp. 413-442

- 50 Attenuated Criminal Responsibility from Standpoint of Military Discipline and Compensation. (Nervöse und psychische Erkrankungen im Kriege. II.) A. Westphal and A. H. Hübner.
51 *Hygiene in the Field. P. Kuhn and B. Möllers. Continued.
52 *Garments to Protect Against Typhus. (Schutzkleidung gegen Flecktyphusübertragung.) C. Flügge.
53 Plaster Bridge Casts for Fractures in War. (Behandlung von Schussfrakturen mittels Gipsbrückenverbänden.) O. Grasser.
54 Sympathetic Ophthalmia in War. C. Adam and Others.
55 Synthetic Camphor Ranks with the Natural. C. Bachem.
56 *Treatment of Pregnancy Disturbances on Basis of Faulty Metabolism. (Zur diätetischen und medikamentösen Beeinflussung der Schwangerschaft und zur Eklampsiebehandlung.) P. Rissmann.

51. Hygiene in the Field.—Kuhn and Möllers describe the arrangements enforced wherever the troops are quartered, to ensure the health of the troops and of the native inhabitants. Facilities for bathing are provided in remodeled factories, etc. After bathing, the men are usually given tea. Provisions are also made for sports and outdoor games, and prizes are offered, as this is considered better in this "war of nerves" than sitting indoors when off duty.

52. Typhus.—Flügge relates that typhus has been contracted at the prisoners' concentration camps in Germany by twenty-three of the attendants and twelve of the physicians, and that eight of the latter have died. Better methods of warding off vermin must be devised, and he suggests, with rubber gloves, a one-piece suit covering all but the head, with adhesive plaster to close the openings at wrists and neck. Where this is not feasible, the edges can be smeared thick with Canada balsam or other sticky substance that would catch vermin like sticky fly paper. He stands on a sheet in removing the overgarment and the whole is then wrapped up and sent to be sterilized.

56. Dietetic and Medicinal Influencing of Pregnancy Disturbances.—Rissmann expatiates on the changes in the metabolism which regularly accompany pregnancy. About two-thirds of all pregnant women suffer more or less from them, and the condition should be regarded as pathologic as much as in a person with gout or diabetes. With these, we do not wait for serious symptoms to develop before instituting dietetic measures, and this should be the rule also in pregnancy. Meat and stimulants should be used sparingly, and

the stomach should never be overloaded and no constipation allowed. By this means, supplemented with ovarian extract and salts, it is possible to tide the patient along and never let the pathologic condition get so serious as to bring on eclampsia. It is on a plane with uremia and diabetic coma to which metabolic disturbances have been leading up. Eclampsia, he declares, never occurs without warning signals: The residual nitrogen is abnormally high, there is also retention of sodium and generally also of potassium. Hence, he emphasizes, saline infusion is contraindicated; sedatives other than morphin and chloral should be given, as morphin acts on the medulla first, while chloral is dangerous for the kidneys and heart. A narcotic should be selected that raises the threshold for stimulation of the brain and blocks sensory stimuli from reaching the consciousness. Once the convulsions have developed, the uterus should be evacuated without delay. Lumbar puncture has been advocated by many clinicians in the eclamptic form of pseudo-uremia, and in true "retention uremia," plenty of water by the drop method in the rectum. Intravenous infusion of an isotonic (4.5 per cent.) solution of grape sugar after venesection aids in the lavage of the blood.

Münchener medizinische Wochenschrift, Munich

April 6, LXII, No. 14, pp. 465-496

- 57 Intoxication from Gases from Exploding Shells. (Vergiftung durch kohlenoxydhaltige Explosionsgase aus Geschossen.) L. Lewin.
58 *Serodiagnosis in Dermatology. (Mittels des Abderhaldenschen Dialysierverfahrens gewonnene Ergebnisse auf dem Gebiete der Dermatologie.) G. Stümpke.
59 *Simplified and Improved Technic for Esophagoscopy. (Die Sekretentfernung bei der Oesophagoskopie.) W. Sternberg.
60 Acute Pancreatitis. H. Mehliß. Commenced in No. 13.
61 Fatigue versus Exhaustion. (Erschöpfung und Ermüdung.) C. Jacoby.
62 Principles for Treatment of Wounds in War. F. F. M. Haenel.
63 *Epinephrin in Treatment of Bacillary Dysentery. F. v. Gröer.
64 *Symptoms of Psychic Deficiency After Wounds of the Brain. (Psychische Ausfallserscheinungen nach Hirnverletzungen.) W. Poppelreuter.
65 *Trephining the Olecranon to Drain the Elbow. (Zur Drainage des Ellbogengelenkes.) G. Doberauer.
66 Massage Under Superheated Air. (Heissluft-Massage.) A. E. Stein.
67 *Prognosis and Treatment of Abdominal Wounds in War. (Bauchschüsse im Kriege.) G. Perthes. Commenced in No. 13.
68 Vaccine Treatment of Gas Gangrene. L. Kathariner.
69 Efficacy of Liquid Paraffin with or Without Admixture of Iodoform in Treatment of Wounds in War. (Einfaches, erfolgreiches, im Balkankrieg erprobtes Wundbehandlungsmittel.) Chrysospathes (Athens).

58. Serodiagnosis in Dermatology.—Stümpke has examined the serum from 200 patients with skin disease and hundreds of controls, following Abderhalden's technic. With gonorrheal epididymitis, prostate, epididymis and testicle tissue were digested almost constantly and in some cases also seminal vesicle tissue. In psoriasis there was digestion of kidney tissue, as also in recent generalized syphilis. With the latter, liver and spleen tissue were also digested. Most of the skin affections tested also showed digestion of kidney tissue; liver tissue was acted on likewise by serum from most of the cases of toxic dermatitis.

59. Technic for Esophagoscopy.—Sternberg's advocacy of the prone (abdominal) position for esophagoscopy was mentioned in these columns April 24, p. 1457. He here expatiates on its advantages in permitting the free outflow of secretions, and that the patient, in this position, can hold the tube himself and aid in other ways so that no assistant is required. By introducing a stomach tube to the point of the obstruction in the esophagus, negative and positive pressure can be alternated, thus releasing and pumping out all secretions.

63. Epinephrin in Treatment of Dysentery.—Gröer has found that epinephrin by the mouth has a remarkable action in quieting the abdominal pain and tenesmus which torment the patient in the severer cases of dysentery. By giving the epinephrin every one or two hours it is possible to keep the patients entirely free from pain. In an experience with 300 cases he found that even enormous amounts were borne without appreciable by-effects. The same action was apparent after intramuscular injection of epinephrin, but with this the

usual effects on the heart were apparent, which was not the case when given by the mouth; only the relief from abdominal pain, nausea, and singultus was realized then. Pain in stomach or bowel of non-dysenteric origin was not affected in a number of cases. Addition of epinephrin to tepid saline for flushing the bowel also had such a remarkably favorable action that it suggests the possibility that epinephrin may have a direct neutralizing action on the dysentery toxin. His own experience and that of Marie and Kassowitz have confirmed that epinephrin has a detoxicating effect on diphtheria toxin to a certain extent.

64. Psychic Symptoms after Wounds of the Brain.—Poppelreuter has had thirty patients with brain wounds under his care and supervision for months, and has thus learned a number of points with regard to deficit phenomena. Among those he emphasizes is that the capacity for figures may be impaired when there is no actual aphasia. Hence testing with figures is a peculiarly delicate test for injury of the brain. In one shell wound of the left inferior occipital lobe, the man was unable to do any sums in division although no other mental disturbance was apparent. In nearly all the cases of injury of the right hemisphere there was more or less loss of memory. One medical student thus had lost all memory of the chemical formulas and prescriptions he had learned in his eight semesters. Localized injury of the brain entailed not only the specific deficit phenomena but the whole personality was essentially modified. The results of reeducation and training have been very gratifying, hemiplegics are learning to use the typewriter, and the deaf are learning lip reading, etc.

65. Draining the Elbow.—A bullet ploughed through the olecranon and the facilities for draining thus realized were so unusually good that Doberauer since has systematically trephined the olecranon in all cases requiring drainage of the elbow. He extols the advantages of this technic as it not only drains the joint by gravity and permits ample access but it leaves the ligament apparatus intact and avoids all danger of injury of nerves. The functional outcome was thus surprisingly perfect even when a bullet or shell had injured the bone and suppuration had followed.

67. Abdominal Wounds.—Perthes relates that the largest majority of the abdominal wounds in this war prove fatal within three days. About 42 per cent. succumb of those reaching the field hospital. In fully half of those leaving the field hospital alive, no viscus was injured and naturally these recover. Many of the others succumb to later complications. It is possible that better results might be obtained with operative treatment by one skilled in abdominal operations if done within twelve hours, when the general condition does not indicate irreparable lesions.

Gazzetta degli Ospedali e delle Cliniche, Milan

March 25, XXXVI, No. 24, pp. 369-384

- 70 Crotalin in Epilepsy; Five Cases; No Appreciable Benefit. (Sul valore curativo del veleno del crotalo nell' epilessia.) G. Corso.

April 4, No. 27, pp. 417-432

- 71 *Associated Lymphoid and Myeloid Proliferation. (Le linfomi associati.) G. Ghedini.

- 72 *Landau's Color Test for Syphilis. (Studio della reazione di Landau nella sifilide.) G. Cappello.

April 8, No. 28, pp. 433-448

- 73 Painless Delivery Under Narcophin-Scopolamin; Seven Cases. (Il parto senza dolore.) E. Curti.

71. Combination of Lymphosis and Myelosis.—Ghedini remarks that the association of abnormal proliferation of the lymphatics with proliferation of the blood-producing organs is not admitted by some, but he cites four typical cases to establish its possibility. One is from his own experience and one was observed by Ollino, the others by Herz and Frank. In his case the myelosis came on in the course of chronic lymphosis, in two others the two seemed to develop together, and in the fourth case the lymphosis developed during chronic myelosis. Some were of the leukemic and some of the aleukemic type.

72. Landau's Color Test for Syphilis.—Cappello's experience with the Landau test has been extremely favorable. The

findings in 41 cases were positive in 13, dubious in 4 and negative in 24 while the parallel Wassermann was positive in 11 and negative in 26. In 27 cases (65.8 per cent.) the two tests gave concordant findings, including 8 with positive reactions. The tests gave contradictory findings in 17.3 per cent. In the 14 other cases in which there was partial disagreement, the clinical manifestations sustained the Landau findings against the Wassermann in 6 cases, and sustained the Wassermann against the Landau in 2. In 4 cases of syphilis in which vigorous treatment had been given, the Landau was still positive in 3, while only 1 responded positively to the Wassermann, indicating that the Landau is more sensitive than the other. He says he followed Landau's second technic which he cites as follows, crediting it to the *Presse Médicale*, May 2, 1914: To 0.2 c.c. of the blood serum in a test tube he adds 0.1 c.c. of the reagent, represented by a 1 per cent. solution of iodine in carbon tetrachloride. The mixture is set aside at room temperature for four hours. With normal serum the fluid is an opaque white, while syphilitic serum is clear and transparent. Cappello made up the reagent fresh each time, with serum not over six hours old, and free from hemoglobin. The only change he made in this technic was to use double the quantities of both serum and reagent.

Policlinico, Rome

April 11, XXII, No. 15, pp. 485-516

- 74 Rapid Healing Under Neosalvarsan of Old Chronic Ulcus Rodens of the Vulva; Three Cases. V. Fisichella.

- 75 Forcing of the Heart and Its Consequences. (Lo sforzo del cuore e sue conseguenze.) P. Ercolani.

Riforma Medica, Naples

April 3, XXXI, No. 14, pp. 365-392

- 76 Universal Oscillometer. A. Fulchiero.

- 77 *Diagnosis of Tumors of the Thymus. (Alcune forme di neoplasia timica.) A. Roccavilla. Commenced in No. 13.

- 78 Peritonitis Simulated by Suprarenal Hemorrhage. (Sindrome pseudo-peritonitica consecutiva ad emorragia traumatica di una capsula surrenale.) R. Mosti. Commenced in No. 12.

April 10, No. 15, pp. 393-420

- 79 Castellani Method of Preparing Typhoid-Paratyphoid Mixed Vaccine. F. P. Titone.

- 80 *Operative Treatment of Sagging Liver and Gallstones. (Epatopexia e colecistostomia contemporanee per epatoptosi totale e calcolosi.) M. Francini.

77. Thymus Tumors.—Roccavilla describes a unique case of a tumor in the thymus—although Claude has recently reported a case resembling it in some respects in a man of 51 with paralytic myasthenia. He was under close medical observation for eight months but never presented any symptoms of pressure in the mediastinum, and yet necropsy revealed a retrosternal encapsulated primary epithelioma starting in the thymus. It had developed mostly to the right so there was no pressure on the trachea or large vessels. In Roccavilla's case the large tumor in the thymus was of a lymphosarcomatous and endotheliomatous nature. The patient was a man of 52 with paraplegia, and he was under observation only two months before his death. He succumbed to sepsis from a decubitus. The tumor had spread in various directions but had adapted itself to conditions so there was no compression of vessels or organs enough to induce symptoms, although the bodies of the four adjoining vertebrae had softened. The details of the case and necropsy findings were published at the time, July, 1913, and have attracted considerable attention. Roccavilla replies here to a number of questions asked or points raised by others, discussing the diagnosis of thymus tumors in general.

80. Operative Treatment of Sagging Liver and Gallstones.—In Francini's patient the sagging liver was part of a general tendency to ptosis of the viscera that had developed after repeated pregnancies at brief intervals. After a period of mild local pains, they became intense and radiated to the shoulder. The liver was fastened in place by Jeannel's technic, after which the gallbladder was opened to remove the gallstones and the lips of the incision were sutured to the wound. By this means all danger of infecting the new supports of the liver was avoided while the gallbladder supplied additional support.

Brazil-Medico, Rio de Janeiro

March 22, XXIX, No. 12, pp. 89-96

- 81 Brazilian Nematelminth Worms. (Revisão dos acantocephalos brasileiros. I fam. Gigantorhynchidae Hamann, 1892) A. Neiva.
- 82 Facultative Blood-Sucking Power of Brazilian Bug. (Sobre o hematophagismo do Apionerus Nigrilobus—Stal.) A. Carini and J. Maciel.
- 83 *Chorea in Pregnant Women. (Chorea gravidica.) O. Ayres. Commenced in No. 12.
- April 1, No. 13, pp. 97-104
- 84 Echinococcus Disease in Rio. (Da presença do cysto hydatice no Rio de Janeiro.) L. Travassos and O. D'Utra.
- 85 *Tartar Emetic Specific Treatment for Leishmaniosis; Three Cases. O. Torres.

83. **Chorea in the Pregnant.**—Ayres emphasizes that chorea in pregnancy is probably connected with some disturbance in the ductless gland system. The mortality is always high and the prognosis grows graver when it is accompanied by mental disturbance. He proceeds to compare three cases he has encountered with the data in the literature, and gives the details of his cases. The first patient was a woman of 27 and the chorea came on with a stormy onset and coma for several hours. The choreic movements and convulsions continued a progressive course, only transiently influenced by symptomatic treatment of all kinds, including magnesium sulphate, thyroid treatment, various sedatives, neosalvarsan and lumbar puncture. Abortion was early induced but made no difference in the clinical picture, and the chorea progressed to a fatal termination. The woman had been previously healthy except for a tendency to constipation. The Wassermann was negative as likewise examination for gonococci.

The second patient, 18 years old, was also previously healthy and the pregnancy was only of one month's standing. The acute chorea proved fatal the ninth day. The necropsy findings are related in detail, but nothing was found that threw any light on the case. The third patient was 23, and she had noticed the choreic movements almost from the first after conception. At the fourth month they had become so violent she entered the hospital where the uterus was emptied after failure of all other treatment to relieve, and the chorea ceased at once. A year or two later she passed through a normal pregnancy without any return of the chorea or other mishap.

85. **Tartar Emetic in Leishmaniosis.**—Torres' three patients were men of 19, 40 and 43, and the leishmania ulcerations in the throat and nose were of several years' standing in all. A complete cure has been realized in one case under the intravenous injections of the antimony and potassium tartrate, and the others are well on the way to recovery. The first mentioned was given about forty injections, representing a total of 4.6 gm. tartar emetic. The leishman lesions in the mucous membrane are much harder to cure than those on the skin. The latter yield promptly to this treatment. It has no action on syphilis, and the measures found useful in syphilis have no effect on leishmaniosis. An interesting illustration of this, he adds, was given in a recent case of leishmaniosis in a child with inherited syphilis. The manifestations of the latter subsided under mercurial treatment, leaving the leishmaniosis unmodified, and this subsided under the tartar emetic. The solution for injection must be made up fresh and the course commenced with small tentative doses. Cautious local applications may hasten the cure.

Semana Medica, Buenos Aires

March 18, XXII, No. 11, pp. 341-372

- 86 Principles of Biologic Psychology. J. Ingenieros.
- 87 Oculomotor Paralysis in Cuba. J. Santos Fernandez.
- March 25, No. 12, pp. 373-408
- 88 Toxic Action of Certain Stains on Protozoa. (Toxicidad de los colorantes imino y fenolicos nitrados sobre algunas especies de protozoarios.) L. Guglielmelli and J. J. Carbonell.
- 89 Diego Ruiz, the Spanish Medical "Philosopher of Enthusiasm," 1882. (Notas de una personalidad de filosofo y de medico.) E. C. de Portocarrero.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

April 10, I, No. 15, pp. 1165-1256

- 90 Radiotherapy of Cancer. (Stralenbehandeling in de gynaecologie. III.) T. H. Van de Velde.
- 91 Experimental Variations in the Heart Rhythm. (Over de hart-rhythmiek. II.) S. De Boer.

Hospitalstidende, Copenhagen

April 14, LVIII, No. 15, pp. 353-376

- 92 *Multiple Ligation of Varicose Vein. (Behandling af Varicer paa Underekstremiteterne efter Kuzmik-Shedes Metode.) K. Secher.
- 93 Chronic Nonmalignant Tumor of Salivary Gland. (Kronisk Splyt-kirteltumor.) H. v. Thun.

92. **Ligation Method of Treating Varices.**—Secher has applied to four patients the technic introduced by Schede and Kuzmik, and extols it as simple and free from danger, while it takes comparatively little time and the outcome is excellent and permanent. It can be applied in the home or office, and is thus particularly useful for the general practitioner. Kuzmik has reported its application in 155 cases; in most of them the varices were extremely pronounced and of long standing. Under general anesthesia a silk suture thread or catgut is passed around under the vein, without exposing the vein, and this is repeated at intervals along the vein. The ends of each thread are then tied over a roll of gauze or rubber tube, and the patient stays in bed one or two weeks. Schede applies the catgut threads at 2 cm. intervals and removes them after two or three days and lets the patient get up with a bandage the eighth day. Kuzmik uses silk, at 5 cm. intervals, and leaves the threads unmolested for twelve days.

Hygiea, Stockholm

LXXVII, No. 6, pp. 289-354

- 94 *Cerebellar Symptoms in Myxedema. (Om lillhjärnssymptom vid myxödem.) M. Odin.

94. **Cerebellar Symptoms in Myxedema.**—Odin gives an illustrated description of a woman of 52, previously healthy and with healthy children, who had developed myxedema in the last ten years. The gait finally became slow and dragging, as likewise the speech, and certain groups of muscles displayed a tendency to catalepsy and other cerebellar phenomena. Under thyroid treatment of the myxedema the cerebellar ataxia and other symptoms promptly disappeared. Söderbergh has reported similar cerebellar phenomena in four cases, but Odin's was the only one in the group of five with what is called *mouvements démesurés*. All of them displayed pronounced catalepsy, contrasting curiously with the bright and intelligent mind in each case.

Nordisches medizinisches Archiv, Stockholm

Feb. 27, XLVII, Surgical Section No. 2. Last indexed April 3, p. 1202

- 95 *Torsion of the Testicle; Reposition. (Fall von Hodentorsion.) A. Prag.
- 96 *Deformity of the Kidney from the Surgical Standpoint. (Nierenmissbildungen.) E. Key.
- 97 *Treatment of Metapneumonic Empyema. J. Borelius.
- 98 *Operative Fixation of Spine; Twenty-One Cases. H. Waldenström.
- 99 Utilization of Scapular Musculature in Treatment of Old Pleural Empyema. N. Hellström.
- 100 *Transpleural Resection of Cancerous Esophagus; Two Cases. F. Bauer.
- 101 Primary Localization and Mode of Spread of Tuberculous Process with Chronic Blood-Borne Tuberculosis of the Kidney. G. Ekehorn.
- 102 Fibrous Ostitis of Frontal and Adjacent Bones. (Revision eines Falles von "Sarkom des Sinus frontalis.") A. Krogus.
- 103 *Stomach Disturbances in Connection with Chronic Inflammation of the Omentum. (Gastropathia epiploica.) G. Ekehorn.

95. **Torsion of the Testicle.**—Löfberg has reported three cases compelling operative relief, but in the case related by Prag the testicle was merely untwisted back into place. The torsion must have been of 360 degrees. The young man had had a similar attack a few months before, sudden intense pain in the abdomen and scrotum coming on in the night. Just as he reached the hospital all the pain vanished, and nothing abnormal could be found. The patient has been warned to apply without delay for operative fixation if there is any further trouble in this line.

96. **Malformations of the Kidney.**—Key reviews the various types of malformations of the kidney that have been encountered, and emphasizes the necessity for bearing in mind the possibility of a deformity of the kidney.

97. **Metapneumonic Empyema.**—Borelius relates that 27 were cured by operative treatment, of the 34 cases of metapneumonic empyema in his service at Lund since 1908. In 21 cases of septic empyema, 16 were cured and 2 of 7 with

tuberculous empyema. Four recovered of the 5 in the group treated with thoracentesis alone; they left the hospital in good condition in from thirty to forty-five days. In 12 cases thoracentesis had to be supplemented by thoracotomy and 10 recovered, but this required from thirty-six to 230 days, averaging 107. The 13 who recovered out of 17 under primary thoracotomy were in the hospital from twenty-one to 120 days. In the 21 septic cases, recovery in 16 was not complete until after intervals up to 420 days, and 5 patients died. In his 8 cases of metapneumonic empyema last year, 3 were pure pneumococcus cases and some recovered after thoracentesis alone. The technic for the operation and the aftercare are important factors in the outcome and thorough and early draining is indispensable. The figures cited all testify in favor of primary thoracotomy as giving the best result on the whole.

98. **Autobone Fixation of the Spine.**—Waldenström has been applying Albee's transplant method of operative treatment of deformed spine from spondylitis, only he regards the fixation as the important point. In order to render the fixation firmer, Waldenström implants the bone in a way to take the place of the destroyed bone and support the weight of the body above. He straightens the spine first and seeks to have it and the tibia transplant fused into a solid, unbending, straight whole after the operation. He keeps the patient on his back in the same plaster bed in which the correction of the hump has been realized. Then a plaster corset is worn for two more months. Weight bearing should be very slowly and gradually permitted, not allowing strain enough to bend the bone implant. He gives the details of his operation which differs in a number of points from Albee's technic. The spine is now straight and firm in all but three of his 21 cases thus treated; in seventeen the course is complete and the results most gratifying.

100. **Transpleural Resection of Cancerous Esophagus.**—The tedious operations in the two cases were carried through successfully, but one patient succumbed to pulmonary embolism a few days later and the other to suppuration around a perforation in the esophagus. The necropsy showed that the operation itself had been a success. Bauer advocates operating as the last resort in every case. After an opening has been made into the stomach and the patient's strength brought up by good nourishment, the chest should be opened and, if there is any chance at all, the esophagus should be resected.

103. **Stomach Trouble Secondary to Chronic Inflammation of the Omentum.**—Ekehorn reports two cases and cites one published by Destot in which chronic inflammation of the omentum caused pain in the stomach region, independent of the meals, and vomiting after eating. The pains and cramps lasted about a half hour at a time and returned several times a day or with free intervals of a few days. These disturbances had dragged through several years in one case. In the second case the onset was more stormy and the troubles more serious and persistent. Immediately after eating there were stabbing pains, even after a small glass of milk. This patient was a man of 37 and operative relief was obtained after three months. There was a tender area above the umbilicus in both, but roentgenoscopy was negative and nothing was found to suggest an ulcer. In both the omentum showed signs of chronic inflammation, and both were entirely cured by resection of the omentum. The first patient, a married woman of 31, had vomited after every regular meal for eight years; there has been no vomiting since the operation, and no pains in either case. Certain signs in the second case suggested that the inflammatory process in the omentum might be traced to appendicitis, but nothing was found to explain it in the woman.

Ugeskrift for Læger, Copenhagen

April 1, LXXVII, No. 13, pp. 477-542

104 *Diagnosis and Treatment of Ulcer of the Lesser Curvature of the Stomach. (Ulcus curvaturae minoris ventriculi.) A. Borgbjærg. Commenced in No. 12.

105 Keratomalacia in Infants Fed on Buttermilk; Thirty-Five Cases in Seven Months. (Kærnemælksernæring og Keratomalaci.) H. Rønne.

April 8, No. 14, pp. 543-576

106 *Nutrient Enemas. (Rektalernæring.) V. Scheel and E. Begtrup.

107 Typhoid at Copenhagen in Last Fifteen Years. G. Behncke.

104. **Ulcer of the Lesser Curvature of the Stomach.**—Borgbjærg analyzes his experiences in 48 cases of pyloric ulcer, 13 of duodenal and 27 of ulcer in the lesser curvature, with special regard to the latter group in the total 88 cases. Thanks to roentgenoscopy, an ulcer in the lesser curvature is now readily diagnosed as a rule. In 14 cases of simple ulcer in the lesser curvature, periodical recurrence of the pains was unmistakable in 78.6 per cent., but there was no evidence of hypersecretion except in 14.3 per cent.; acidity was normal in 42.9 per cent., and below normal in 28. There was no pronounced retention of stomach content in any case, and the evacuation of the stomach was normal in 50 per cent. and only slightly retarded in 28.6 per cent. In 6 of the 14 cases there was vomiting but it occurred soon after eating and was of small amount, sometimes being only mucus. There had been hematemesis in 5 and melena in one case.

The most constant and characteristic symptom was pain in the cardia region sooner or later after eating. This pain seems to come on early when there is hypersecretion and late with subacidity. These data demonstrate that from the clinical symptoms alone it is impossible to determine the location of the ulcer or even that there is an ulcer. The disturbances were ascribed to everything but the right cause, and futile treatment had long been applied for the assumed neurasthenia, hysteria, colitis or gastroptosis. One or more of these affections may actually accompany and overshadow the ulcer. The patients grow more and more nervous as their general health is suffering from the ulceration, and the various measures applied fail to relieve their symptoms.

Localization of the pain in the lesser curvature region is instructive, as also tenderness at this point. In order to avoid suggesting this tenderness, he begins to apply pressure at a distance and gradually works up to the suspected point. Suspicious clinical findings become certainties when confirmed by the Roentgen rays. He found pronounced circumscribed pain on pressure in two-thirds of his 27 cases of ulcer in the lesser curvature, and in 71 per cent. of his 14 uncomplicated cases. This tenderness is particularly suggestive when it is to the left of the median line. In the 48 cases of pyloric ulcer, there was tenderness in 21, but always to the right of or on the median line, with one exception.

Adding his 27 cases to 27 from Pers' service, a radical operation was done in 20 of the 54, and the outcome seems to show that radical measures are more effectual while fraught with no more danger than conservative treatment. They sweep away all danger of cancer in the ulcer.

106. **Nutrient Enemas.**—Scheel tabulates the metabolic findings and other details in four out of sixteen cases thus investigated over several weeks on different types of nourishment by the rectum. The findings testify to the good absorption and utilization of suitable nutrient enemas, thus sparing the reserves in the body and supplying quite an essential part of the nourishment requirement. It was found that milk and eggs irritated the rectum and were not absorbed properly, not even when pancreas extract was given with them. The best results were obtained with meat amino-acids. The 10 gm. nitrogen were given with 50 or 75 gm. grape sugar in the course of the twenty-four hours fractioned in two or three enemas. About 250 c.c. of fluid was found the best amount for a single enema. The osmotic concentration was kept at about the same as that of the tissues, to avoid irritation. More than 25 gm. sugar should never be given at one time. He found the drop method impracticable for reasons he enumerates. The nutrient enemas were kept up for nearly three weeks. It is possible in this way to supply 400 or 600 calories daily. As the nitrogen balance is thus maintained, the reserves of fat in the body are drawn on for the balance of the calories required, and this fat loss can soon be made up again at the close of the course. All the patients had had hematemesis from a gastric ulcer. Most of the amino acids used were made in the hospital by long continued digestion of meat or milk by trypsin-crepsin.

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HISTORY AND EPIDEMIOLOGY OF TYPHUS FEVER

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There are medical historians who find evidence of the existence of typhus fever among the ancient Hebrews and their contemporaries, but this is a matter of conjecture. While this disease has long been known as *morbus pauperum* associated with want and famine, we must not infer that it is the only fever which develops and thrives among the needy and in times of scarcity of food and other privations. Poverty and overcrowding favor the development and distribution of many infections. Some of the cases reported by Hippocrates in his book on epidemics are certainly suggestive of typhus. The following is the report of a case, now believed to have been typhus, made by Hippocrates, as translated by Adams:

In Thasus the wife of Dealces, who was lodged on the plain, from sorrow was seized with an acute fever, attended with chills. From first to last she wrapped herself up in her bedclothes; still silent, she fumbled, picked, bored and gathered hairs (from the covers); tears and again laughter; no sleep; bowels irritable, but passed nothing; when directed, drank a little; urine thin and scanty; to the touch of the hand the fever was slight; coldness of extremities. On the ninth (day) talked much incoherently, and again became composed and silent. On the fourteenth, breathing rare, large, at intervals; and again hurried respiration. On the sixteenth, looseness of the bowels from a stimulating clyster; afterwards she passed her drink, nor could retain anything, for she was completely insensible; skin parched and tense. On the twentieth much talk and again became composed; loss of speech; respiration hurried. On the twenty-first she died. Her respiration throughout was rare and large; she was totally insensible; always wrapped up in her bedclothes; either much talk or complete silence throughout. Phrenitis.

The great Athenian pestilence so well described by Thucydides was either typhus or the pneumonic form of the plague. Livy and Tacitus tell of many epidemics in the classical period of Rome. Some of these undoubtedly were epidemics of the plague, while the descriptions of others suggest typhus. The dark ages were so overshadowed by disease and superstition that medical records of value are almost wholly wanting. In the siege of Granada in 1489 no less than 17,000 of Ferdinand's soldiers died of a fever which was designated as "Tabardillo," on account of the spots appearing on the skin. This term is still one of the Spanish names for typhus. In the sixteenth century two Italian physicians, Fracastorius of Verona and Cardanus of Pavia, described typhus fever so plainly that there can be no doubt about the disease

which then prevailed. In four years (1550-1554) more than one million people in Tuscany were destroyed by typhus. Fracastorius describes the disease as "*Febris pestilens*," and states that it was vulgarly known as "*Lenticulae*" or "*Puncticula*." He says from the fourth to the seventh day red eruptions appear on the arms, chest, and back. They resemble flea bites, only are somewhat larger. They also resemble lentils and from this comes the popular name. The most marked symptoms mentioned are great prostration, feeble pulse, injected conjunctivae, and low muttering delirium. Some are somnolent while others are excited and wakeful, while in still others these states alternate. The disease lasted from seven to fourteen days, rarely longer. The majority of those who were bled died and a supporting treatment proved best. Cardanus and other Italian physicians stated that many of the practitioners of the time mistook this disease for measles, and Massa of Venice wrote on the distinctions between the eruptions of this disease and those of measles and smallpox. About the middle of the sixteenth century this disease was widely prevalent in France and Coyttarus of Poitiers wrote a monograph on it, under the title "*De Febribus Purparatis*" and somewhat later Ambrose Paré, the distinguished surgeon, wrote of "*febris pestilens*" which was marked by eruptions resembling the bites of fleas or bed bugs.

Morbus Hungaricus appeared in the army of Maximilian II in Hungary in 1566, and soon spread over the greater part of Europe. Sennertus and others have left descriptions of this epidemic. The skin was marked by flea-bite eruptions. Headache was intense and followed by delirium. In some, the tongue became black, parotid abscesses developed and gangrene of the limbs occurred.

Under the title, "*Febris maligna punctularis seu peticularis*," Castro of Verona (1580) pictured the symptoms. The pulse is small and weak; the tongue dry and black; the face and eyes greatly congested; delirium, followed by stupor deepening into coma; parotid abscesses in some, the eruption appearing about the seventh day and the disease continuing from fourteen to twenty days. Castro says that this disease was known to the French as "*La Pourpre*;" to the Italians as "*Petecchie*;" to the Spaniards as "*Tabardillo*," and to the Germans as "*Fleckfieber*."

During the sixteenth century typhus fever was so prevalent in the jails of England that the disease spread among the court officers when prisoners were brought before them for trial. This happened repeatedly and gave to court sessions the designation of "*black assizes*." The first of these of which record is left occurred at Cambridge in the thirteenth year of the reign of Henry VIII (1522). The justices, bai-

liffs, gentlemen and other persons in court were seized with a fever which proved fatal to many. The most notable report of a "black assize" is that at Oxford in the twentieth year of the reign of Elizabeth (1577). The prisoner was Rowland Jenks, a bookbinder and a Roman Catholic, who was charged with treason and profanity of the Protestant religion. He was sentenced to lose his ears. The trial was held at Oxford Castle, July 4. Several prisoners were brought into court in the course of the trial. The chronicle states that "an infectious damp of breath" spread through the room. "Above six hundred sickened in one night; and the day after, the infectious air being carried into the next village sickened there more than an hundred more." By the twelfth of August 510 persons perished. "The infection arose from the nasty and pestilential smell of the prisoners when they came out of the jail, two or three of whom had died a few days before the assize began." The disease was marked by loss of appetite, headache, sleeplessness, loss of memory, deafness and delirium, so that the victims behaved like madmen. The Catholics saw in this the scourge of God for the unjust punishment, and the Protestants attributed it to the "diabolical machinations of the Papists."

During the Thirty Years' War (1619-1648) the whole of central Europe was desolated by war, famine and pestilence. The nature of the epidemic is plainly shown by both medical and lay writers and its ravages were portrayed in both prose and poetry. One verse of a song runs as follows:

Per omnes

Burgundos et quas stagnans Arar irrigat urbes
Insolita exarsit febris, quae corpora rubris
Inficiens maculis (triste et mirabile dictu!)
Quarta luce frequens fato pendebat acerbo.
Pulsus erat minimus, tremulusque soporque
Mens vaga, visque labens; lotium crassumque rubensque
Interdum tenuae instar aquae.

In 1658, Morton states that England was one vast hospital filled with the victims of a fever with "maculae latae et rubicundae morbillis similes in toto corpore." The great plague of London (1665) was preceded, accompanied, and followed by typhus and some of the most eminent medical men of the time, notably Sydenham, frequently confounded plague and typhus in the reports of their cases. Under the title, "Febris Petechialis vera" Hoffmann of Halle (1700) gave an excellent account of typhus and pointed out its distinction from the plague, which he designated "Febris Pestilens." The eighteenth century saw no abatement of epidemics of typhus. This disease had long afflicted Ireland under the name of "Irish ague," but it was not until 1708 that permanent records of its ravages were made. From that time on for more than a century and a half Ireland was afflicted by one epidemic after another, just as fast as new generations supplied a crop of susceptible material. The historian has no difficulty in showing that each exacerbation was coincident with a period of great want and poverty, but this was a chronic condition of the Emerald Isle during this period. The people were oppressed by their rulers, divided among themselves, held in the grossest ignorance and fed on superstition. Most of those who had enough energy emigrated to foreign lands, thus impoverishing their native land of its best blood to such an extent that it has not yet wholly recovered. An account of one epidemic of typhus in Ireland is

much like all others. Nothing to eat but potatoes; and an adult would devour ten or more pounds of these tubers each day in the vain attempt to supply his body cells with the minimum amount of protein demanded. Driven by hunger to sell the cow, furniture, and even his clothing, the Irishman and his family huddled together in rags and filth, while vermin fed on their bodies and simultaneously inoculated them with typhus. Murchison says: "In Dublin, the servants of the upper classes were not allowed potatoes, and bread was portioned out to them sparingly, few persons had more than a quarten loaf in the week. The poor pawned their clothes, and even their bedding for money to purchase food, and, as a natural consequence, it was common for several members of one family to sleep in the same bed." According to O'Connell, eighty thousand Irish died in 1740-1741 of famine and spotted fever and one-fifth the population of Munster perished. Writing of a nineteenth century epidemic of typhus in Ireland, Murchison says:

Extreme distress ensued. The four pound loaf was sold in Dublin in 1817 for 1s, 9d; and the poor throughout Ireland are described as wandering about the country gathering nettles, wild mustard, and other weeds, to satisfy the cravings of hunger. . . . The probable population of Ireland at this time was, in round numbers, six million, and the number of sick was estimated at 737,000, or at about one-eighth. In Dublin alone there were about 70,000 cases, making about one-third the inhabitants.

Of the same epidemic Carleton wrote:

People collected at the larger dairy farms waiting for the cattle to be blooded, so that they might take home some of the blood to eat mixed with a little oatmeal. The want of fuel caused the pot to be set aside, windows and crevices to be stopped, washing of clothes and person to cease, and the inmates of a cabin to huddle together for warmth. This was far from the normal state of the cottages or even of the cabins, but cold and hunger made their inmates apathetic. Admitted later to the hospitals for fever, they were found bronzed with dirt, their hair full of vermin, their ragged clothes so foul and rotten that it was more economical to destroy them and replace them than to clean them.

The roads were filled with infected vagrants and many a poor cottier not only divided what he had in alms, but by giving shelter to the wanderer introduced the infection into his humble home, while "the dogs of the gentry kept all beggars from their gates."

The last great Irish famine (1845-1848) was the occasion for the prevalence of relapsing fever and scurvy as well as typhus fever. This scourge was foreseen in the development of the potato blight and was mitigated somewhat by the repeal of the corn laws and by a change in the navigation laws permitting the carrying of food supplies in other than British bottoms. At that time Ireland lived almost exclusively on milk and potatoes. Although it produced more than enough grain to feed itself, even in these years of the potato blight, most of this had to be sent to England to pay the rents. Years before both Malthus and Cobbett had protested against a people trying to live so largely on potatoes. The former wrote as follows:

When the common people of a country live principally on the dearest grain, as they do in England, on wheat, they leave great resources in scarcity; and barley, oats, rye and cheap soup and potatoes all present themselves as less expensive, yet at the same time wholesome means of nourishment, but when their habitual food is the lowest in the scale, they

appear to be wholly without resource except in the bark of trees like the poor Swedes; and a great portion of them must necessarily be starved.

After this famine the Irish ceased to rely so largely on the potato, emigration to this country and Canada greatly increased, and "the population has steadily declined and the well being of the people steadily improved."

Before dismissing the subject of Irish typhus epidemics, I wish to add a quotation from Creighton, showing that the case mortality in this disease is higher among the robust and well fed than among the weak and hungry. "There appeared to be a scale of malignity in the fevers in an inverted order of the degree of misery. The most wretched had the mildest fever, the artizan class or cottagers had typhus fatal in the usual proportion, the classes living in comfort had typhus of a very fatal kind. This experience, however strange it may seem, was reported by medical observers everywhere with remarkable unanimity. One says that six or seven of the rich died in every ten, others say one in three. Forty-eight medical men died in 1847 in Munster, most of them from fever; in Cavan County seven medical men died from fever in twelve months and three more had a narrow escape of death; two of the three physicians sent by the Board of Health to the coast of Connemara died of fever. Many Catholic priests died, as well as some of the established Church Clergy; and there were numerous fatalities of the resident gentry and among others who administered the relief. Yet a case of fever in a good home did not become a focus of contagion; the contagion came from direct contact with the crowds of starving poor, their clothes ragged and filthy, their bodies unwashed, and many of them suffering from dysentery. The greater fatality of fever among the richer classes (of course, with a much smaller number of cases) has been a commonplace in Ireland and is remarked by the best writers."

Creighton in his valuable "History of Epidemics in Britain" has shown some interesting facts concerning typhus in England during the eighteenth century. I will follow his facts but will draw my own conclusions.

During the half century from 1715 to 1765 England was most prosperous financially. Monied men built up great fortunes and the necessities of life were abundant and cheap. With two or three exceptions the harvests were rich and grain was exported in great quantity. Historians state that under the first two Georges there was general prosperity. Even Adam Smith speaks of "the peculiarly happy circumstances of the country during the reign of George II (1726-1760). Hallam speaks of this period "as the most prosperous that England had ever experienced." Lecky says:

All the evidence we possess concurs in showing that during the first three-quarters of the century the position of the poor agricultural classes in England was singularly favorable. The price of wheat was both low and steady. Wages, if they advanced slowly, appear to have commanded an increased proportion of the necessities of life, and there were all the signs of growing material well-being. It was noticed that wheat bread, and that made of the finest flour, which at the beginning of the period had been confined to the upper and middle classes, had become before the close of it over the greater part of England the universal food, and that the consumption of cheese and butter in proportion

to the population in many districts almost trebled. Beef and mutton were eaten almost daily in the villages.

Johnson wrote:

There every bush with nature's music rings
There every breeze bears health upon its wings.

However, there were even at this time some who saw beneath the surface of abundance and prodigality. An economist, Rogers, pointed out that the prosperity was all on the side of the ruling classes and the capitalists, while the laborers were in "irremediable poverty and without hope." Their wages were artificially fixed by the quarter sessions and they were kept "in a condition wherein existence could just be maintained."

Creighton writes:

But the Eighteenth Century, even the most prosperous part of it, from the accession of George I to the beginning of the Industrial Revolution in the last quarter or third of it, was none the less a most unwholesome period in the history of England. The health of London was never worse than in those years, and the vital statistics of some other towns, such as Norwich, are little more satisfactory.

In 1782, White wrote of the fever in London:

The annual deaths under the old regime exceeded by a good deal the annual births; in the seven years, 1728-35, according to the figures in the parish registers, the burials from all causes were 3,488 and the baptisms 2,803, an annual excess of 98 deaths over the births in an estimated population of 10,800 (birth rate 37 per 1,000, death rate 46 per 1,000).

Creighton says:

The mean annual deaths were never higher in London, not even in plague times over a series of years, the fever deaths keeping pace with the mortality from all causes, and, in the great epidemic of typhus in 1741, making about a fourth part of the whole. The populace lived in a bad atmosphere, physical and moral.

It is stated that the consumption of alcohol in London amounted to six gallons per head per annum. A duty of 20 shillings per gallon did not prevent the poor from getting it, and large quantities of gin were smuggled in from Holland. In 1726 the College of Physicians presented this matter to the House of Commons with the following statement:

We have with concern observed for some years past the fatal effects of the frequent use of several sorts of distilled spirituous liquor upon great numbers of both sexes, rendering them disease, not fit for business, poor, a burthen to themselves and neighbors, and too often the cause of weak, feeble and distempered children, who must be, instead of an advantage and strength, a charge to their country.

The poor in London were crowded into small quarters. In 1737 one house was found to contain eleven married couples and fifteen single persons. A tax was levied on each window in the house and each window in the cellar, stairway and outhouse was counted and skylight included. "No window or light shall be deemed to be stopped up unless such window or light shall be stopped up effectually with stone or brick or plaster on lath."

Debtors were thrown into prison where some remained for years and if they had any comforts in the prison they had to pay for them. Jailers grew rich out of the necessities of their wards. Those unable to pay were crowded into unbelievably small quarters. The first commission to inquire into these abuses reported:

George's ward, sixteen feet by fourteen and about eight feet high, had never less than thirty-two in it all last year and sometimes forty; there was no room for all to lie down, one-half the number sleeping over the others in hammocks; they were locked in from 9 p. m. to 5 a. m. in summer, longer in winter, and as they were forced to ease nature within the room, the stench was noisome beyond expression.

It is a matter of common knowledge that the work of prison reform in England at the time of which we write was due largely to the efforts of John Howard and his work was begun in 1773.

While the great landowners accumulated wealth, the poacher who snared a rabbit was sent to jail or deported. The condition of the poor was hopeless and the best blood of England flowed willingly or unwillingly into the United States, Canada and Australia. However, typhus often pursued the poor emigrant in his flight by sea and it is said that one-third the immigrants to America in the eighteenth century died during or soon after the voyage. It is well known that the fatality from ship fever continued through the early part of the nineteenth century. During the American War (1774-1780) the number of British seamen raised was 175,990, the number of those who died of disease was 18,545, and the number killed was 1,243.

It is interesting to note that during the eighteenth century English physicians for the most part were not much concerned with the poor and many of them saw but little typhus, while a colleague busy among the poor saw much of it. A Dr. Moss, writing of diseases in Liverpool, said that typhus was rare at a time when Dr. Currie was seeing more than 3,000 cases a year: In 1790 Liverpool was the second city in England, with a population of 56,000, while that of London was estimated at 800,000. According to Currie 7,000 of the people of Liverpool lived in cellars and 9,000 more in back houses with small courts and with narrow passages to the streets. In ten years (1787-1796) 31,243 cases of fever were registered, an average of 3,124 per year. In the last quarter of the eighteenth century Chester was regarded as the most desirable residence city in the kingdom. Within the walls, it had a population of about 3,500 and from 1764-1773 the death rate was only 17.2 per 1,000, but the poor lived outside the walls and Haygarth describes the condition as follows:

The houses were small, close, crowded and dirty, ill supplied with water, undrained, and built on ground that received the sewage from within the walls. The people were ill fed and they seldom changed or washed their clothes; when they went abroad they were noisome and offensive to the smell. . . . In these poor habitations when one person was seized with the fever, others of the same family are generally affected with the same fever in a greater or lesser degree.

The second half of the eighteenth century saw the great manufacturing development of England by the employment of machinery. Now the poor were exploited by the manufacturer. The houses occupied by the operatives are said by Ferrier to have been dirty, without ventilation, and with the beds almost touching. "As soon as one poor creature dies or is driven out of his cell, he is replaced by another, generally from the country, who soon feels in his turn the consequences of breathing infected air." The only voices heard in behalf of the poor were those of medical men, and in Manchester Ferrier pleaded for them in strong language:

I have seen patients in agonies of despair on finding themselves overwhelmed with filth and abandoned by everyone who could do them any service. . . . The situation of the poor at present is extremely dangerous, and often destructive to the middle and higher ranks of society. . . . The poor are indeed the first sufferers, but the mischief does not always rest with them. By secret avenues it reaches the most opulent and severely revenges their neglect or insensibility to the wretchedness surrounding them.

It was the fact that typhus occasionally found its way into the midst of the rich, and, when it did, killed so many and so quickly, that they were compelled to recognize that the misfortunes of the poor were of concern to themselves. Finally in a half-hearted way, urged by physicians, growling about the wastefulness and improvidence of the laboring classes, driven by the occasional deadly outbreaks in their own ranks, the ruling classes began to provide special hospitals for the isolation and care of cases of typhus. The London fever hospital was established in 1802.

The epidemiologic history of Britain during the Napoleonic wars presents many points of interest. Food prices were high. For a time American markets were closed to British manufacturers. Still, the period (1803-1816) was comparatively free from typhus, so far as Britain was concerned. In peace the poor man's business is to serve the rich, clothe himself in rags, rear his family in a sty and eat nothing. In war he becomes a hero, the defender of his king and country. He is well clothed, well fed and all that is asked of him is that he die for his country if need be. The wife and children at home must be cared for because more soldiers will be needed.

Immediately after the declaration of peace (1816) typhus began to increase and within another year it took on epidemic proportions. The condition of the London slums of the time is shown by a Parliament report as quoted by Creighton:

Carmel's Buildings, a small court near Portman Square, consisting of twenty-four houses, in which lived seven hundred Irish in distress and profligacy, neglected by the parish and shunned by everyone from fear of contagion. George Yard, Whitechapel, consisting of forty houses in which lived two thousand persons in a similar state of wretchedness.

In 1831 typhus became epidemic in England and continued its ravages for more than ten years. The destitution and sickness among the poor of Manchester in the latter part of this epidemic (1839-1841) formed the basis of the story of "Mary Barton" written by Mrs. Gaskell. The author dwells on the bitterness on the part of the poor.

The most deplorable and enduring evil that arose out of the period of commercial depression to which I refer, was this feeling of alienation between the different classes of society. It is so impossible to describe, or even faintly to picture, the state of distress which prevailed in the town at that time, that I will not attempt it; yet I think again that surely in a Christian land, it was not known so feebly as words could tell it, or the more fortunate and happy would have thronged with their sympathy and aid. In many instances the sufferers wept first and then cursed. Their vindictive feelings exhibited themselves in rabid politics. And when I hear, as I have heard, of the sufferings and privations of the poor, of provision shops where ha'porths of tea, sugar, butter and even flour were sold to accommodate the indigent—of parents sitting in their clothes by the fire-side during the whole night for seven weeks together, in order that their only bed and bedding might be reserved for the use of their large family—of others sleeping upon the cold hearth stone for weeks in succession without adequate

means of providing themselves with food or fuel—and this in the depth of winter—of others being compelled to fast for days together, uncheered by any hope of better fortune, living, moreover, or rather starving in a crowded garret or damp cellar, and gradually sinking under the pressure of want and despair into a premature grave; and when this has been confirmed by the evidence of their careworn looks, their excited feelings, and their desolated homes—can I wonder that many of them, in such times of misery, and destitution, spoke and acted with ferocious precipitation?

In 1847-1848 there was a revival of typhus, under the name of "Irish Fever," in England. The last epidemic in England occurred in 1863-1864, and was in part due to the "cotton famine" resulting from the civil war in our own country. Since that time typhus has gradually decreased in Britain, but has not entirely disappeared.

From the fact that I have dwelt on typhus in Britain, it must not be inferred that it was unknown or was less prevalent on the continent of Europe during the seventeenth, eighteenth and nineteenth centuries. It was constantly present and assumed epidemic proportions of varying intensity in diverse places at different times. No European nation has been wholly free from it and it has continued to develop epidemics, especially in Austria and Russia. The present war has developed the conditions most favorable to its dissemination and I shall not attempt to predict the part it may play in the savage struggle now going on.

Taking Europe as a whole, the period from about 1670 to about 1850 may be considered as the typhus age. This does not mean that this disease did not exist before this period or that it ceased with the close of it. Neither assumption would be true, but before that time typhus was overshadowed for many centuries by the more deadly plague. Still it is a question if even at that time typhus did not kill more than the plague. The former was constantly present while the latter lapsed from time to time apparently on account of lack of susceptible material. Even during the typhus age other deadly infections, as smallpox, tuberculosis, diphtheria, etc., aided in rolling up heavy mortality lists. A complete history of typhus would be a valuable contribution to human knowledge and should be studied by statesmen and all interested in the welfare of the race, as well as physicians. There is certainly one great lesson which it teaches and that is that the health conditions of the poor are of interest to all. No nation can be great so long as its laboring classes live under unhygienic conditions. Typhus impoverished Europe not only by its high mortality but by the great emigration from its shores, leaving the degenerate to beget its generations.

Before leaving the history of typhus in Europe, I wish to quote the definition of the disease given by the greatest English authority of the nineteenth century, Murchison:

A disease attacking persons of all ages generated by contagion, or by overcrowding of human beings, with deficient ventilation, and prevailing in epidemic form, in periods or under circumstances of famine and destitution. Its symptoms are: more or less sudden invasion marked by rigors or chilliness; frequent, compressible pulse; tongue furred and ultimately dry and brown; bowels, in most cases, constipated; skin warm and dry; a rubeoloid rash appearing between the fourth and seventh days, the spots never appearing in successive crops, at first slightly elevated, and disappearing on pressure, but, after the second day, persistent, and often becoming converted into true petechiae; great and early prostration; heavy flushed countenance; injected conjunctivae; watchful-

ness and obtuseness of the mental faculties, followed at the end of the first week by delirium, which is sometimes acute and noisy, but often low and wandering; tendency to stupor and coma, tremors, subsultus, and involuntary evacuations, with contracted pupils. Duration of the fever from ten to twenty-one days, usually fourteen. In the dead body no specific lesion; but hyperemia of all the internal organs, softening of the heart, hypostatic congestion of the lungs, atrophy of the brain, and oedema of the pia mater are common.

Typhus fever became epidemic in Mexico soon after the conquest (1530) and has continued in endemic form with occasional severe exacerbations to the present time. According to Liceaga the second recorded epidemic occurred in 1545 and the third in 1575. In 1736-1737 the disease is said to have killed 192,000. During the nineteenth century there were many exacerbations, the most extensive of which was in 1861. At the present time typhus is common in Mexico.

Importations of typhus by immigrants into this country have been constant and it is probable that at no time have our large cities been wholly free from it, but in most instances it has been limited to recently arrived immigrants and those directly in contact with them.

Doty says: "Out of 439 cases of typhus fever which occurred in New York during 1892-1893, 434 were removed from the poorer tenement and lodging houses, principally the latter."

In the records of the Civil War 1,723 cases with 572 deaths are reported under this name, but the diagnosis of many of these were questioned by the best medical officers, such as Woodward and Clymer. No cases were reported by Confederate officers. It is certain that typhus did not play any marked part in the mortality of that war.

THE TRANSMISSION OF TYPHUS

In 1909 Nicolle, stationed in Algiers, made two notable discoveries concerning the transmission of typhus fever. In the first place, he induced the disease in the chimpanzee by injecting the blood of patients and in like manner he transferred the disease from the chimpanzee to the macacus monkey. He was not able to transfer the disease in this way directly from man to monkey, but could do so indirectly through the chimpanzee. This suggests that the virus is increased in intensity by passage through the chimpanzee. In the second place, Nicolle succeeded in transmitting typhus from monkey to monkey by the bite of the body louse. Typical eruptions were secured in the chimpanzee constantly, but not uniformly in the monkey.

The fact that typhus is transferable by the bite of the body louse has been confirmed by Anderson and Goldberger, Ricketts and others. This renders it desirable for us to know as much as possible concerning the life history of this parasite. Shipley of Cambridge, England, has recently made studies along this line and I follow him principally in the following statements. The body louse (*Pediculus vestimenti*) is somewhat larger than the head louse and carries longer antennae. The male is about 3 mm. long and 1 mm. broad. The female is about one-tenth larger. Its color is said to vary with that of the people on whom it feeds, black, brown, and with different shades of grayish white. It does not move about over the surface but is always attached to the inner side of the underclothing. Even in feeding, it remains attached by at least one of its six legs to the clothing. When

a lousy person is stripped, no lice can be found on him, but the inner side of the underclothing may be alive with them. When grown for the purpose of study, they must be permitted to attach themselves to bits of flannel and these must be brought into contact with the skin and the lice allowed to eat twice a day. They take hold promptly and feed greedily but never detach themselves from the flannel. The female after pairing begins to deposit eggs or nits at the rate of about 5 per day. These hatch after periods which vary markedly with the temperature. Cold delays hatching, but even freezing does not destroy the nits. Under favorable conditions the larvae emerge about the sixth day, and the larvae immediately begin to feed. Body lice seem not to be hardy and soon die unless they have frequent opportunity of feeding, but the clothing may carry nits quite indefinitely and these may hatch when the conditions become favorable. The newly hatched do not survive more than thirty-six hours without food. The lice are easily killed by gasoline or benzine or by turning the underclothing inside out and carefully applying a hot iron. Special attention should be given to the seams. Boiling quickly destroys both the insects and their eggs. It will be seen that as simple as these requirements are in ordinary life they are quite impracticable to the soldier in the trenches, especially when he has no change of underclothing. It is said that this parasite feeds only on dirty people and that it will not infest those who wear silk; but the soldier must be dirty, sometimes at least, and he is not supplied with silk underwear. Gasoline and benzine cannot be used by the soldier on account of their ready inflammability. A dilute solution of lysol or cresol soap made into a lather is applied to the inside of the clothing and left there to dry. Physicians and nurses in caring for typhus patients are exposed to great danger and the death rate among them has always been high. In recent years more than one medical man has contracted typhus in trying to solve its etiology and of the six American physicians who have recently studied typhus fever in Mexico three have contracted the disease and two have died—Conneff of the State University of Ohio and Ricketts of the University of Chicago. These are names now added to the martyr roll of science. Of Ricketts, his teacher and friend, Hektoen, has deservedly said:

Those near him know that he fully understood the dangers to which he would be exposed and the risks he would run. He decided he would take those risks, meet the dangers with all possible means of prevention, and do the work that would come to his hands. And so he made the great sacrifice and gave all that a man can give to his fellow men.

Other American medical men and nurses have given their lives in the combat with this disease in desolated Serbia and others still are there and elsewhere in war-scourged Europe, seeking not to destroy but to save lives, fighting under the great battle flag of humanity and science.

Quite independently of the work of Nicolle, Anderson and Goldberger, Ricketts and Wilder, Conneff and others studied the etiology of typhus in Mexico. They found that the disease could be transmitted from man to the lower monkeys, without passage through a chimpanzee, that the virus in the blood is removed by filtration through porcelain, that one attack in the monkey gives immunity and that Nicolle was right in his claim that the disease is transmitted by the body louse. All attempts to transfer the dis-

ease by fleas and bed bugs have failed, while those with the head louse (*Pediculus capitis*) have not given uniform results.

For some years Brill has observed a peculiar disease in the wards of Mount Sinai Hospital, New York, and up to the present time he has records of about three hundred cases. Brill has described this disease as follows:

An acute infectious disease of unknown origin and unknown pathology, characterized by an incubation period of from four to five days, a period of continuous fever, accompanied by intense headache, apathy, and prostration, a profuse and extensive erythematous maculo-papular eruption, all of about two weeks duration, whereupon the fever abruptly ceases either by crisis within a few hours or by rapid lysis within three days.

Anderson and Goldberger have shown that Brill's disease is typhus fever by injecting the blood of patients into monkeys and thereby establishing immunity to typhus.

Nicolle has reduced typhus in Tunis from 838 cases in 1909 to 22 cases in 1912. The only measure employed consists in freeing the people of lice.

THE ORGANISM

Plotz has isolated the organism and with Olitsky and Baecher has shown by complement fixation and agglutination tests that he has, most probably, found the infecting agent. In the agglutination tests only positive reactions in dilutions 1:50 were considered.

Of twenty-four cases tested before the crisis all were negative except two which were tested one day before the crisis, both of which had a titre of 1:100. Of ten cases tested on the day of the crisis, three were positive and seven negative. After the crisis, thirty-eight cases were studied, 92.6 per cent. of which were positive. Agglutinins have been demonstrated as late as five months after the crisis. Of a very large series of control cases, no case gave a reaction in a dilution above 1:50, except three cases in which the occurrence of a previous attack of typhus fever could not be excluded. In these cases the reactions varied from 1:100 to 1:200. Control studies made by testing the serum of typhus cases against various other organisms were negative.

The opsonic index increases at the crisis and remains high in the convalescent stage.

The organism is a small gram-positive bacillus, from 0.9 to 1.93 microns in length, the breadth being from one-fifth to three-fifths of the length. It is not acid-fast, has no capsule, and polar bodies can be demonstrated by appropriate methods. When first isolated, it grows only anaerobically, but after a time it can be grown aerobically.

Intraperitoneal inoculation of a pure culture of the organism into guinea-pigs produces a rise of temperature in from twenty-four to forty-eight hours, the temperature remaining high for four or five days, and then dropping by crisis. This corresponds to the reaction seen in guinea-pigs after inoculation with defibrinated blood from typhus fever patients, except that the incubation period is shorter. Serum from a convalescing typhus patient has bactericidal properties against the organism obtained from Brill's disease and typhus fever.

Diseases with Highest Mortality.—According to the 1913 report of the Census Bureau, nine diseases cause more than half the deaths in the registration area comprising 65 per cent. of the population of the country. The diseases and number of deaths are as follows: tuberculosis, 93,421; heart diseases, 93,142; pneumonia, 83,778; nephritis, 65,106; diarrhea and enteritis, 57,080; cancer, 49,928; cerebral hemorrhage, 47,220; diphtheria, 11,920, and typhoid, 11,323.

HYPERTONIC SALT AND ALKALI SOLUTION IN SALVARSAN ANURIA *

R. T. WOODYATT, M.D.

CHICAGO

A man aged 45 had an aneurysm of the thoracic aorta extending from the diaphragm upward. The diagnosis was based on the character and distribution of the pain, the existence of cardiac hypertrophy with a peculiarly metallic aortic closure, a history of lues, a positive Wassermann reaction in the blood, and a roentgenogram. No other explanation of the symptoms was found in spite of an exhaustive study.

This patient had been treated with iodids and mercury, and had at first improved, but later suffered excessively from pain. He had then been given salvarsan. Within eight days he received three doses of 0.3, 0.3 and 0.4 grams respectively of old salvarsan. Forty-eight hours after the last one he felt ill and had a temperature of 99 F. During the day this rose and at 8 p. m. it was 102. He then complained of headache and slight nausea. The bowels had not moved. He grew very thirsty and drank water freely, but until noon of this day he had passed only 200 c.c. of urine. The urine was dark and contained a trace of albumin. After 1 o'clock he passed no urine at all. Examination revealed no palpable edema and no demonstrable ascites. He was taking in water and putting little out, still this water was not palpably accumulating in superficial regions. A tentative diagnosis was made of salvarsan poisoning.

Arsenic is one of that group of substances whose effects on the tissues and on the metabolism as a whole closely resemble that of tissue or general asphyxia. In respect to its effects on the structure of the tissues and on their metabolism, it belongs in the same general category with phosphorus, chloroform, hydrazin, and a long list of narcotic drugs. These all produce, in different degrees and admixtures, cyanosis with increased blood and tissue acidity, cloudy swelling and fatty infiltration of the cells of the viscera, especially of the liver and of the kidneys, but to a less degree of all cells. This parenchymatous degeneration goes on in the case of some of these drugs to the point of necrosis. A tendency to multiple hemorrhage is common. The nature of the changes in salvarsan poisoning has been studied extensively and is too familiar to require description here. Swelling, due to the imbibition of water by the parts most affected, would in the present case have accounted for the obvious water retention without tangible subcutaneous edema, and it was thought probable that the liver was swelling, the kidneys swelling, and perhaps also the brain and other viscera. As a matter of fact, the edge of the liver was easily palpable, soft and somewhat tender. The urine had contained albumin prior to its stoppage, and, as stated, the patient complained of headache and a little later became mildly delirious, all of which symptoms and signs were in keeping with the presumption of a liver, kidney and brain swelling or edema.

The relationship between asphyxia of a tissue and the rate at which acids accumulate in such a tissue is well established. The survival formation of lactic acid in a muscle which is immersed in an atmosphere of hydrogen and its rapid disappearance in an atmosphere of oxygen has been measured and timed with

faultless precision by Fletcher and Hopkins. The great increase in the rapidity of lactic acid formation in surviving muscles when chloroform vapor is allowed to surround them has also been shown by the same writers, and the increased output of lactic acid in the urine, together with an actually increased hydrogen ion acidity in the blood, has been repeatedly demonstrated in asphyxias of various sorts and specifically following intoxications with narcotic drugs, phosphorus, arsenic and other members of that group whose characteristic tendency is to check cell respiration.

The power of acids when added to protein colloids so to alter these substances that they swell with the imbibition of water has been emphasized by the work of M. H. Fischer, and the power of acids when introduced into the tissues of the body to cause swelling, water retention, cloudiness of the cells, in short, edema, has been regarded by him as a phenomenon of the same nature as the swelling of protein gels in the test tube. That drugs of the group named do produce both acid, secondary to asphyxia, and edema of the parts where the action is most intense, is common knowledge.

Fischer's proposal to meet such conditions by bringing alkali into the tissues to neutralize any excess of acid which may still be there in neutralizable form, and simultaneously to bring into them sufficient quantities of a suitable neutral salt to dehydrate the neutral but still swollen tissue colloids, has been tested in this laboratory by E. A. Graham in experimentally produced chloroform intoxication in animals. Graham determined the doses of chloroform which, when given to animals of certain weights, always produced the severe symptoms of late chloroform poisoning, including the characteristic central lobular necrosis in the liver, along with edema, fatty infiltration, etc. When in animals of the same weight the same dose of chloroform was given and then followed by a suitable intravenous dose of hypertonic sodium chlorid with sodium carbonate in the form known as Fischer's solution, the necrosis was modified or failed entirely to appear.

Since chloroform and arsenic (hence salvarsan) are, as stated, closely related in their effects on the tissues and on the metabolism, the case mentioned above seemed an appropriate one in which to try the benefits of a salt alkali therapy.

Accordingly the patient was given 200 c.c. of Fischer's solution by bowel and two hours later the dose was repeated. This was at 9 p. m. The second dose was given at 11 p. m. It was also ordered that the patient take no food or any drink except lemonade to which sodium bicarbonate had been added until there was no longer any effervescence. The purpose of this was to provide that no fluid should be taken into the body without containing a suitable concentration of salt (in this case chiefly citrate) to carry it through, or, in other words, to make it diuretic for a normal individual, thus lessening the chance of vitiating the effect of the supertonic solution by bowel with a large quantity of subtonic solution by mouth, to do which, of course, would be equivalent to making up a supertonic solution and then promptly destroying its supertonicity by dilution before it was given. The bicarbonate was added merely for consistency to make the fluid taken by mouth alkaline rather than acid. As a matter of fact, the increasing nausea culminated in vomiting at about 10 o'clock, after which the patient slept for a

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time, so that little of the lemonade was taken. At about 10:30 the nurse reported the appearance of a florid erythematous rash over the face, neck and trunk.

At about 3 a. m., or four hours after the second salt alkali enema, there was a watery stool, and the patient passed 45 c.c. of urine. Between 6 and 7 a. m. he passed 120 c.c. more. A third injection of 200 c.c. of Fischer's solution was given by bowel and retained. By noon the urine totaled 600 c.c. The delirium and headache cleared and the nausea disappeared. The temperature fell to 99.

For the next two days the patient was given fruit, fruit juices and soft cooked vegetables with rusk, butter and cream. He was allowed water *ad libitum*, with potassium citrate, 20 grains, four times a day, and sodium bicarbonate, 60 grains, three times a day. On the second day the urine totaled 990 c.c., and at the end of the week averaged 1,500 c.c., although during the week there were minor diminutions of urine and periods of malaise and headache. Ultimately there was complete recovery, and since this experience the patient has received three doses of 0.4 gram of old salvarsan by vein at three-week intervals with no apparent injury and with considerable ameliorations of the general conditions.

In view of the fact that this patient was constipated when treatment was begun, that he received 1 gram of old salvarsan within a week, that symptoms first appeared after a characteristic delay and then included fever, albuminuria and urinary suppression, nausea, vomiting, headache, delirium and an erythematous rash, this case is recorded as one of a salvarsan reaction sufficiently serious to occasion grave concern, in which a sharp turn for the better followed by ultimate recovery took place within a few hours after the administration by bowel of an alkaline hypertonic solution (Fischer's solution) with no other therapy. An isolated experience of this sort is considered as suggestive that a suitable application of the same general therapeutic principles might prove of value in intoxications of the type described.

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THE EFFECT OF ALTITUDE ON BLOOD PRESSURE

WITH MINOR MISCELLANEOUS OBSERVATIONS

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Just what normal blood pressures are, at sea level and elsewhere, is a matter concerning which there is the widest diversity of opinion. Goodman¹ states that the systolic readings for normal young adults are from 120 to 130, and the diastolic about 85. Making the usual allowance for posture, digestive action, psychic disturbances, etc., he thinks that a systolic pressure of more than 140 is pathologic. Harlow Brooks² mentions 120 as the usual systolic pressure, but finds that in persons whose occupations entail mental activities it normally ranges between 140 and 155. Janeway³ states that "in the great majority of young males 100

to 130 mm. will be found," and names the normal diastolic pressure as from 65 to 110. Faught⁴ states that 120 may be taken as the normal systolic pressure in the male at age 20, and adds 1 mm. for every additional two years of life. He believes that the question as to what variations from this are normal cannot be definitely answered, but suggests 17 mm. above or below, or a total variation of 34. Barach and Marks⁵ conclude that in 90 per cent. of healthy young men the systolic pressure is below 150, and in 96 per cent. the diastolic is less than 100. These readings are presumed to have been made at or near sea level. Among others who have made careful study of the normal blood pressure, but with special reference to the effect of altitude, are Gardiner and Hoagland,⁶ Schneider and Hedblom,⁷ and Pomeroy.⁸

To the study of blood pressure in health I have to contribute only the readings made at Fort Stanton (altitude 6,230 feet) on fifty-four young adults, of whom seventeen were females. In this series, as in the others here reported, the auscultatory method was used and diastolic pressures read at the fifth phase or point where pulse sounds disappeared.

TABLE 1.—BLOOD PRESSURE IN THE HEALTHY
ALTITUDE, 6,230 FEET*

MM. Hg	Systolic	Diastolic	Pulse
From 10 to 20	0	0	2
From 20 to 30	0	0	6
From 30 to 40	0	0	16
From 40 to 50	0	0	20
From 50 to 60	0	1	6
From 60 to 70	0	3	4
From 70 to 80	0	17	0
From 80 to 90	0	26	0
From 90 to 100	0	5	0
From 100 to 110	5	2	0
From 110 to 120	9	0	0
From 120 to 130	25	0	0
From 130 to 140	12	0	0
From 140 to 150	2	0	0
From 150 to 160	1	0	0
	54	54	54

* As pointed out by Norris (Blood Pressure: Its Clinical Application), blood pressure as ordinarily referred to is the difference between atmospheric pressure and the absolute blood pressure and is purely relative. The absolute pressure, both atmospheric and arterial, is of course constantly lowered by increasing altitude.

Our average systolic reading in the healthy was 129 for men and 121 for women; the average diastolic reading was 84 and 82 for men and women, respectively. It must be said, however, that averages are not very helpful in arriving at conclusions on this subject. We are inclined to believe that the effect of altitude on normal blood pressure has been frequently overestimated and sometimes confused with that of other influences.

Opportunity to observe the effect of altitude on blood pressure in the tuberculous has been afforded by the fact that about 150 patients are transferred each year from the coast to this station. For more than a year manometer readings have been made at all the hospitals belonging to the Public Health Service immediately before transferring a patient. Uniform methods of observation were prescribed by the Surgeon-General in general order, and the minimum width of the cuff fixed at 10 cm. The technic at this station has been uniform and carefully followed. The two aneroid instruments in use, the Faught and the Tycos,

1. Goodman, E. H.: Blood-Pressure in Medicine and Surgery, Philadelphia, Lea & Febiger, 1914.
2. Brooks, Harlow: New York Med. Jour., July 25, 1914.
3. Janeway, T. C.: Clinical Study of Blood-Pressure, New York, Daniel Appleton & Co., 1904.

4. Faught: Blood-Pressure from the Clinical Standpoint.
5. Barach, J. H., and Marks, W. L.: Blood-Pressures, Arch. Int. Med., April, 1914, p. 648.
6. Gardiner and Hoagland: Tr. Am. Climatol. Assn., 1905.
7. Schneider and Hedblom: Am. Jour. Physiol., xxiii, No. 2.
8. Pomeroy: Interstate Med. Jour., 1911, xviii, No. 7.

respectively, were checked up with a mercurial instrument from time to time and with each other, and have been found constantly correct. The personal equations of the various officers engaged in taking readings have been compared. Only one systolic reading was made at the marine hospitals located at sea level. This is compared with the systolic pressures made on the four successive days after arrival at this station. Pressures are considered the same when one reading at this station has been found to coincide with one at sea level, and when one or more higher readings coincident with one or more lower were found. Obviously, the comparison cannot be exact. At present, systolic and diastolic readings are being made at the principal stations

allowance is made for disturbing factors, there is nothing found in our observations to indicate that an altitude of 6,230 feet has any pronounced influence on this phenomenon in the ordinary case.

MISCELLANEOUS OBSERVATIONS

The effect of tuberculosis itself on blood pressure is too well known to require comment. Authorities seem to be in complete accord that hypotension always prevails in uncomplicated active disease. The classes of tuberculous patients included in Table 3 have been the subject of discussion in recent literature on blood pressure, and the observations are believed to be of some value. The number in each, forty-three, was so

TABLE 2.—COMPARISON OF SYSTOLIC BLOOD PRESSURES AT SEA LEVEL AND AT FORT STANTON, 6,230 FEET

Patients Transferred from U. S. Marine Hospital at	Same	1 to 10 mm. Hg Higher	1 to 10 mm. Hg Lower	11 to 20 mm. Hg Higher	11 to 20 mm. Hg Lower	21 to 30 mm. Hg Higher	21 to 31 mm. Hg Lower	More than 30 mm. Hg Higher	More than 30 mm. Hg Lower
San Francisco....	16	14	4	9	3	6	0	3	3
New York.....	14	8	6	4	3	2	0	0	0
Chicago	9	5	3	1	0	0	0	0	0
Baltimore	1	4	2	6	0	2	0	0	0
Cleveland	3	4	2	0	1	1	0	0	0
Boston	1	0	6	0	0	0	0	0	1
Detroit	1	1	1	2	1	0	1	0	0
Other stations....	7	3	3	1	0	1	0	0	0
	52	39	27	23	8	12	1	3	4

TABLE 3.—MISCELLANEOUS OBSERVATIONS

Systolic mm. Hg	A With Hemoptysis	B Without Hemoptysis	C Far Advanced; Favorable Results	D Far Advanced; Unfavorable Results	E Far Advanced; Unfavorable Results; Dyspnea Marked
From 70 to 80.....	0	0	0	1	0
From 80 to 90.....	0	0	0	1	0
From 90 to 100.....	1	5	2	8	11
From 100 to 110.....	19	14	8	17	22
From 110 to 120.....	11	9	19	13	9
From 120 to 130.....	4	9	8	3	1
From 130 to 140.....	4	5	3	0	0
From 140 to 150.....	3	1	2	0	0
From 150 to 160.....	1	0	1	0	0
	43	43	43	43	43

located at sea level for four days before transfer, and it is expected that a more exact comparison can be offered next year.

The psychic disturbance occasioned by a three or four day transcontinental journey ending in a stage ride of 8 miles is considerable. Patients arrive excited by the knowledge that here the last stand in the fight against their disease is taken. It is not surprising, therefore, to find that in some cases the blood pressure was found higher here than at lower altitudes, and this regardless of any effect altitude may have. Out of 169 cases, systolic pressures were practically the same in 118, slightly higher in 23, slightly lower in 8, considerably higher in 15, and considerably lower in 5.

The effect of altitude on blood pressure in the tuberculous does not appear to be great, and when due

fixed because that was the number of patients having frank hemorrhage during the period of observation. It may be noted here that it is not practicable to study the effect of prolonged residence on blood pressure in the tuberculous. Such an attempt would resolve itself into a study of the results of treatment and the effect of improvement or loss on blood pressure.

A AND B HEMOPTYSIS

More than casual interest has been taken in hemoptysis at this station, owing to the large number of fatalities (10 per cent. of all deaths) occurring here from pulmonary hemorrhage. A report of fifty-six such deaths appeared in the *Public Health Reports*, No. 51, in 1910. In the present study of the correlation of blood pressure and hemoptysis, the systolic readings

of those having pulmonary hemorrhage are compared with those of carefully matched cases free from hemorrhage. Both early and late cases are included in the series. In matching a hemorrhage case with a non-hemorrhage case, careful attention to details was given, and they are as nearly alike as possible in age, race, extent and duration of disease, in prognosis where the patients are still under treatment and in result where treatment has terminated. Patients with manifest complications were excluded from both classes. The readings are the average of those taken at the regular bimonthly examinations and are therefore not modified by the influence of hemorrhage. Nothing was found to support the contention of those who believe that most hemoptyses occur in those with high systolic pressure.

C, D AND E RESULTS

The systolic pressures of forty-three patients who died are compared with those of an equal number of patients with far advanced disease who made an apparent cure or an arrestment, and also with those of patients suffering from the effects of altitude. These men had been under treatment for about a year, although not all at the same time, and many readings were made on each, of which the average was taken for use in Table 3. Column C, on favorable results, contains the record of our best results of treatment, all patients referred to therein having confirmed an arrestment of disease by at least two months of continuous employment. Comparison with the readings of other observers shows no great variation from manometer readings in similar cases at sea level. There is apparent neither depression due to altitude, except possibly in Column E, where readings were made on those suffering from dyspnea, nor the elevation of blood pressure claimed by one or two observers to occur at 6,000 feet, and which they presumed to indicate the advantages of altitude in treating tuberculosis. It seems extremely doubtful whether moderate altitude has any pronounced effect on blood pressure in the tuberculous, except possibly in those whose circulatory apparatus is unable to accommodate itself to the increased strain thus put on it by adverse influence. Sufficient data are not yet available to determine which is cause and which effect in this phenomenon.

INDUCED PNEUMOTHORAX

The influence of induced pneumothorax on blood pressure has been studied on sixteen patients who have been treated by this method for about seven months. The effect of the excitement of operation itself was excluded by taking the manometer readings at another time. The readiness with which fallacious results in blood pressure may be obtained was exemplified when the readings of one set of observers were found to show a marked increase of blood pressure in all patients in this group. But when the readings of all the observers were averaged, it was found that this was due to that large variation in blood pressure found in some individuals without apparent cause. Taking all the readings, which extended for several months and in some instances more than a year before treatment by induced pneumothorax was instituted, it is found that there have been no important changes in the blood pressure of the individuals treated. In one there appears to have been a temporary increase and in another a temporary decrease during the first month of compression, both returning to the original readings

after a few months. In two individuals there was a slight increase in blood pressure, which began soon after treatment was instituted and which has continued to the present time. This reached in one instance from 2 to 14 mm. Hg systolic pressure, and in the other from 6 to 18 mm. Hg.

The blood pressure in both right and left arms was observed in induced pneumothorax patients to determine the effect of the treatment. No greater difference in the two arms was found than is normal except in one case of incomplete compression, pleural adhesions being present, in which the readings in the right arm were 114 systolic, 98 diastolic, and in the left arm 132 systolic, 88 diastolic. This patient's right lung was the one compressed, and it seems not improbable that the nitrogen contained in the pleural cavity had some direct influence on the circulation on that side. Four months later, after reexpansion of the lung was nearly completed, the manometer readings on the right arm were systolic 120, diastolic 94; left arm, systolic 128, diastolic 86. No great importance is attached to the aberrant readings in this case, and it is our impression that in uncomplicated cases of induced pneumothorax, when compression is effected with the usual caution, no pronounced effect on blood pressure results.

ACKNOWLEDGMENTS

The blood pressure readings at sea level were made by the various officers of the Public Health Service stationed at marine hospitals belonging to this service. All the junior officers on duty at this sanatorium have assisted in the routine blood pressure measurements made here. Acting Assistant Surgeons William Keiller and F. S. Littlejohn made the special readings on the healthy and on those treated by induced pneumothorax, respectively.

INFECTIONS WITH HEMOGLOBINOPHILIC BACTERIA *

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The hemoglobinophilic bacteria comprise a rather large group of bacilli which grow only in an artificial medium containing hemoglobin. This group does not include the many bacteria that, while growing better in mediums containing blood or blood serum, will also grow in mediums not containing hemoglobin. Its representative organism and by far its most important member is Pfeiffer's bacillus (*B. influenzae*), which was discovered by Pfeiffer in the respiratory tract of patients afflicted with influenza during the great pandemic, in 1889-1890. Not only did he discover and isolate this organism at that time, but he definitely proved its hemoglobinophilic character, a property of bacteria hitherto unknown. In his classical paper¹ in which he reported these researches he also described other organisms differing in certain respects from the true influenza bacilli but similar in being hemoglobinophilic. These he called pseudo-influenza bacilli. Since then these pseudo forms, which have also come to be commonly referred to as influenza-like bacilli, have been found especially in the upper respiratory tract in a variety of diseases.

* From the Department of Experimental Medicine, University of Illinois.

* Read at the meeting of the Chicago Society of Internal Medicine, March 22, 1915.

1. Pfeiffer: *Ztschr. f. Hyg.*, 1893, xiii, 357.

I have gone over my data which have accumulated on this subject during the last several years and have arranged it in tabular form (see table). The isolation of the bacilli was made on blood-agar plates, usually using human or rabbit's blood. Except the tonsils, the material examined was either the sputum or swabs of the pharynx.

Especial attention was given to the detection of this particular group of organisms in all the examinations. They were not made in the various clinical conditions because there was any reason to think an infection with hemophilic bacteria existed. Therefore they are not selected cases in any sense. The data, furthermore, was collected during a period of several years, no essential difference being noted from year to year; the presence of hemophilic bacilli therefore cannot be explained by assuming the existence of a possible seasonal epidemic of influenza.

It will be seen from the table that hemophilic bacilli are very common in different kinds of infectious diseases. Probably in all except the influenza meningitis cases, there is no good reason to look on them as primary infections, but simply as secondary invaders,

TABLE SHOWING OCCURRENCE OF HEMOPHILIC BACTERIA
IN VARIOUS INFECTIOUS DISEASES

Disease	No. Cases	Hemophilic Bacilli Present	Per Cent. Positive
Influenza (grip)	40	7	17
Bronchopneumonia	26	10	38
Lobar pneumonia	12	4	33
Measles	23	13	56
Varicella	11	7	64
Pertussis	68	61	89
Pulmonary tuberculosis	5	3	60
Acute articular rheumatism....	11	0	0
Epidemic meningitis	11	4	30
Influenza meningitis	7	7	100
Tonsil crypts	300	3	1
Normal throats	20	2	10
Total	534	121	23

which find a suitable environment in connection with lesions produced by other and usually more virulent organisms.

In the forty cases of clinical influenza or grip, 17 per cent. of the examinations yielded hemophils. They comprise cases from epidemics occurring in two different years, each of which gave approximately the same results. Streptococci, pneumococci and *Micrococcus catarrhalis* were the principal organisms found, sometimes one, sometimes another, predominating; often the types were about equally mixed.

In pertussis they are present in nearly every case, some time during the course of the disease, usually after the paroxysmal stage sets in. They may remain in the throat for a considerable period of time after the symptoms disappear. In some cases the bacilli are very numerous and on the plates are in almost pure culture, while in other cases they are few. They may be persistently absent and then suddenly appear in enormous numbers and thus continue. Pneumococci and streptococci are nearly always found and not infrequently bacilli, *M. catarrhalis* and diphtheria-like organisms appear in the cultures in small numbers.

In measles they are common, especially in cases in which cough is a pronounced feature. *M. catarrhalis* was commonly found also. Varicella gave much the same bacteriologic findings as measles.

In lobar pneumonia, of course, the pneumococcus is as a rule the predominating organism in the sputum, while streptococci are usually present in small num-

bers. Influenza bacilli were present in the sputum four times in twelve cases examined. In one case it was interesting to note that even early in the disease (fourth day) these bacilli were present in typical pneumonic rusty sputum in numbers exceeding the pneumococci. In another case of a somewhat atypical pneumonia in which, however, pneumococci were obtained in the blood in pure growth, examination of the washed sputum on the fourth day of the disease gave 80 per cent. *M. catarrhalis* colonies and 20 per cent. pneumococcus colonies. No hemophilic bacilli were present. Subsequent examinations gave the same findings. Again, an elderly man became ill with symptoms of lobar pneumonia. The sputum at first was bloody and later became profuse and purulent. The clinical diagnosis of abscess of the lung was made. Examination of the washed sputum gave enormous numbers of hemophil colonies, chiefly in clusters around colonies of other bacteria. No pneumococci appeared in the plates. A few days later, death occurred. Postmortem examination showed lobar pneumonia with several abscesses in the lungs. Pus from an abscess gave pneumococci 60 per cent., streptococci 35 per cent., *Staphylococcus aureus* 5 per cent.; no hemophils. These cases are instructive as showing the variation in the bacterial flora not only in complicated cases, such as the last, but even in typical cases of pneumonia.

Only five cases of pulmonary tuberculosis were examined. Hemophils were found in the sputum in three of these. It has been observed by many that they are common secondary invaders in this disease.

In the epidemic meningitis cases they were found in the nose and throat four times in eleven cases.

In normal throats they are occasionally found. Swabs of the throat from twenty normal persons gave growth of influenza-like bacilli twice; they were present in small numbers.

In the tonsil examinations, all cultures were made on blood mediums from the depths of the crypts after the organ had been carefully incised and laid open. In all cases the tonsils were diseased to some degree and came from persons suffering from a variety of conditions. Forty-two were from patients with chronic joint disorders, ten from those with chronic nephritis, and forty from persons with endocarditis. Most of the remainder were removed because they were excessively hypertrophied, and came largely from children. Of the three hundred pairs of tonsils examined, in only three were influenza-like bacilli found, and then in small numbers and mixed with other bacteria. They were all from the group of cases of hypertrophied tonsils without other serious lesions. It is evident that by comparison with other conditions mentioned in the table, the hemophilic bacilli are rare inhabitants of the tonsillar crypts.

The total number of examinations made for the bacilli was 534, in 121 (23 per cent.) of which they were found. Excluding the tonsils, the total number examined was 234, in 118 (51 per cent.) of which they were present. The table shows they occurred fairly uniformly in the various diseases. It may be stated as generally true that they are found more frequently and in larger number in those cases in which there is involvement of the bronchi, especially the chronic cases with profuse expectoration, than in conditions like tonsillitis and acute rheumatism, in which the lesions are usually limited to the upper respiratory tract.

These bacilli are all very similar, indeed practically identical, and they also agree in all essential details with the description of Pfeiffer's bacillus as given by himself and by others. They differ from each other perhaps only in the matter of virulence, in which respect they seem to vary somewhat. As an illustration, I may refer to the organisms of this type already mentioned which not uncommonly cause acute meningitis in children. I have had an opportunity to study seven such cases,² all fatal, five of which were examined postmortem. They all occurred here in Chicago within the course of less than two years, at a time when an influenza epidemic did not exist. The onset in four was preceded by a "cold." The general course was that of an acute meningitis and did not differ essentially from the course of meningitis caused by pyogenic cocci. The hemophilic bacilli were found in immense numbers and in pure cultures in the spinal fluid and in the meninges and seemed to be identical with the true influenza bacillus, having, however, as a rule, a higher degree of virulence for animals. In rabbits after inoculation of relatively small doses they produce death by true septicemia, a result usually not possible to obtain with similar doses of Pfeiffer's bacillus.

In guinea pigs neither the hemophilic bacilli isolated from the respiratory tract of patients with the diseases noted in the table, nor those from the patients with meningitis are highly virulent. On the whole, the latter are slightly more virulent than the former, growth from two small agar-slants being sufficient, ordinarily, to kill in twenty-four hours after intraperitoneal injection. I inoculated the bacilli of this group into the human throat a number of years ago. The bacilli were isolated from the sputum of patients with whooping cough and swabbed into the tonsils and walls of the pharynx of a healthy young man who volunteered for this service. The inoculation was followed after forty-eight hours by definite symptoms of fever, redness of the throat with an abundant mucoid secretion and some cough. The symptoms lasted several days. In the abundant thick, tenacious mucus from the throat, influenza bacilli occurred in immense numbers and continued in the throat for at least four weeks. None was present in the throat before inoculation, as was shown by careful examination. I have also shown that bacilli of this type (hemophilic bacilli isolated from a case of bronchopneumonia) when injected in living cultures subcutaneously in the human, produced local swelling, redness and tenderness, and after several days an abscess containing yellow pus, in which the bacilli thrived and from which they were recovered in pure culture. These bacilli are therefore clearly pyogenic in character.

There can be no doubt, therefore, but that these bacilli may be to some degree pathogenic, and that while, like many other germs, they may be present without causing lesions, they are capable of producing reactions in the tissues and surely are not always harmless saprophytes in the human body.

This leads me to discuss further the relation of Pfeiffer's bacillus to epidemics of clinical influenza. In the literature there are numerous references to the occurrence of hemophilic bacilli in many infectious diseases and diseases of the respiratory tract. They

have usually been referred to as influenza bacilli (Pfeiffer's bacillus), occasionally as pseudo-influenza organisms, and for the most part have been looked on as secondary invaders, except in influenza, in which the hemophilic bacilli have pretty generally come to be considered as the specific organism. Pfeiffer, in 1893, first announced this and since then an enormous mass of literature has accumulated, especially in Germany, much of which tends to substantiate the idea that his bacillus is the specific cause of this disease. If the evidence is carefully examined, however, it is found that in reality the specificity of this organism does not rest on any too sure foundation. It does not meet Koch's requirements. In many epidemics of influenza it is true they are found in the throat, being often present in large numbers, and they have been obtained from abscesses and numerous other lesions in the body. In postmortems the organisms have been found in large numbers, especially in the respiratory passages and the lungs. The pathogenicity of the bacillus for animals is low and the experiments of Pfeiffer with regard to the presence of toxins are not at all convincing. These facts are hardly sufficient to demonstrate beyond question that the organism is specific and that it is not merely a secondary invader.

It is interesting that the French, especially, have always been doubtful about the etiologic rôle of Pfeiffer's bacillus in influenza and they have presented many data in opposition to the view that it is specific for this disease. Elmassian,³ in 1899, could not distinguish between organisms obtained from whooping cough, acute bronchitis, pulmonary tuberculosis and pneumonia. He considered them all identical with Pfeiffer's bacillus of influenza and said that it was not proved that this bacillus was the specific cause of grip. Sacquepee⁴ studied a typical and very severe epidemic of grip in a garrison and found Pfeiffer's bacillus in only the latter part of the epidemic. At other times he found a gram-negative, motile, typhoid-like bacillus and also pneumococci and streptococci. He thinks that the influenza bacillus is not specific and that grip may not be due to any specific microbe. Bezançon and Israëls de Jong⁵ in an epidemic of grip studied the expectorations of twenty-five patients bacteriologically and found Pfeiffer's bacillus very rare. They called special attention to the *M. catarrhalis*, which was very common. They found pneumococci, streptococci, pseudodiphtheria bacilli, pneumobacilli and rarely staphylococci. They conclude that grip is not caused by Pfeiffer's bacillus, but is due to a variety of organisms of exalted virulence. Kleinenberger,⁶ in twenty-seven cases of influenza, found them present in only eight cases. The *M. catarrhalis* was present in nearly every case. Von Jaksch⁷ has described a condition under the name of pseudo-influenza which is indistinguishable clinically from influenza, but which is not caused by the influenza bacillus. He concluded that it was due often to a streptococcus invasion, because of the large number of these organisms found. In some the cause could not be determined, but he was sure it was not due to influenza infection.

Investigation of the literature on this point, therefore, corresponds very well with the findings as given

2. Davis, David John: Influenzal Meningitis with Especial Reference to Its Pathology and Bacteriology, Am. Jour. Dis. Child., 1911, i, 249.

3. Elmassian: Ann. de l'Inst. Pasteur, 1899, xiii, 621.

4. Sacquepee: Arch. de méd. expér., 1901, xiii, 562.

5. Bezançon and de Jong, Israëls: Reviewed in Bull. de l'Inst. Pasteur, 1905, iii, 372.

6. Kleinenberger: Deutsch. med. Wchnschr., 1905, xxxvi, 575.

7. Von Jaksch: Berl. klin. Wchnschr., 1899, xxxvi, 425.

in the table. While it is undoubtedly true that in many epidemics of influenza Pfeiffer's bacillus is commonly found in nasal and oral excretions, it is equally true that epidemics and also sporadic cases occur in which the condition appears to be identical with influenza clinically, but in which Pfeiffer's bacillus only occasionally appears, and other organisms such as pneumococci, streptococci and *M. catarrhalis* occur very commonly and in large numbers. The most rational interpretation of these facts seems to be that there are a number of organisms which may give clinically the same picture and which may exist in the respiratory passages either in pure culture or occurring together. The fact that many cases indistinguishable clinically from influenza occur both in sporadic and epidemic form, not associated with the influenza bacillus, should be more widely known, for ever since the great epidemic of 1889-1890, almost every disease bearing any resemblance at all to influenza is assumed, without a bacteriologic examination, to be an influenza infection. Attention should be called also to the fact that smears of oral and nasal excretions are very unreliable in the diagnosis of this disease, and that to be sure of an influenza infection, cultures on blood-agar plates should be made.

A further point of interest in connection with these bacilli is the fact that when grown on mediums in the presence of other bacteria, for example, streptococci, staphylococci, etc., they multiply more rapidly, their colonies are larger and their virulence for animals is increased. In other words, they clearly show to a marked degree the property of symbiosis.

Grassberger⁸ called attention to the occurrence of very large influenza colonies in the immediate neighborhood of colonies of other bacteria, when grown with them on blood-agar plates. He worked especially with the staphylococcus, but the same effect is obtained with the influenza bacilli when grown with many other varieties. He observed influenza colonies as large as 4 mm. in diameter grown in this manner, which, in pure culture, are usually only 0.5 mm. or less. It is well known that influenza bacilli will live and develop through several generations on non-hemoglobin mediums, when grown in mixed cultures. Pfeiffer, before he discovered the use of hemoglobin for influenza culture, noted the growth of influenza bacilli on agar smears with sputum, but could not successfully transplant them on this medium in pure culture. M. Neisser obtained mixed cultures of *B. xerosis* and *B. influenzae* from conjunctivitis in measles and grew them through twenty generations on plain agar. Strains of hemophilic bacilli from throats of patients with measles, whooping cough and scarlet fever were in like manner carried through many generations in mixed culture. With dead *B. xerosis* or its extracts no growth occurred. He contends the presence of a living organism is necessary to produce this symbiotic effect.

Frequently in blood-agar plates inoculated from sputum or swabs, there is observed a conspicuous cluster of influenza-like colonies surrounding other colonies present on the plates, such as those of streptococcus, staphylococcus and pneumococcus. They are in this location not only larger but apparently more numerous than when farther away from foreign colonies. In order to obtain such an arrangement, it seems

necessary to have a large number of influenza colonies in the plate and a few of the foreign organisms. When the former colonies are numerous, they are often so small that a hand lens is necessary to see them, but around the foreign colonies, as a result of some favorable influence, they become much larger and are more easily seen. This appearance may be easily obtained by sowing the blood-agar plate densely with the hemophilic bacillus and sparsely with some other organism, such as staphylococcus. In twenty-four hours the symbiotic relationship is usually evident.

The growth of several strains of these hemophilic bacilli was tested on various mediums and to each were added dead bacteria (staphylococci and streptococci) and filtrates of cultures. The results were uniformly negative. All the experiments performed indicated that symbiosis is dependent on the presence of the living organisms.

The symbiotic relation of other bacteria to influenza-like organisms is shown by the increased pathogenicity of the latter for animals. I have made a number of animal experiments to determine the effect of introducing another organism with the hemophilic bacilli, into the peritoneal cavity. This had been done with the influenza bacillus and the streptococcus by Jacobson, who found that the virulence of the bacilli could thus so be increased that much smaller doses of the bacilli alone would be sufficient to kill. He obtained both the bacilli and streptococci in the body fluids and heart's blood. In my experiments, non-virulent *Staphylococcus pyogenes aureus* was used; 2 c.c. of a broth culture of this organism produced no effect when inoculated into the peritoneal cavity of guinea-pigs. When 0.5 c.c. of this culture was inoculated with two blood-agar slants of the hemophilic organism, which, as above stated, rarely killed, death invariably followed in twenty-four hours or less. From the peritoneal exudate, both organisms were isolated. From the heart's blood, however, as a rule, only the hemophilic bacillus was obtained and no staphylococci. In two animals in which large amounts of staphylococci were injected, a few were obtained also in the heart's blood. After passing the bacilli in symbiosis with staphylococci through six animals, one blood-agar slant alone would kill an animal in twenty-four hours. Thus its virulence had been more than doubled. The effect of *M. catarrhalis* and an avirulent streptococcus on hemophilic bacilli was found to be very similar to that of staphylococcus.

The increased pathogenicity of this organism when growing with another organism is directly associated with the symbiotic phenomenon noted above and probably depends on the same factors. Under the conditions in which we find these bacilli in the throat, for instance, they are always associated with other organisms and therefore are thriving under circumstances which permit a manifestation of their greatest virulence and most luxuriant growth. It is also quite possible that the injurious products of such growth may be not only more abundant but even of a different and more toxic character and it would therefore be improper to draw conclusions from the data obtained by growing the organisms in pure culture.

Several other varieties of hemophilic bacilli, differing in certain respects and especially in relation to symbiosis have been described by a number of observers. Friedberger⁹ found in the preputial secretions of

8. Grassberger: Ztschr. f. Hyg., 1897, xxv, 453.

9. Friedberger: Centralbl. f. Bakteriöl., 1903, i; orig., xxxiii, 401.

dogs such an organism, a very minute, gram-negative bacillus which was not pathogenic for animals and did not show the phenomenon of symbiosis. Some years ago I described¹⁰ a somewhat similar bacillus, isolated from pathologic urine from three patients suffering with cystitis, in which there was evidence that a causal relationship to the infectious process existed. This organism was non-symbiotic and non-pathogenic for animals. Since then, C. Koch¹¹ has described an identical bacillus which he believed to be the causal organism, in a number of cases of puerperal infections.

Recently I obtained a somewhat similar bacillus from a large abscess of the shoulder joint in an infant a few months old. The child had been in the hospital for many weeks and was supposed to be a blue baby. He had clubbed fingers and became cyanotic when crying. Clinically there was evidence of a congenital heart lesion. Roentgenograms showed the heart dilated to the left, with evidence of a hypertrophied left auricle. Not only cultures of pus obtained from the abscess by aspiration, but also cultures of blood from the median basilic vein gave a pure growth of a minute, gram-negative, non-motile bacillus, which was strictly hemoglobinophilic and which resembled closely the influenza bacillus except in its symbiotic property. The same bacillus was grown from the bronchial secretion, and it was probably from this source that the organism entered the circulation and later localized in the shoulder joint. It grew readily on blood-agar under aerobic conditions. The colonies were about 1 mm. or slightly less in diameter, gray in color, slightly raised, moist and spreading, and were not hemolytic on blood-agar plate cultures. The organism showed no tendency to grow in clumps. In morphology, the bacillus was approximately the size of the influenza bacillus; bipolar staining was often observed. Short thread forms were commonly seen, simulating those in cultures of *B. influenzae*. The red blood count was 7,040,000; hemoglobin 100 per cent.; white count 18,300, which, when differentiated, gave small mononuclears 51, large mononuclears 7, polynuclears 40, eosinophils 1, transitionals 1. After aspiration of the shoulder joint, the child improved and one month later was still cyanotic, though the shoulder swelling had subsided. Cultures of the blood and of the nasal secretion at this time gave negative results.

Moon¹² has reported an anaerobic, strictly hemophilic diplobacillus isolated from an infected ethmoidal sinus. It differs from the Pfeiffer's bacillus as follows: It is larger; it is a diplobacillus; it gives more involution forms; it stains more readily and is anaerobic. It was found within the leukocytes in large numbers. It was specifically agglutinated by the patient's serum in dilutions of 16:1, and the opsonic index was 3. It was non-pathogenic for animals.

The hemoglobinophilic bacilli are interesting in that they are pure parasites, for the very evident reason that only in animals can they find the hemoglobin which, so far as we know, is absolutely necessary for their existence. And since they are not spore formers and are all very delicate organisms, their length of life outside the animal body is very short, probably a few days at the most.

The rather remarkable and extreme adaptation which they have undergone in relation to hemoglobin is also an

interesting and important biologic phenomenon. While hemoglobin seems indispensable to them, certain closely related respiratory pigments, for example, hemocyanin and hemerythrin, which occur in some of the lower animals and appear to have a function similar to hemoglobin in the higher forms, cannot be utilized.

The exact rôle of hemoglobin in their metabolism is not known. They seem to be able to use about equally well this substance from nearly all higher forms of animal life, though the hemoglobin from the pigeon seems as a rule to give somewhat more abundant growth. It is doubtful whether the hemoglobin is necessary on account of its nutritive properties, because an extremely minute quantity (1 part in 80,000 parts of the medium) suffices for growth, and also because these organisms will not multiply at all when placed in distilled water containing small amounts of hemoglobin. The phenomenon may be therefore a catalytic one.

SUMMARY

The hemoglobinophilic bacteria may be divided into two general groups: (1) those of the Pfeiffer-bacillus type, all of which reveal the phenomenon of symbiosis and are very commonly found in infectious diseases; (2) a far more heterogeneous group which includes the organism described by Friedberger, the bacillus found by myself and by Koch in urinary and uterus infections, the bacillus found in the pus of the shoulder abscess previously referred to and also such organisms as have been described by Moon and some others. The first group is no doubt a very definite one, the members of which are closely related; indeed, usually practically identical. The second group comprises bacteria very different in character and remotely related to each other, having in common little more perhaps than the hemoglobinophilic property. Compared with the bacilli of the first group they are rare.

The hemophilic bacilli of Pfeiffer's type are of primary importance as secondary invaders in many infectious diseases, especially those involving the respiratory tract. As such, they are not harmless parasites, as has been shown by animal experimentation. In this respect they are about as common and often, perhaps, as important as such organisms as streptococci and pneumococci.

That they may be highly virulent at times and the cause of serious primary infections, is clearly shown in the not uncommon cases of purulent meningitis caused by these organisms.

Whether or not Pfeiffer's bacillus was the cause of the pandemic of influenza of 1889-1890, or is ever the cause of epidemics of influenza, is still a doubtful question.

Epidemics of clinical influenza occurring in recent years have been caused by a variety of organisms, including streptococci, pneumococci, *Micrococcus catarrhalis* and possibly other varieties.

Traveling Consumptives.—Few people with tuberculosis who travel exercise any precautions whatever. Beneficiaries of the three Government sanatoria are provided with pocket sputum cups, a colored 5 per cent. phenol, or other disinfectant solution, and are properly instructed. Others, particularly those who have resided at sanatoria, give some thought to their neighbors, but the vast majority of consumptives, as well as healthy persons, are careless with their sputa.—Ernest A. Sweet, *Public Health Reports*, April 9, 1915.

10. Davis, David John: Jour. Infect. Dis., 1910, vii, 599.

11. Koch, C.: Ztschr. f. Geburtsh. u. Gynäk., 1912, lxi, 634.

12. Moon: Tr. Chicago Path. Soc., 1913, ix, 51.

THE YOUNG GRADUATE AND THE
PROPRIETARY MEDICINE
QUESTION *

CARY EGGLESTON, M.D.

NEW YORK

The time has now arrived when you will go forth into the world at large to practice the profession to the study of which you have devoted these last four years. You all look forward to this as a time of release from the burdens of an academic life, and most of you probably anticipate it as the coming of your era of independence. I fear that those of you who cherish this idea without great restriction are destined to receive more than one rude shock within the first brief year. Within these walls your way has been pointed out to you by those who have learned the road by experience, and to them you have been able to turn for aid in the solution of the problems which have confronted you thus far. With the hour of your entrance into the practice of medicine, all of this will change, and it is you who will be sought out for advice and the solution of problems. Where these problems have to do with the diagnosis and treatment of human ills we have no fear that you will not solve them readily and, for the most part, with an ever-increasing skill. But other problems will confront you almost from the moment when you acquire your telephone number and place your nice new name plate out to face the weather.

Of these other problems and vexations, one which is destined to pursue you most relentlessly is that of the proprietary medicine and the "new and elegant pharmaceutical preparation" "nicely designed to suit all of your requirements." It is of this problem that I wish to speak a few words, and for the meeting of which I wish to prepare you in some measure.

PROBLEM OF THE PROPRIETARY MEDICINE

The chances are about even that among the first to ring your door bell will be a well-dressed gentleman carrying a small satchel who, without giving his name or stating his business, will so impress every one that he will gain admittance to your office at once. You will encounter in him a skilful and plausible talker who will endeavor to persuade you, for example, that for all pulmonary conditions you will find X-Y Company's scientific synthetic preparation decidedly superior to the older remedies. He will tell you of its advantages, will cleverly seek to implant the idea that it is quite without danger, that it is, of course, free from the many disadvantages possessed by all other preparations, including those in the "antiquated" pharmacopeia, and best of all, that it is in a form which is very pleasant to the patient and the doses and precise indications are stated in the neat little pocket companion which he will be glad to have you accept. Before he leaves you will begin to wonder why no mention was made of this truly remarkable new synthetic back in medical college. To make his case the stronger he will relate the names of several prominent hospitals in which it has now replaced the older drugs, and will casually call attention to the fact that Dr. Smith, who is the best-known man in your neighborhood, is using it in his practice with great success. All possible changes will be rung on this form of

exploitation, and you will be bombarded on all sides by detail men, personal letters, beautifully gotten up booklets, card indexes, prescription pads and books, samples, circulars, wall charts, pencils, hosts of blotters, paper cutters, calendars, telephone pads, etc., each designed to induce you to use some particular preparation which has every conceivable advantage, with no disadvantage whatever. You will open your medical journal and be confronted with page after page of cleverly worded advertisements of the same preparations. Now and then a reprint will be sent you in a plain envelope of a paper by some unknown doctor with many titles and apparent hospital appointments whose name you could probably not find in the medical directory. But worst of all will be the time when one of your patients asks you what you think of "Laxaprun" or some other nostrum of that ilk for constipation.

A few of the preparations thus brought to your attention will be of some value and will not be frauds, but will be honestly offered and in some instances will be real additions to your therapeutic armamentarium. Others may be honest in their composition but will merely be nice mixtures of common pharmacopeial or National Formulary preparations, no better than you should be able to prescribe extemporaneously, but offered with some claims of advantage. Another group will comprise preparations perhaps not vicious in themselves, but made so by the exaggerated and false claims made for them. And the last group will be that of the utter frauds which are often not of the same composition two years in succession, although their claims never change with the alterations in their composition.

The problem which will confront you in this whole matter of the new synthetic, the specialty, the proprietary preparation and the nostrum will be for you to determine which is of value, the limitations of its advantages, and what dangers and disadvantages it has; which is merely a mixture such as any pharmacist could prepare on your prescription, and which are pure frauds. How are you to solve this problem? Have you the knowledge requisite for its solution? If you have the knowledge have you the time and the facilities at hand? Where shall you turn for trustworthy information? The first of these questions I will answer in a word or two, but to the last I shall devote some time, for it is your most important and readiest means available.

Have you the knowledge for the solution of this question in a given case? Yes, in many instances you have. Often the fraud is so patent and the claims are so preposterous and palpably impossible that a brief reflection will suffice to show you the worthlessness of the preparation. But in other instances there may be room for reasonable doubt, and the scrutiny to which you can submit the preparation will be inadequate to warrant a final judgment. You must here seek the aid of the unbiased opinions of others whom you can trust. This will also be true in those cases in which you could answer the question for yourselves, but for which you have neither the time nor the facilities.

NEW AND NONOFFICIAL REMEDIES

This leaves for discussion the question of where you shall turn for the desired trustworthy information. So short a time as ten years ago you would have been

* Address to the graduating class of Cornell University Medical College, 1915.

without such aid; but you who graduate now all have the desired source of information at your command. It is the volume entitled *New and Nonofficial Remedies*, published annually by the American Medical Association. That you may better understand the service this volume can render you I shall devote a few minutes to a brief review of its history and shall tell you something of the Council on Pharmacy and Chemistry, its work and the rules which govern its decisions on the characters and claims of the many preparations which are included in the volume. I shall also speak of the scope and limitations of the book and shall call your attention to some of the other work of the Council on Pharmacy and Chemistry which will prove of value to you in this same connection.

From the earliest days of therapeutics there have been frequent attempts made to commercialize various drugs and preparations, such common agents as ipecac, cinchona and veratrum viride long being thus exploited under the cover of secrecy. Then came the development of the complex mixture offered for the cure of a host of diseases and conditions, this rapidly developing into the common "patent medicine," which is still with us in untold numbers. As chemistry advanced within the past generation or so, there came the development of synthetic substances, some of which were found to have pharmacologic actions of more or less value.

The financial harvest reaped by the manufacturers of a few of these preparations, both synthetic and of the nature of common secret mixtures, naturally led many to turn their attention to the development of other preparations. It was soon appreciated by shrewd but unscrupulous persons that the liberal use of money for advertising would carry many preparations into wide use wholly without regard to any inherent value, or lack of value, which might be theirs. Secrecy and plausible praises were all that were necessary if combined with sufficiently wide and insistent advertising. Thus there sprang up in a night, like mushrooms, scores of simple mixtures of well-known substances under the guise of new synthetics, and hosts of worthless and even dangerous preparations. It was also discovered that physicians were, alas, quite as gullible as laymen, and there began a disgraceful exploitation of the medical profession which had reached such magnitude a few years ago that certain of the better informed members of the medical profession saw the need for a serious attempt to stem this tide for the good both of their profession and of the laity. This attempt finally took definite form in 1905, and in February of that year the American Medical Association created the Council on Pharmacy and Chemistry.

The Council on Pharmacy and Chemistry, or, as I shall speak of it, "the Council," is not a self-appointed committee of reformers, as some of its calumniators are fond of stating. It is a group of chemists, pharmacists, pharmacologists and physicians chosen for their ability to judge of the value of remedial agents, a certain number being elected annually by the Trustees of the American Medical Association. Their interest is the protection of the medical profession and the laity against fraud, secrecy and the undesirable advertising of proprietary remedies, and such as are not official in the pharmacopeia or National Formulary. It is their duty to examine into the validity of the claims made regarding new preparations, to record

standards for their composition and to see that they are advertised in a way consistent with the truth regarding their value. To guide them in their decisions, it was necessary for the Council to establish certain rules with which each preparation should be required to comply before it could be admitted to the list of remedies which are honestly marketed and for which there is just evidence of some value. The preparations and remedies which meet all of the requirements laid down are said to be "accepted" by the Council for inclusion and description in its annual publication, *New and Nonofficial Remedies*. Their acceptance and inclusion in *N. N. R.* in no way implies any recommendation by the Council respecting their value. It merely indicates that they do not conflict with the published rules of the Council.

There are ten of these official rules laid down by the Council to govern the admission of any proprietary article to the book and, although these are given in full in the volume, together with some explanatory comments on them, I will take them up briefly for discussion, mainly to show how they serve to protect you against fraud and deception.

THE TEN RULES OF THE COUNCIL

Rule 1 requires that the composition of each preparation submitted for consideration shall be furnished to the Council for publication. When the substance is simple, its scientific name and chemical formula, if the latter is known, are required. In the case of mixtures, the amount of each active ingredient in a given quantity of the preparation must be stated, along with the general composition of the vehicle, including the percentage of alcohol which it contains and the identity of any preservatives which may be present. These data are published for each accepted article in the description given of it in *N. N. R.* You can, therefore, easily determine the precise nature of any such new preparation or drug by reference to this volume. You will then be in a position, in the case of many drugs and preparations at least, to judge for yourselves on the basis of your pharmacologic and therapeutic knowledge whether or not a given substance may be suited for use in a particular case.

Rule 2 requires that suitable tests for the determination of the composition, identity and purity of any preparation submitted shall be supplied and, in the case of mixtures, for the determination of the amount and activity of their potent ingredients. This rule is rather of indirect value to you, for you will seldom have either desire or opportunities to carry out the tests given. But it affords you the security of knowing that there are such tests to insure the identity and uniformity of the preparation as well as its activity. The fact that they are made public alone goes a long way toward insuring that the article as marketed is always the same. In addition, the Council applies such tests from time to time to samples obtained in the open market, and if they are found wanting in any respect, the manufacturers are warned of this fact, with the understanding that a failure to correct it may lead to the exclusion of the article from the list of accepted drugs.

Rule 3 calls for the rejection of all preparations which are advertised directly to the public. To this rule, however, there are two exceptions. The first permits the advertisement of disinfectants and germicides if this is restricted to "conservative recommendations

for their use as prophylactic applications to superficial cuts and abrasions of the skin and to the mucous surfaces of the mouth, pharynx and nose." The second exception allows the advertising in an unobjectionable manner of nonmedicinal food preparations. This rule is of great value to the public. But it is not less so to you, for those who have worthy preparations are usually very desirous of having them included in N. N. R., and the mere fact that you may see a preparation advertised to the general public stamps it at once as one which is excluded from recognition by the Council and one which is in all probability in some respect fraudulent or else worthless.

Rule 4 serves to extend the scope of Rule 3 in preventing indirect advertising to the layman by forbidding admission to any preparation of which the label, package or enclosed circular contains the names of the diseases or conditions for which it is recommended. This guards you against becoming the unwilling agent of the manufacturer by placing in a patient's hands information which might lead him to self-medication with the particular preparation. This method of using the physician to advertise a proprietary medicine has been very greatly abused in the past, and its correction is a matter of much relief to the conscientious physician.

Rule 5 covers the question of false claims as to the origin of the material from which the preparation is made, and requires in addition that the name of the actual manufacturer must be furnished to the Council. The need for this rule may not be apparent to you at first, but when I mention that only a few years ago there were many persons engaged in the "patent medicine" business who were offering worthless or harmful mixtures under catchy names, often claiming that they were new synthetic drugs, and that often these persons merely engaged some pharmaceutic house to prepare these mixtures, which they then sold at fabulous prices, you will readily see how great an abuse this form of fraud could become. It had, in fact, become one of the greatest of all abuses in the field of proprietaries. Such mixtures of acetanilid, caffeine and sodium bicarbonate as "antikamnia" were for years thought by many physicians to be true synthetics for which they would make their patients pay fancy prices on account of their own ignorance.

Rule 6 refuses admission to N. N. R. of any preparation for which exaggerated, unwarranted or misleading therapeutic claims are made. A reasonable degree of optimism is permitted the manufacturer, but this is never allowed by the Council to be carried beyond proper bounds. It used to be the practice of almost every manufacturer of a new drug to make the most extravagant claims regarding its value, all mention of any of its disadvantages being scrupulously avoided. Under Rule 6 of the Council, the claims for many articles have been so greatly modified that there is little left to recommend them, but the physician is in a far better position to determine whether or not they may be of service to him.

The seventh rule guards against possible accident by requiring the principal label on any article which contains potent or poisonous substances to bear a statement of the amount of such substances in a given quantity of the preparation.

Rule 8 calls for the naming of a preparation in a manner which shall be sufficiently descriptive of its composition, either chemical or pharmaceutic. It also

refuses recognition to such articles as bear objectionably suggestive names, or such as imply the diseases or conditions for which the preparation is recommended.

A further means of protection against fraud is provided by Rule 9, which requires that the patent numbers, or those of the registered or copyrighted names, shall be supplied to the Council, and that a copy of the protected label of the preparation shall be filed with the Council.

Lastly, Rule 10 rejects all mixtures which are either unscientific or useless, or which are "inimical to the best interests of the public or of the medical profession."

OTHER CONSIDERATIONS

From what has gone before, I think that you must now have some idea of one of the difficulties which will confront you as practitioners, and I hope that you will also see and appreciate the value of the help which is given you in the solution of this difficulty by the work of the Council on Pharmacy and Chemistry which has led to the preparation of N. N. R. This is not, however, the only service which the Council is rendering. Certain of the worst frauds which are being perpetrated from time to time on the medical profession are being run down, and accounts of them appear every little while in *THE JOURNAL* of the American Medical Association. A volume is also published annually, in which will be found the reports of the Council on those preparations which have been refused acceptance for inclusion in N. N. R., and the reasons for their rejection are there clearly set forth.

The question will arise in your minds as to what you are to do when you find that a certain preparation is not mentioned in the latest volume of N. N. R. In general, you may feel fairly certain that if it is not mentioned it is because it is not acceptable on account of conflict with one or more of the rules just mentioned. It is, of course, not possible for the Council to examine into the claims of every new preparation, but it should be said that it has so far covered nearly, if not quite all of those preparations which have any genuine claim for consideration. Such, therefore, as are not to be found in N. N. R. may be presumed to be offenders in some respects, unless, of course, they have been too recently introduced to have come under consideration. (An inquiry sent to the secretary of the Council will disclose the status of any article.)

In addition to the facts which I have already brought out concerning the material in N. N. R., I would also call your attention to certain concise discussions given in it on the pharmacology, pharmacy and toxicology of various classes of preparations. The limits of dosage and the information which will enable you to combine the new preparations in suitable prescriptions are likewise to be found in this volume.

Today, upon the eve of your graduation into the practice of medicine, I have taken this occasion to tell you something of the potential value which the book *New and Nonofficial Remedies* holds for each of you. I hope that you will all make constant use of it; that you will learn that it is an honest and unbiased adviser ever at your hand; and I feel sure if you do call on it for help as frequently as the occasions may arise that you will come to think that I have done it but poor justice in my attempts to show you something of its inestimable value.

414 East Twenty-Sixth Street.

THE ONSET OF HUNGER IN INFANTS
AFTER FEEDINGA CONTRIBUTION TO THE PHYSIOLOGY OF THE
STOMACH *

H. GINSBURG, B.S., I. TUMPOWSKY, B.S.

AND

A. J. CARLSON, PH.D.

CHICAGO

Pediatricians differ as to the incidence of hunger in infants, because up to the last few years there has been no certain objective criterion for the existence of hunger. This has led to varying views and practices in regard to the frequency with which infants should be nursed. Those favoring the two-hour interval for the first month are Budin, Burnet, Chapin, Cotton, Dodson, Fowler, Heubner, Holt, Rachford and Webster. Ahlfeld, Kerley and Koplik advocate two and one-half to three hour feedings. Among exponents

of the three-hour interval are DeLee, Feer, Finkelstein, Lamb, Langstein, Meyer, von Pirquet and Williams. Abt believes in a three-hour to four-hour interval; while Brenneman, Czerny, Grulee, Jascke and Keller designate four-hour periods.

It is now established that the subjective sensation of hunger is caused by a certain type of contraction of the fundal end of the empty stomach stimulating sensory nerves in the wall of the stomach.¹

Since the contractions peculiar to the cardiac and fundal ends of the empty stomach are, in normal individuals at least, an objective index of hunger, the balloon method may enable one to determine the time of onset of hunger in infants after previous feeding, and the answer to this question may aid in fixing the time that should elapse between the nursings of normal infants.

METHOD AND RESULTS

The experimental procedure is recorded in a previous publication.² The observations were made on thirty normal infants, from 24 hours to 4 weeks old. Introduction of the balloon into the stomach directly after nursing leads to vomiting of the balloon and some of the food. The balloon is readily retained from forty-five minutes to one hour after feeding. The accompanying tracings were obtained from infants who were asleep or otherwise quiet, since inhibition of the hunger contractions results when the child is restless.

Fifty-five observations were made on thirty infants. The average time between nursing and the appearance of the period of hunger contractions was two hours and forty minutes, with a maximum of three hours and thirty minutes, and a minimum of two hours and twenty minutes.

Our tracings show that when the stomach is full of food the inflated balloon in the fundus reveals practically no contractions. As the stomach gradually empties, feeble tonus contractions appear, and increase in rate and intensity until they end in a period of typical hunger contractions from two and a half to three hours after the previous nursing. This change of the tonus contractions of the fundic end of the stomach partly filled with food into the hunger contractions of the empty stomach have already been demonstrated for the adult by Rogers and Hardt.³ Pisek and Le Wald⁴ have shown by roentgenogram experiments that "three hours is practically the emptying time of a child's stomach and often less than that."

Czerny,⁵ Leo⁶ and Pipping⁷ conclude that the stomach of a normal infant empties itself in from about one and a half to two hours. The time required for emptying of the stomach depends, of course, on the quantity of the food as well as on the rate of the gastric secretion and the vigor of the gastric digestion peristalsis.

In this connection it may be of interest to note that the mammalian infant, except when under the strict control of a pediatrician, feeds, on the whole, as soon as the hunger sensation is strong enough to be uncomfortable, provided food is at hand, and he thrives on this procedure; while the infant whose routine is ordered by the pediatrician nurses every two, three or four hours, irrespective of the onset or intensity of the periods of hunger. Of course, a certain period of rest for the gastric glands may be beneficial.

SUMMARY

The infant's stomach shows feeble tonus contractions of the fundal

end, one hour after nursing. As the stomach discharges its contents these tonus undulations gradually increase in frequency and intensity until by the end of from two and a half to three hours these become transformed into vigorous hunger contractions. The time of onset of hunger contractions after

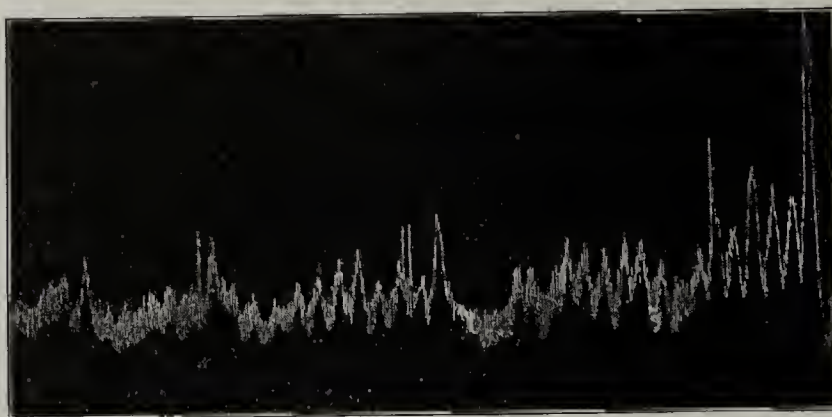


Fig. 1.—Infant, 14 days old, finished nursing at 9:05 a. m.; beginning of gastric hunger contractions 11:10 a. m. (chloroform manometer).

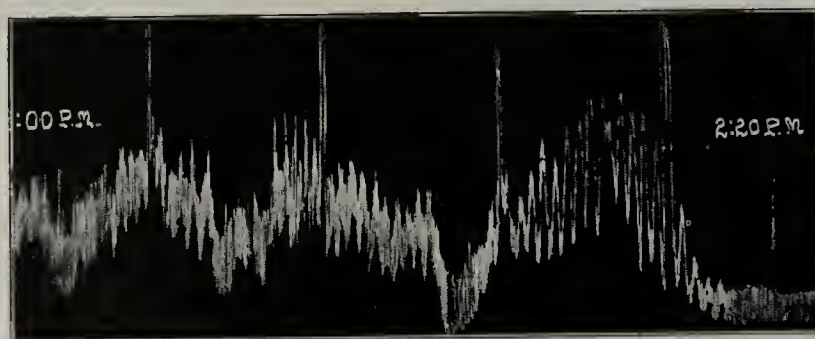


Fig. 2.—Infant, 4 days old, finished nursing at 11:50 a. m. Tracing shows end of period of gastric hunger contractions at 2:30 p. m. (chloroform manometer).

* From the Presbyterian Hospital and the Hull Physiological Laboratory of the University of Chicago.

1. Carlson, A. J.: *Am. Jour. Physiol.*, 1913, xxxi, 175.

2. Carlson and Ginsburg: *Am. Jour. Physiol.*, 1915, xxxvi.

3. Rogers and Hardt: *Am. Jour. Physiol.*, 1915, xxxvi, 354.

4. Pisek and LeWald: *Infant. Stomach*, Tr. of Am. Pediat. Soc., 1913, xxv, 150.

5. Czerny, A., and Keller, A.: *Ernährung, Ernährungsstörungen und Ernährungstherapie des Kindes*, Leipzig and Vienna, Franz Deuticke, 1906, i, 57, 58.

6. Leo, H.: *Berl. klin. Wchnschr.*, 1888, xxv, 981.

7. Pipping, W.: Thesis, Helsingfors, 1891.

the previous feeding varies for each infant. In our present series the minimum is two hours and the maximum three hours. The hunger contractions of the empty stomach are modified tonus waves of the fundus of the digesting stomach, as shown by Rogers and Hardt.

In the normal individual the presence of vigorous hunger contractions is probably a biologic evidence that the stomach is in proper condition to receive food. If this is the case, the stomach of a normal infant is ready to receive food from two to three hours after the previous nursing.

OVARIAN TRANSPLANTATION *

C. C. GUTHRIE, M.D.

AND

M. E. LEE

PITTSBURGH

Transplantation of human ovarian tissue with varying degrees of success has been reported and is occasionally practiced. For the most part the operation has been performed with a view of preservation of its internal secretory function. Many case histories have been reported which indicate that in this way the operation is frequently successful. In 1906 Morris¹ reported the birth of a child in a woman from whom the ovaries were removed and in whom ovaries from another woman were engrafted four years previously.

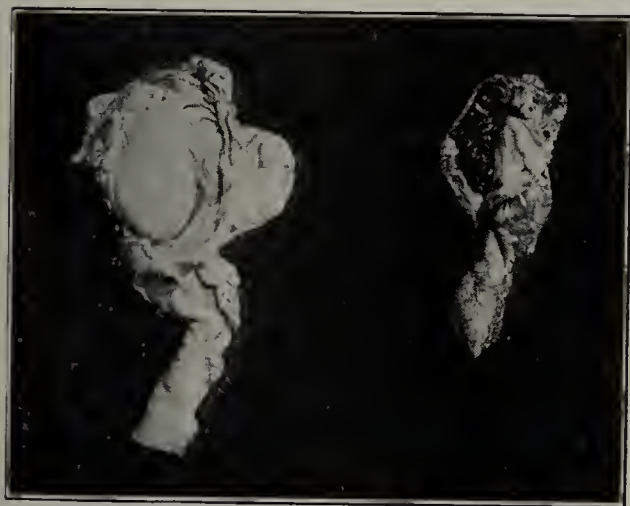


Fig. 1.—Engrafted ovaries, natural size.

For general biologic reasons, but particularly with the view of studying heredity, numerous attempts have been made to engraft ovarian tissue into animals and birds. Prior to 1894, Romanes² made many experiments in endeavoring to transplant ovaries in rabbits and dogs. His results were uniformly unsuccessful.

Gregorieff³ in 1897 reported pregnancy in four rabbits from which the ovaries were removed and replaced.

Magnus⁴ in 1907 reported the birth of young by a black rabbit whose ovaries had been removed and

replaced with those from a white rabbit. The coat markings of the young indicated a soma or foster-mother influence.

Guthrie⁵ in 1907 successfully transplanted ovaries from hen to hen. Such fowls laid eggs which were hatched. Chicks thus obtained showed evidence of foster-mother influence.

From experiments on rats, Marshall and Jolly⁶ in 1908 stated that (1) ovarian autografts succeed better in the kidney than in the peritoneal cavity; (2) ovarian isografts succeed less readily than autografts; (3) isografts are more successful between nearly related than between distantly related individuals, and (4) it is not necessary to create a deficiency—that is, remove ovarian tissue—in order to achieve such success. Their work was largely based on preservation of histologic structure in transplanted tissue.

Ribbert⁷ in 1898 reported preservation of structure in guinea-pig ovarian tissue removed and replaced.

Castle⁸ and Guthrie⁹ in 1909 obtained young from guinea-pigs whose ovaries had been removed and replaced with ovaries from other guinea-pigs.

The results reported in this paper were obtained on dogs.

Two sister puppies 3 months old were operated on, the ovaries in each case being removed and transplanted into the other animal. At this time the organs measured about 6 mm. in length. The animals were operated on simultaneously. Each ovary was exposed and its pedicle firmly grasped throughout its entire extent by curved forceps. A fine silk thread was then passed through the base of the ovary



Fig. 2.—Low power photomicrograph, showing free relation of transplanted ovary to fallopian tube; A, fallopian tube; B, fimbriated extremity of fallopian tube; C, ovary.

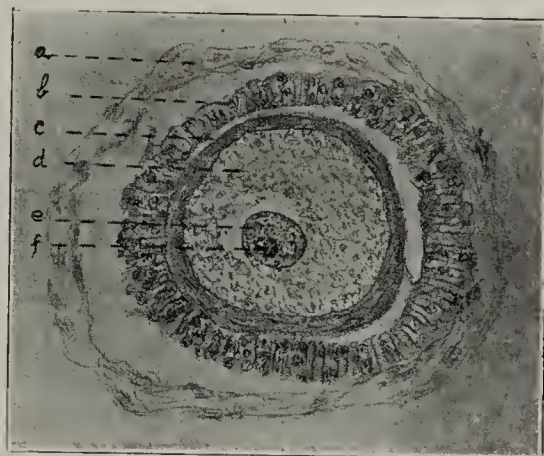


Fig. 3.—Camera lucida drawing of graafian follicle in right engrafted ovary; the structures are all normal in appearance; a, theca folliculum; b, corona radiata; c, zona pellucida; d, ova; e, germinal vesicle; f, germinal spot. Schron's granules were observed.

by means of a cambric needle. The ovary was then completely separated from the pedicle with a knife. It was then instantly transferred to the other animal and fastened to the pedicle of the former ovary by means of the thread previously inserted into its base.

The animals made uneventful recoveries and appeared the same as dogs not operated on. One was lost, while the other was killed through accident

* From the University of Pittsburgh, School of Medicine.

1. Morris: *Med. Rec.*, New York, 1906, lxix, 697.

2. Romanes: *Darwin and After Darwin*, 1906, ii, 143, 144.

3. Gregorieff: *Centralbl. f. Gynäk.*, 1897, xxi.

4. Magnus: *Norsk Mag. f. Lægevidensk.*, 1907, No. 9.

5. Guthrie: *Proceedings of the Society, Am. Jour. Physiol.*, xix, pp. xvi, xvii.

6. Marshall and Jolly: *Quart. Jour. Exper. Physiol.*, 1908, i, 2.

7. Ribbert: *Arch. f. Entwcklungsmechn.*, 1898, vii, 668.

8. Castle: *Science*, 1909, xxx, 312.

9. Guthrie: *Science*, 1909, xxx, 724.

eighteen months after operation. The animal was in good condition.

There were slight peritoneal adhesions between the intestines and the anterior wall of the abdominal cavity at one point along the line of incision. The right ovary appeared normal and was much larger than at the time of transplantation (Fig. 1). It was whitish pink and showed a few dark spots. The left ovary was represented by a cystlike mass the size of a navy bean. It was dark in color and soft to the touch. When the capsule, which was markedly thickened, was opened, a small gelatinous mass was found. It was clear to pale yellow, and measured about 10 by 4 by 2 mm.

The lumen of the upper end of the right fallopian tube appeared to be somewhat narrowed. Communication between the fimbriated extremity and the ovary was unobstructed (Fig. 2). The lumen of the left fallopian tube was patent.

Histologic examination of the right ovary revealed abundant normal histologic elements (Fig. 3), including corpora luteum (Fig. 4). The left ovary had undergone complete colloidal degeneration, at least so far as the reproductive elements were concerned.

As no attempt at mating the animal was made, the experiment is not conclusive as to the possibility of pregnancy.

The result leads us to believe that ovarian transplantation in dogs is not only feasible but also offers a promising means of obtaining information regarding optimum conditions for success as well as heredity.

SYPHILIS OF THE STOMACH

A REPORT OF EIGHT CASES WITH ROENTGENOLOGIC FINDINGS *

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It is generally stated in textbooks on diseases of the stomach that syphilis of this organ is of rare occurrence, and that it is found in scarcely more than 1 per cent. of patients afflicted with the disease. The advent of routine blood examinations, however, and the great advance made in the diagnosis of all gastro-intestinal lesions by the use of the Roentgen ray prove that this contention can no longer be held.

Since June 1, 1913, eight cases of syphilis of the stomach, in which the diagnosis was established with a fair degree of certainty, have been admitted to the ward service of St. Luke's Hospital. Five of these patients suffered from the symptoms of obstruction, and according to the assignment of cases by region, in effect since that date, were referred to one of us (W. A. D.) for operation. The other three were

cared for in the medical service, as no indication for surgical intervention existed at the time.

Syphilis appears in the stomach as a late manifestation of the disease in both the congenital and the acquired types. Jerome Meyers¹ states that the age in the youngest recorded case of the acquired form is 18 and the oldest 60. In the congenital cases, gummas have frequently been found at necropsy in the stomach of the new-born.

The ages in our cases were 14 and 17 in the congenital type and 22, 23, 34, 42, 62 and 63 in the acquired.

Diffuse syphilitic gastritis has been described, and histologic examination in such cases has shown the changes of generalized gummatous infiltration of the submucosa. In the great majority of instances, however, the disease appears in the form of localized gummas, either single or multiple. The lesions may be situated in any part of the stomach, but seem to occur most frequently in the pars pylorica, involving either the lesser or greater curvatures, or both. The gummatous deposits are described by pathologists as starting in the submucosa and spreading gradually to the other coats.

These deposits pass through the stages of infiltration, ulceration and cicatrization, in varying degrees. One portion of the wall may remain infiltrated while another passes on to ulceration or may become cicatricial. Definite pyloric stenosis may occur either as a result of the gummatous infiltration, cicatrization of the ulcer or perigastric adhesions. Obstruction from the combination of these conditions necessitated operation in five of our cases. Besides the lesions in the stomach wall, other syphilitic manifestations are usually present, such as marked perigastric adhesions, changes in the liver capsule and gummas of the liver, and extensive involvement of the gastrohepatic and gastrocolic lymph glands, as well as other constitutional and local evidences of the disease.

The symptoms of gastric lues when considered in a general way differ very little from those of other lesions of the stomach of equal extent and like location; but when carefully analyzed, several striking differences become apparent. To begin with, the pain lacks the periodicity of the average simple ulcer—it is not so much influenced by the taking of food and is frequently referred to as gnawing in character; it is, however, persistent, and was an important symptom in the cases observed by us. Vomiting was a marked symptom in our cases almost from the beginning. This is probably accounted for early, by the gummatous infiltration, and later on, by the cicatrization and adhesions, possibly too, indirectly from the disturbed liver function. Although small quantities of blood have been found in the gastric analyses of the cases, and a few claim to have had tarry stools, hemorrhage has not been so frequent or severe as in simple ulcer; this is especially striking when the long history of many of the cases is taken into consideration. Our observation in this respect corresponds with the experience of Fenwick,² who states



Fig. 4.—Camera lucida drawing of a few cells of a corpus luteum in the right engrafted ovary.

* From the Surgical Service and Roentgen-Ray Laboratory, St. Luke's Hospital.

* Read before the New York Surgical Society, March 24, 1915.

* Because of lack of space, this article is abbreviated in THE JOURNAL by omission of some of the case reports and illustrations. The complete article appears in the authors' reprints. A copy of the latter will be sent by the authors on request.

1. Meyers, Jerome: Albany Med. Ann., October, 1912.

2. Fenwick, and Soltan, W. S.: Cancer and Other Tumors of the Stomach, Philadelphia, P. Blakiston, Son & Co., 1902, p. 313.

that the infrequency of hematemesis in these cases helps to differentiate them from simple ulcers. On the other hand, Lockwood³ reports a fatal case from hemorrhage. The predominating feature of the disease clinically is the extreme loss in weight, which in one of the cases here reported amounted in eighteen months to one half of the patient's former weight.

Gastric analysis was omitted in Case 5, on account of constant vomiting and disinclination on the part of the patient. In Case 6, there is no record that an analysis was made. In Cases 1, 7 and 8, the examination showed absence of free hydrochloric acid and a combined acidity of 32, 16 and 14, respectively. In these cases there was extensive involvement of the stomach wall as shown by the roentgenograms and in Case 1 by operation. In Cases 2 and 3, in which the symptoms were those of pyloric stenosis and the lesions were demonstrated at operation to be at the pylorus, free hydrochloric acid was 30 and 36, with a combined acidity of 52 and 70; while in Case 4, in which there was hour-glass contraction with constriction at the pylorus, the analysis showed free hydrochloric acid 13, total acidity 34. Lactic acid was absent in every case. The guaiac test for blood was positive in five cases. While these findings are in no wise conclusive, they would seem to suggest that there is absence of free hydrochloric acid, and a low total acidity in the cases, with extensive involvement of the gastric mucosa unaccompanied by special involvement of the pylorus, and that the distinctive pyloric stenosis type without diffuse infiltration of the mucosa shows the usual findings of ulcer in that region.

The diagnosis of gastric syphilis can be established

without much doubt if the history and clinical findings are given proper consideration. In the congenital cases, the family history and the early history of the patient, his general development and appearance and other syphilitic stigmata with symptoms of gastric disturbance are very suggestive, while in the acquired cases a definite history of infection may be established. In both instances, the course of the disease differs from the simple type of ulcer, in that it is influenced but little by dieting and the ordinary meth-

ods of treatment, and it is unlike malignancy in that there is not the steady and continuous progress to a fatal termination. With such a history and due consideration given to the symptoms previously enumerated, the added evidence of a positive Wassermann reaction and the roentgenographic findings of deformity of the stomach make the diagnosis practically certain. Finally, the value of the therapeutic test must be given due weight. That mixed treatment and salvarsan will produce temporary improvement in old ulcers or even certain cancer cases there is no doubt, but the

benefit is of short duration, where, as in the class of cases under consideration, there is a return to normal health; and if the lesion in the stomach has not reached the cicatricial stage, this organ may be restored to its former condition.

Two of our cases were of the congenital type, two gave definite histories of chancre and in one the husband gave a positive Wassermann. The history as to primary infection in the remaining three was negative. The Wassermann reaction was four plus positive in every case. Roentgenograms showed definite changes in the shape and size of the stomach in six cases, and in the other two demonstrated a marked degree of pyloric stenosis. The deformity in the stomachs varied from an irregularity along the curvatures to hour-glass contracture, and in one case to extreme distortion, giving the appearance not unlike that of a dumb-bell. Response to treatment has been astonishing in each case, and bears witness to the value of the therapeutic test.

The pathologic diagnosis of syphilis of the stomach is even more difficult to establish with certainty than the clinical diagnosis, as syphilitic infiltration so

closely resembles tuberculosis. In two of our series, Cases 4 and 5, specimens were removed for microscopic examination. In Case 4 a nodule the size of an almond was removed from the surface of the liver, which was studded with such tumors varying in size from a pea to a walnut. Macroscopically, this was a typical syphilitic liver. Dr. Wood, pathologist to St. Luke's Hospital, did not feel justified in making a positive report of syphilis from the morphology.

A fair sized piece of gastric mucosa and an omental gland 1.5 by 0.6 cm. were removed from Case 5 for examination, and the report on the sections from the

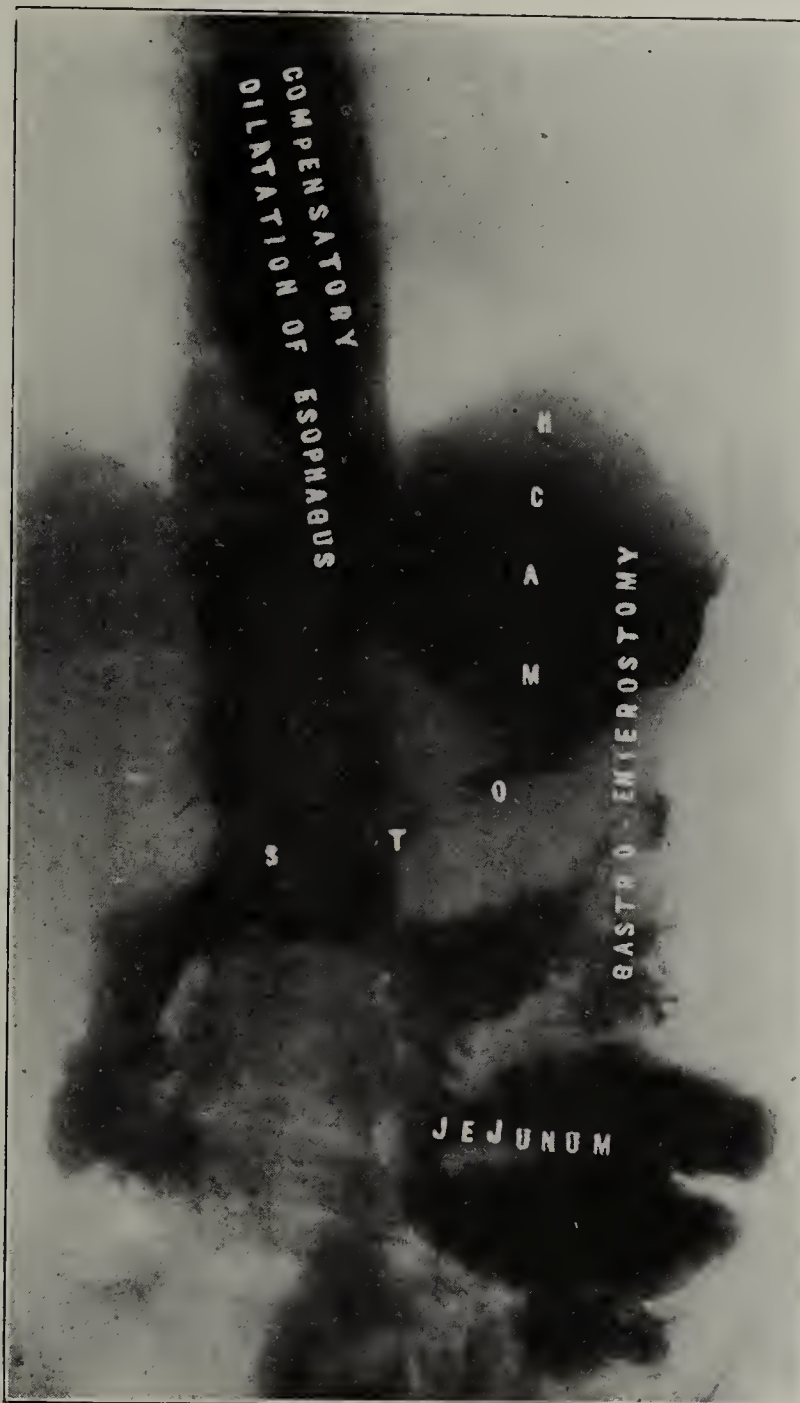


Fig. 1 (Case 1).—Girl, aged 14. Note dumb-bell-like appearance due to sclerosis of body of stomach. After gastro-enterostomy, most of food going through opening, but enough passing through stenosed portion to outline it. Note compensatory dilatation of esophagus.

3. Lockwood, G. R.: Diseases of the Stomach, Philadelphia, Lea and Febiger, 1913, p. 305.

mucosa states that the diagnosis must remain in doubt with the probability that the condition is syphilis rather than tuberculosis. Sections of the gland showed simple inflammatory reaction. (For detailed pathologic report of these two cases, see histories.)

Roentgen-ray findings in syphilis of the stomach may be divided into three classes: first, a fairly typical change consisting of a diminished size and dumb-bell-like appearance of the stomach due to deformity caused by infiltration involving the middle or pyloric half of the stomach, this portion representing the handle of the dumb-bell. In this type the pyloric sphincter may be involved and held open so that the stomach empties, or at least begins to empty in a very rapid manner, such as has been observed in carcinomatous infiltration of the pylorus where the pylorus is held open, or in spontaneous or artificial gastro-enterostomy. But even though the stomach begins to empty in a very rapid manner, there may be a trace of food remaining high up at the cardiac end at the sixth hour.

Secondly, the findings may be similar to those in the first type except that the involvement of the pylorus or the extreme stenosis of the infiltrated portion of the body of the stomach may cause delay in the emptying of the stomach such as occurs in ulcer or carcinoma.

In both the first and second types, however, the stomach appears to be smaller than normal, and there is apt to be a tendency to compensatory dilatation of the esophagus to make up for the diminished capacity of the stomach.

In the third type the infiltration may involve only the pyloric region, in which case the findings may resemble closely those found in cicatrized ulcer in this region and may be accompanied by dilatation of the stomach.

The treatment of gastric syphilis is, strictly speaking, medical; and if the diagnosis could be made while the disease is in the stage of infiltration, there should be no complications requiring operative intervention. Even though the pylorus is encroached on in the early stage, there is reason to believe, from

the rapid response to proper treatment in nearly all reported cases, that stenosis of any extent or duration could be easily prevented. However, when ulceration and cicatrization have taken place, surgical measures play an extremely important rôle in the treatment of this condition, and should not be too long postponed. Three cases, 6, 7 and 8, showed little or no obstruction by Roentgen examination, and for this reason the question of operation was deferred until after vigorous antiluetic treatment had been given a trial. There was immediate response in each case, and now, from six to eighteen months later,

all three patients are in good health. It will be noted from the histories of these patients that pain was the most prominent symptom, and not vomiting, as was the rule in the obstructed cases. Persistent vomiting with increasing loss of flesh and strength is by far the most frequent complication requiring operative relief. Gastro-enterostomy best meets the indication, and was the operation employed in five of the cases here reported. In three instances, involvement of the stomach wall was so extensive that it was difficult to find a fit place to make the anastomosis. Jejunostomy should be borne in mind, and would be preferable to a difficult gastro-enterostomy in a bad risk. Pylorotomy and the excision of ulcers are usually contraindicated on account of coexisting lesions. The former operation could have been performed in Case 2, but the presence of tabes seemed to be sufficient contraindication. In



Fig. 2 (Case 4).—Woman, aged 34. Note hour-glass constriction with long channel between pouches. Condition confirmed at operation and relieved by breaking up of perigastric adhesions and performance of gastro-enterostomy to the lower pouch.

Case 3, also of the pyloric stenosis type, there was marked fixation to the liver and the man was in poor condition; but we so placed the anastomosis that a two stage operation could be undertaken. Improvement was so rapid and satisfactory that the patient refused a second operation. We are aware of the fact that all gastric ulcers, syphilitic or otherwise, have potential dangers, and for this reason the question of resection should be considered in every suitable case. If there is sufficient evidence, however, to make a diagnosis of syphilis of the stomach, no case should be subjected to more than the simplest form of operation

necessary to relieve urgent symptoms until after anti-luetic treatment has been given a reasonable trial.

SUMMARY

Syphilis of the stomach occurs much more frequently than was formerly supposed. The Wassermann reaction and roentgenologic examinations have provided the missing data necessary to establish the diagnosis. These aids to diagnosis should be applied in every case of disease of the stomach. If the diagnosis is made reasonably early, antiluetic treatment should control the symptoms; if not made until late in the disease, surgical intervention may become necessary to relieve complications.

REPORTS OF CASES

CASE 1.—History.—H. D., girl, aged 14, admitted to St. Luke's Hospital, June 10, 1913, whose father was living and whose mother had died of apoplexy, had never been strong; she had had more or less pain in stomach after eating as long as she could remember. For two years the eating of solid food had caused vomiting and severe pain; she lived on fluid diet six months and now swallowing of liquids caused pain and was frequently accompanied by vomiting; she never vomited blood. Examination revealed emaciated body with sallow skin; eyes negative; bad teeth; palpable glands in postcervical chains; lungs normal; heart showed a systolic murmur. Abdomen retracted, not tender on palpation, liver palpable 3 cm. below the costal margin; spleen enlarged. Extremities normal. Weight 52 pounds. Test meal showed free hydrochloric acid 0, total acidity 32, blood positive. Wassermann reaction four plus positive. Hemoglobin 50 per cent.

Roentgen Examination.—The food passed into the cardiac end of the stom-

ach, which it soon filled, and then backed up into the esophagus; only a trace passed through a very long, narrow, stenosed portion of the stomach extending from the cardiac end to the pyloric region, where a slight pouch was then evident. This gave a peculiar dumb-bell-like appearance to the stomach outline—one portion of the dumb-bell being formed by the cardiac end and the other portion by the pyloric end with a long narrow handle part of the dumb-bell between. The patient was then studied carefully in various positions, and the deformity of the stomach found to be constant. The stomach failed to empty itself within six hours. The following day a confirmatory examination was undertaken, and showed that the peculiar deformity of the stomach persisted. The patient was then admitted to the hospital and a third examination was made of the stomach, which confirmed the finding of stenosis of the body of the stomach producing dumb-bell-shaped deformity. Syphilis of the stomach was

suggested as a possible diagnosis from the Roentgen examination.

Operative Indication: Persistent vomiting due to deformed stomach.

Operation.—July 12, 1913, a posterior gastro-enterostomy to the cardiac pouch was done with considerable difficulty owing to adhesions and size of pouch. Recovery was uneventful; no vomiting occurred until the tenth day. This was due to taking food in too large quantities and was relieved by properly regulating feedings.

Pathologic Findings.—The middle half of the stomach is occupied by an infiltrated mass which has practically destroyed the lumen. The greater curvature is drawn up to the lesser. There is a small pyloric pouch which connects with a moderate-sized cardiac pouch by a long narrow channel into which a finger cannot be invaginated. At some points the wall is infiltrated and has a doughy feel, while other portions are hard and fibrous. The wall of both the cardiac and pyloric pouches is thickened. There are many perigastric adhesions. The liver is enlarged and grayish.

Two weeks after operation the patient was referred for Roentgen examination on account of vomiting. This examination showed that the gastro-enterostomy was working satisfactorily, but that the child was overtaxing the capacity of the stomach by taking too much food as she began to improve in health and appetite. It was plain to see from the Roentgen ray that food backed up into the esophagus owing to its being taken in greater quantities than the gastro-enterostomy could take care of (Fig. 1). Based on this examination, feeding in smaller quantities but at more frequent intervals was advised. Vomiting ceased and gain in weight followed. The patient was examined at intervals of several months up to the present time. The deformity of the stomach persisted, but the gastro-enterostomy worked perfectly, taking most of the food from the stomach; but gradually

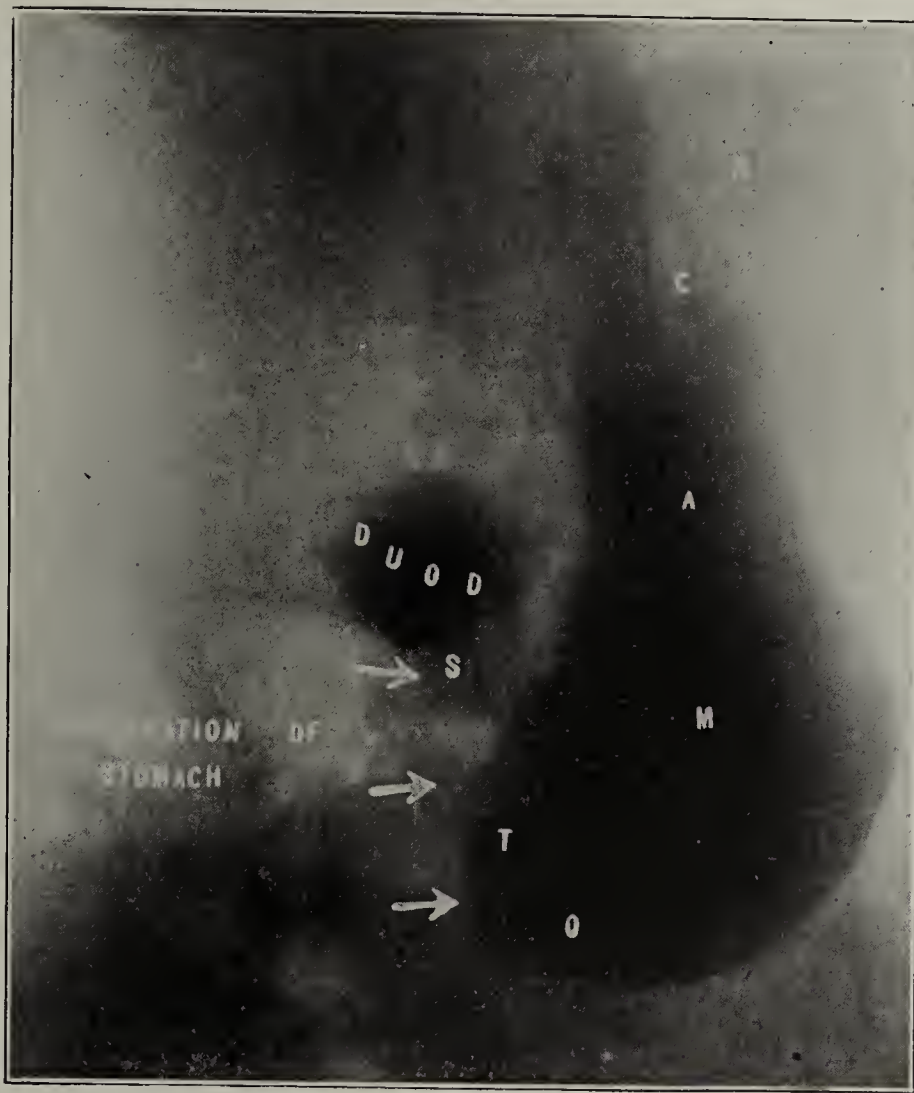


Fig. 3 (Case 5).—Woman, aged 23. Note deformity at pyloric third of stomach due to sclerosis. Note close resemblance to new growth. Diagnosis of syphilis confirmed by operation and microscopic examination of section of stomach wall. Symptoms relieved by gastro-enterostomy, but deformity persisted.

more of the food appeared to be going through the pylorus, suggesting that possibly some of the stenosis was being relieved by the antisiphilitic treatment. The constipation, which was a marked feature in the case before the operation, has been entirely relieved, and this is borne out by the passage of the bismuth meal through the colon in normal time. The last examination, made Feb. 11, 1915, one year eight months after gastro-enterostomy, showed that there was now very little tendency to backing up into the esophagus.

The patient was discharged July 17, 1913. On being examined Feb. 11, 1915, the patient was found to have gained 20 pounds in weight, was eating solid food, and was improved in every way.

CASE 4.—History.—G. R., widow, aged 34, admitted to St. Luke's Hospital, Jan. 4, 1915, had a negative previous history, two children and no miscarriages. Ten years ago she had a severe attack of epigastric pain with vomiting of blood; one

year later she noted a swelling in the abdomen just to the right of the umbilicus. She had had attacks of pain in the upper abdomen from time to time which had no relation to the taking of food, usually radiating to the back and frequently requiring morphin; she had had attacks of vomiting at irregular intervals; the vomitus usually consisted of food recently taken and did not contain blood. One attack of jaundice occurred about five years ago. The swelling on the right side had increased in size until now she could feel a mass the size of an orange, not tender, and there was only occasional pain in this region. Her general appearance was that of a poorly nourished woman appearing many years older than the age given; color bad; eyes negative; heart and lungs normal. Liver edge palpable 1 cm. below the costal margin. In the right upper quadrant was a rounded tumor mass the size of an orange which moved with respiration, seemed to be attached to the liver, and was slightly tender. Reflexes normal. Weight 116 pounds. Wassermann reaction four plus positive. Tuberculin reaction negative. Fasting stomach showed 65 c.c. of greenish fluid containing mucus and strands, small particles of food and blood clots. Bile plus, lactic acid 0, free hydrochloric acid 13, total acidity 34.

Roentgen Examination.—This revealed the stomach as having the appearance of being deformed, of an hour-glass-like appearance. The lower pouch of the stomach appeared to be dilated and reached to a point 1 inch below the umbilicus, the upper half very much narrowed (Fig. 2). (There is a distinct shadow indicating an enlarged spleen.) The pyloric region appeared to be somewhat deformed, suggesting a spasmodic condition or pressure. At the sixth hour there was a large residue in the stomach, the shadow of which measured 4 by 3 inches. At the twenty-fourth hour there was still some bismuth remaining in the stomach.

Operative Indications: Hour-glass stomach with retention; abdominal tumor probably distended gallbladder.

Operation.—Jan. 13, 1915, a posterior gastro-enterostomy to distal pouch, cholecystectomy and division of perigastric adhesions was performed, with excision of the nodule from liver. As the cardiac pouch was small and difficult to expose, and the channel connecting the pouches sufficiently wide to admit three fingers, it seemed best to unite the intestine to the distal pouch.

Pathologic Findings.—The stomach was exposed with considerable difficulty, as it was adherent to the parietal peritoneum and the under surface of the left lobe of the liver. The anterior wall and greater curvature of the stomach showed an extensive cicatrix resulting from an ulcer which gave the appearance of having healed at one part and still being active at another.

The perigastric adhesions, together with the ulcer, had formed an hour-glass constriction, which was situated at the junction of the upper and middle thirds of the stomach. Division of the adhesions resulted in liberating the stomach to the extent that a channel was formed between the pouches which would admit three fingers. The pyloric end of the stomach was bound to the under surface of the right lobe of the liver by adhesions and would barely admit one finger. The gallbladder was distended to the size of a large pear; the cystic duct was occluded by a single stone; the liver was enlarged, the capsule thickened, containing many nodules varying in size from that of a pea to an English walnut.

Convalescence was straightforward. March 19, 1915, the patient had gained 20 pounds and felt well. Roentgen examination showed the gastro-enterostomy working satisfactorily, but the deformity of the stomach persisted.

Pathologic Report.—Sections from liver show marked degeneration and areas of necrosis of the parenchyma. There is marked general infiltration with round cells and many structures showing tuberclelike masses which contain giant cells of the Langhans type. There is moderate connective tissue proliferation, and occasional areas showing granulation tissue of the tuberculous type, with many endothelial cells and areas of caseation. Multinucleated giant cells are not found except in the tubercles. No tubercle bacilli are found in sections stained with carbolfuchsin, and no *Spirochaeta pallida* in Levaditi preparations. The liver substance is almost entirely replaced by the growth, and the diagnosis must be left in doubt with the probability that the condition is syphilis rather than tuberculosis.

CASE 5.—History.—F. G., woman, aged 23, admitted to St. Luke's Hospital, Jan. 15, 1915, had been married three years, and had one child, and no miscarriages. For the past eight

months she had had an aching pain and sense of epigastric distress coming on immediately or within half an hour after eating, accompanied by nausea and sometimes vomiting, which relieved the pain. This pain radiated into the neck and toward the umbilicus. For the past two months she had vomited constantly; there was no blood in the vomitus or stools; the patient was hungry, but could not retain food. She had lost 22 pounds in the past eight months. Her general appearance was that of a poorly developed, emaciated woman. Palpable cervical lymph nodes; systolic murmur at the apex; right lung dull at apex. Breath sounds harsh and high-pitched, expiration prolonged. A few sibilant râles at base. Abdomen scaphoid and tender at costovertebral angles. Palpation showed a firm indefinite mass in the epigastrium above and to the left of the umbilicus. Knee jerks absent. Weight, 88 pounds. Wassermann reaction four plus positive. Tuberculin reaction negative.

No report on gastric contents. Wassermann on husband showed four plus positive.

Roentgen Examination.—This revealed a peculiar break in the bismuth shadow at the pyloric end of the stomach; further examination showed the peculiar filling defect in the pyloric end of the stomach to be permanent, indicating some infiltration of the stomach wall very much as occurs in a new growth (Fig. 3). At the sixth hour there was a distinct residue in the stomach, the shadow of which measured 1½ inches in diameter. The filling defect still persisted in the pyloric end of the stomach, especially along the greater curvature. At the twenty-fourth hour there was a trace of bismuth still remaining in the stomach.

Operative Indications: Pyloric obstruction with persistent vomiting.

Operation.—Jan. 27, 1915, a posterior gastro-enterostomy was performed, with excision of gland and portion of stomach wall for examination.

Pathologic Findings.—Extending from the middle of the greater curvature to the pylorus was an irregular mass involving the entire thickness of the stomach wall in such a way as to pucker the pyloric portion of the stomach, thereby causing stenosis of the pylorus. This mass was doughy in feel and the

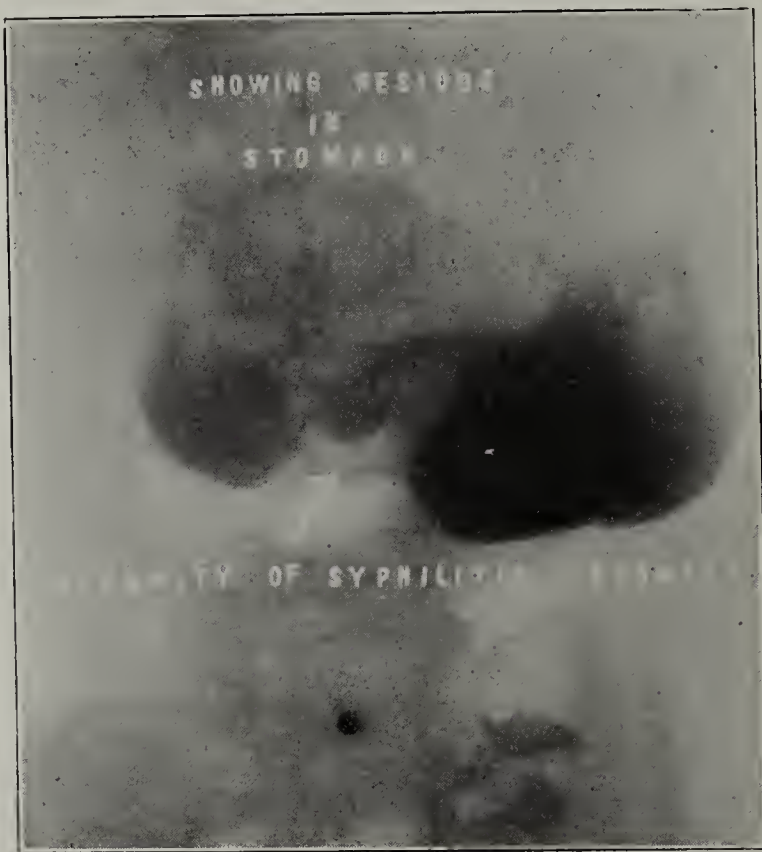


Fig. 4 (Case 6).—Boy, aged 17. Note deformity at junction of pyloric and middle thirds of stomach. This case responded to medical treatment, but the deformity remained.

peritoneum covering it was edematous. There were numerous glands in the gastrocolic omentum, the greater omentum and about the greater curvature. No special changes were noted in the appearance of the liver.

Convalescence was straightforward with mixed treatment and neosalvarsan. The patient was discharged Feb. 25, 1915. Roentgen examination one month after operation showed that the gastro-enterostomy was working, but the deformity at the pyloric region of the stomach still persisted.

Pathologic Report.—Microscopic Examination: The gastric mucosa shows congestion, edema and dense cellular infiltration of the glandular structures. The glands themselves are much atrophied, especially in the deeper layers, where they are completely involved in the infiltration. Remnants of atrophic glands are found in the submucosa. Very little of the muscular coat is included in the material received at the laboratory. In the submucosa there is a very dense infiltration entirely replacing the normal structures, composed of flat endothelioid lymphocytes and diffuse tuberclelike masses. These tubercles contain large giant cells of the Langhans type. The tubercles are not quite so well defined as those seen in tuberculosis, and yet the structure is rather more rich in cells and giant cells than the ordinary gumma. The vascular lesions are not wholly characteristic of syphilis, but there is a certain amount of subendothelial proliferation, and in some places the vessels are obliterated by a growth of new endothelial cells. There is but little perivascular infiltration, especially in those areas outside of the specific lesion. Practically no necrosis is present in the lesion. Sections stained by the Levaditi method failed to show the *Spirochaeta pallida*, and no tubercle bacilli could be demonstrated. Sections from the lymph node show slight inflammatory reaction with moderate endothelial hyperplasia and distention of the lymph sinuses. The lesions in the mucosa and submucosa of the stomach are not characteristic of either syphilis or tuberculosis, but the absence of much necrosis and the diffuse nature of the infiltration, together with the vascular changes, point rather toward syphilis than toward tuberculosis. An absolute diagnosis, however, is not possible from the specimen received.

CASE 6.—History.—W. H., boy, aged 17, admitted to St. Luke's Hospital, Oct. 30, 1913, whose mother died of typhoid and father of arteriosclerosis, had been informed that he had inherited a certain disease from his father. For five years he had had discomfort in the region of the stomach. Eight months ago the pain became acute, but was intermittent in character, coming on two or three times a day without relation to eating. The patient had vomited at irregular intervals, but not persistently. He had no appetite, living principally on fluids. He was given four injections of salvarsan at the Rockefeller Institute beginning five weeks ago, followed by much improvement. He was able to eat more, but still suffered pain, which was attributed to a possible appendicitis. His general appearance was that of a poorly nourished boy, aged 17, but looking to be about 12. Pupils reacted sluggishly to light; teeth poor and slightly notched; cervical lymph nodes enlarged. Heart and lungs normal. Abdomen soft, normal to palpation. Knee jerks present. Weight 68 pounds. Height 5 feet $\frac{1}{2}$ inch. Red blood cells 4,500,000. Hemoglobin 50 per cent.

Roentgen Examination.—This showed the stomach imperfectly filled out along the greater curvature (Fig. 4). The stomach was moderately dilated. There was a distinct residue at the sixth hour, and deformity of the pyloric third of the stomach which, with the previous findings and the history of positive Wassermann reaction, was sufficient to warrant a diagnosis of syphilis of the stomach. The patient continued on antisyphilitic treatment. He was discharged from the hospital, Nov. 7, 1913, and was referred back to the Rockefeller Institute, where he has been under continuous observation and treatment with the result that there has been a remarkable change in his condition.

Roentgen examination, March 2, 1914, showed that the deformity at the pyloric end of the stomach persisted. At the sixth hour there was a distinct residue in the stomach. March 18, 1914, the patient was again examined fluoroscopically and roentgenographically. This confirmed the

findings of a deformity at the pyloric end of the stomach. There was less residue at the sixth hour than in the previous examination. March 14, 1915, Roentgen examination showed the pyloric end of the stomach still deformed, but at the sixth hour the stomach had emptied itself. At this time the weight had increased to 97 pounds; pain had disappeared and the patient was now able to eat and digest all sorts of food.

THE OPEN TREATMENT OF INFECTED WOUNDS

A PRELIMINARY REPORT

FREDERICK G. DYAS, M.D.

CHICAGO

The development of the surgical treatment of infected wounds has witnessed the use of a vast variety of substances and methods in the attempt to assist the healing powers of the individual. In the present aseptic era of surgery the treatment of an infected wound means in most cases the establishment of adequate drainage by various means and the application of voluminous dressings, either dry, sterile or moist antiseptic.

Pathology teaches us, and it is within the experience of every medical man, that the destruction of tissue caused by moist gangrene is far greater than that caused by dry gangrene. With this fundamental truth in mind I have endeavored to convert wounds, which in every way corresponded to moist gangrene, into areas of dry gangrene. Everyone is familiar with the crude methods employed by the Indians and other savage tribes for the preservation of carcasses of animals killed. These carcasses are placed high above the ground on the limbs of trees in order that the blood may drain from the muscles and that the tissue juices might be evaporated by the winds and sun. By this method meat may be preserved free from mold and putrefaction for a very long time.

It is a fundamental principle of bacteriology that heat and moisture are necessary for the growth and propagation of practically all pathogenic bacteria. Therefore, if it were possible to dry up the tissues and dehydrate the infected area, the invading organisms must be, if not entirely killed, at least greatly attenuated.

When an animal suffers a wound, usually in one of the extremities, it is a matter of common observation that the pus is licked from the suppurating area if it be within reach of the animal's tongue. No bandage is put around the affected area, which is exposed to the air and, in many cases, to the sunlight. As the result of this, one rarely sees the intensely infected wounds in the lower animals which one observes daily in a human being in the wards of a large general hospital. This is in harmony with the recent observations among the wounded on the battlefields of Europe. Infected wounds heal more rapidly under the influence of autogenous vaccines or serums, whether prepared scientifically or obtained by sucking the wound or chewing pus soaked bandages.

Furthermore, the treatment of all degrees of burns by the open air method is practically the uniform procedure in the hands of every experienced surgeon. By this method there is a rapid desiccation of the sloughing tissues and a drying up of the foul discharges. The absorption of toxic materials into the general cir-

culatation is very much diminished. The invading organisms which always infect the burned surfaces are markedly attenuated. The granulations are left free to grow and cover over the denuded area without being torn off daily with the dressings by entanglement of the protoplasmic elongations in the meshes of the gauze. Furthermore, the tissues are not macerated by the continuous local pus bath.

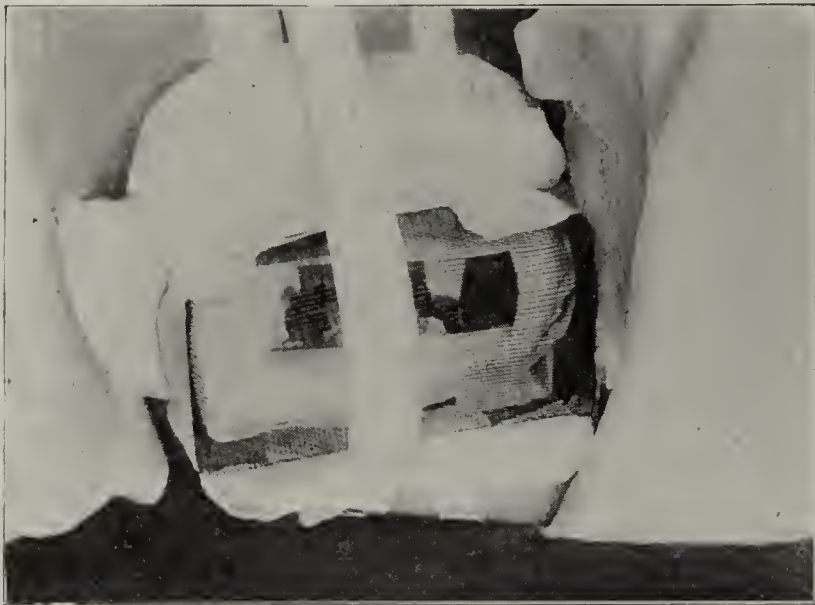


Fig. 1.—Infected appendectomy wound.

Rollièr has produced remarkable results in the treatment of surgical tuberculous affections which have gone to the worst stage by placing these patients with their lesions exposed to the air and sun. Most of these cases, naturally, were secondarily infected with pus organisms.

These results in the treatment of burns and surgical tuberculosis led me to undertake the treatment of old suppurating wounds by the open air method. This has been done now in several cases in Cook County Hospital with the most gratifying results. The patient is put to bed, if the affected area be on the lower extremity, as so frequently occurs in the form of foul varicose ulcers, a cradle is placed over the limb and thrown across this is a piece of mosquito netting to prevent contamination by flies or bits of dried tissue flying in the air. In some of these cases I have endeavored to hasten the healing process by playing the current of air from a small electric fan directly on the denuded surface for a period varying from fifteen minutes to half an hour four or five times daily. The rapidity with which the discharge diminishes and the odor disappears is nothing short of wonderful. The tissues on the old ulcer become rapidly dehydrated and in many cases become mummified, taking on the appearance and consistency of the bark of a tree.

At first the patients resent the fact that no dressings are put on the infected area, and complain that nothing is being done for them. After the lapse of two or three days, however, when they can see for themselves the rapid improvement which is going on, and can note the absence of the foul odor and the diminution in the discharge of pus, they express themselves as delighted at not having to undergo the painful dressings and the discomfort caused by pus soaked bandages.

In the process of desiccation, frequently large crusts or plaques of inspissated serum, pus and epithelial and connective tissue elements are shed, leaving a clean

and granulating surface which is devoid of pus. The surrounding tissues partake of the general improvement; the swelling and edema subside coincidently with the desiccation of the suppurating area.

Furthermore, this plan of treatment has the advantage of marked economy from the standpoint of dressings. The only attention which the wound requires on the part of the attending surgeon or intern is the occasional raising of crusts to allow the escape of pus or serum, or perhaps the occasional irrigation for a short time of some stubborn area. No dressings whatever are used. In some of our cases we have used, as in the treatment of burns, an inert desiccating powder which forms a cement-like substance with the desiccated tissues and serum.

The laity insist that bandages be put on wounds, and will naturally feel that the attending surgeon fails in fulfilling his whole duty unless he can make the patient who is suffering from a profuse, foul-smelling discharge acceptable in society. In other words, the treatment of these conditions is to be carried on in private. Under present day conditions it would, of course, be impossible for a patient with a putrefactive odor to expose a sloughing wound in public. Therefore, this treatment must always be confined to hospital or to home practice and no doubt this will in many cases prevent its use.

In ambulatory cases the wounds were protected by sterilized wire screening appropriately bent and the sharp points of the wire covered by strips of adhesive plaster.

The following histories are from the patients treated by me in Ward 10 in the Cook County Hospital:

REPORT OF CASES

CASE 1.—Man, aged 51, a laborer, was admitted to the Cook County Hospital, March 8, 1915. Six years previously

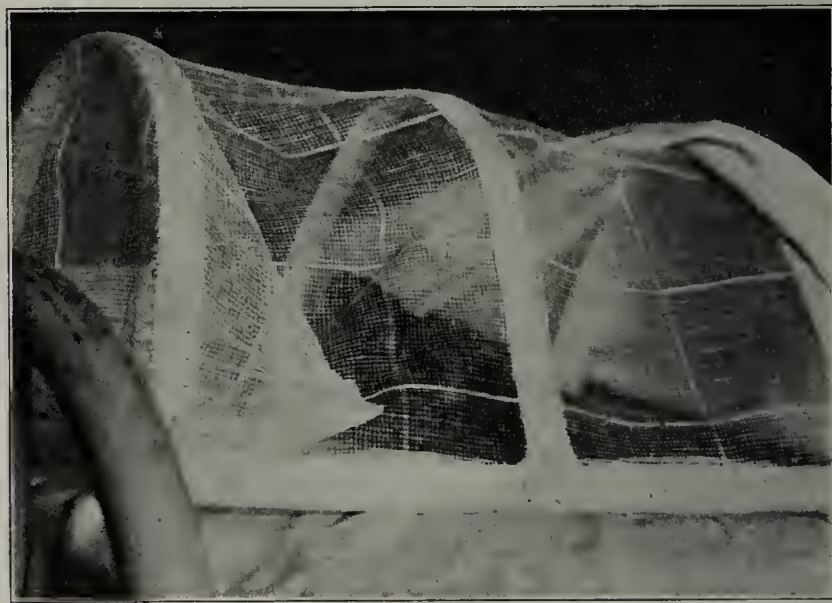


Fig. 2.—Infected wound of foot.

he was struck on the anterior surface of the right leg, receiving a wound which never healed, but slowly increased in size. He was able to continue working until six months prior to admission, when the ulcerated area was about as large as one's hand. At this time it began to increase more rapidly, and in spite of treatment the condition became constantly worse.

Past History.—Has had varicose veins of the right leg for ten years; has had rheumatism for seven or eight years. Denies syphilis; admits Neisserian infection seventeen years ago.

This man was put to bed and the treatment previously described given. Within five days, practically the whole ulcerated area had crusted over. The foul odor had entirely disappeared, as had also the edema and swelling. The crusts practically covered the entire denuded area and the patient was free from pain.

CASE 2.—A laborer, male, was admitted to the County Hospital in November, 1914. He had had varicose ulcers of the left leg for three years. The patient was put to bed and the open air treatment instituted. Within two weeks the ulcerated area had almost healed and the patient left the hospital.

CASE 3.—Man, a cook by occupation, was admitted to the County Hospital in September, 1914. He had varicose veins of both legs and a large, foul ulcer on the left leg. Open air treatment was immediately instituted, with the result that the ulcer healed within three weeks and the patient left the hospital apparently cured.

CONCLUSIONS

1. The advance made in the treatment of old suppurative wounds has not been in keeping with the advances made in other departments of surgery.

2. The treatment of suppurating areas by voluminous dressings, either sterile or antiseptic, macerates and devitalizes the tissues, fosters the development of the pathogenic flora and does not assist in the repair of the tissue.

3. It is always of advantage, when possible, to convert a moist into a dry type of gangrene. Therefore, the desiccating influence on the wound of the atmospheric air, in the absence of moist coverings of any sort, tends to attenuate infecting organisms.

4. The method is safe, economical and is in keeping with nature's own processes as observed in the lower animals.

5. The patient's period of convalescence is shortened and he absolutely suffers no pain.

6. In my experience, both in the treatment of wounds and of burns, the danger of contamination from the atmospheric air is negligible.

7. The addition of plenty of sunshine would be a valuable asset, but is not readily obtainable.

Coal Mine Fatalities in 1914.—According to a bulletin of the Bureau of Mines in 1914 there were 2,451 fatalities in the coal mines of the United States as compared with 2,785 in 1913, a decrease of 334. The principal decreases were in fatalities from coal dust explosions, 96 per cent., haulage 11 per cent. and falls of roof and pillar coal 10.6 per cent. The net decrease in underground fatalities was 365, or 14 per cent., a saving of one life for each day of the year. There were 331 fatalities from gas explosions, an increase of 240 over 1913. There were slight increases in fatalities from explosives, electricity and shaft accidents, but a net decrease for both underground and surface accidents of 12 per cent. The estimated total number of employees for the year was 742,868 as compared with 747,644 in 1913. The fatality rate was therefore 3.30 per thousand men employed in 1914 as against 3.73 in 1913. The amount of coal produced in 1914 is estimated to be 10.5 per cent. less than in 1913, but the fatality rate per one million tons of coal was 4.89 in 1913 and 4.81 in 1914. Improvement was due to many causes, not the least of which was said to be the cooperation of all concerned.

HYPERTROPHIES OF THE ENDOMETRIUM *

WILLIAM SISSON GARDNER, M.D.

Gynecologist to Mercy Hospital

BALTIMORE

In the study of the pathologic conditions of the endometrium which are not the results of infection, several are encountered that may be confused with each other or with the normal endometrium or with adenocarcinoma of the body of the uterus. The premenstrual endometrium is the normal form most frequently mistaken for some pathologic state; but occasionally a hypertrophic endometrium with narrow contracted glands, unless care is exercised, may be mistaken for a normal postmenstrual type. Among these noninflammatory hypertrophies are those associated with extra-uterine pregnancy, with ovarian growths and a third group for which we have at present no adequate explanation and which may be

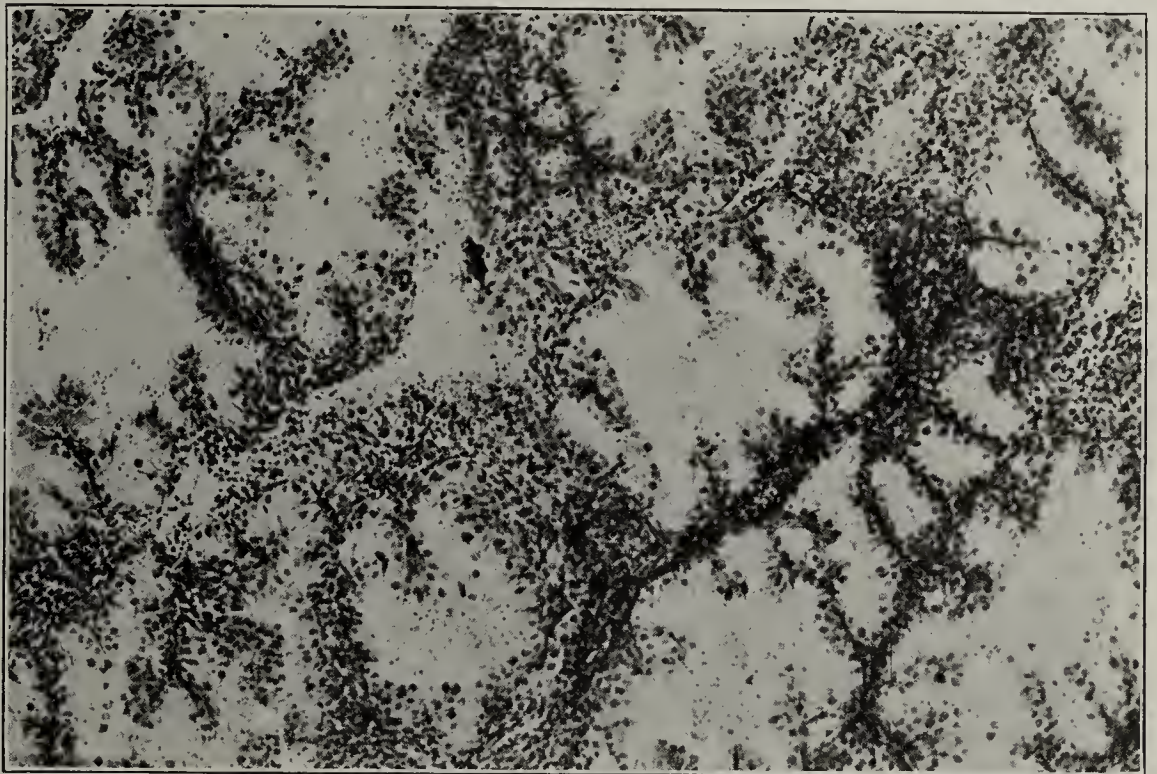


Fig. 1.—The endometrium of extra-uterine pregnancy. All the characteristics of the premenstrual type of endometrium are exaggerated.

divided into two groups, the glandular and the interstitial.

On account of the frequent references that are made to endometritis and hypertrophy of the endometrium associated with uterine fibroids and retro-displacements, I have included in this paper the results of my investigation of the endometrium as it is found in association with these two lesions.

Nonmalignant overgrowths of the endometrium are comparatively common. In some instances the whole endometrium is thickened; in others there are found pedunculated masses of greater or less extent. They occur most frequently between the ages of 40 and 50, but are also found at periods of life both earlier and later than this.

The symptom that attracts the attention of the patient is hemorrhage. This hemorrhage is a persistent but not a profuse flow in most cases, resembling in quantity a rather free menstrual period and continuing for weeks or months. In this it is not unlike

* Read at the Annual Meeting of the Medical and Chirurgical Faculty of Maryland, April 28, 1915.

the bleeding due to adenocarcinoma of the body of the uterus, and since the age incidence is the same, it is very important that we should have some definite means of distinguishing between them. The only reliable method is by the proper interpretation of microscopic examinations of uterine scrapings.

EXTRA-UTERINE PREGNANCY

Figure 1 is the type found in extra-uterine pregnancy. Here we have every characteristic of the premenstrual endometrium magnified. The stroma cells are large and in appearance approach the decidual cells. The glands are very much dilated and very irregular in outline. The epithelium lining the glands is swollen and projects into the caliber of the glands, producing an exaggerated saw-toothed appearance.

This specimen was curetted from a woman of 24 who had bled excessively at each of the four last menstrual periods. The last flow ceased June 16, and she was curetted on the 28th, twelve days after the flow stopped. Under ordinary conditions one would expect to find an endometrium of the intermenstrual type. The history did not indicate an extra-uterine pregnancy, but the microscopic examination of an enlarged tube removed after curettage showed chorionic villi.

What appears to happen in extra-uterine pregnancy is the continuation of the same action on the endometrium that produces the premenstrual type; the continued action causing an exaggeration of the ordinary type. There is little doubt that these changes are due to the internal secretion of the ovary.

OVARIAN TYPE

Figure 2 is a type which has been found quite constantly in women who had been bleeding and where some marked ovarian lesion was present. This particular section was made from the scrapings of a young woman of 23 who had been bleeding constantly for several weeks. In one ovary there was a graafian follicle cyst and in the other a small multilocular cyst.

The section shows numerous dilated glands occupying the whole depth of the endometrium. Their outlines are fairly regular. In the lumen of the glands are some blood and much broken down epithelium. The epithelium lining the glands is in a single layer and somewhat enlarged, but does not buckle out into the caliber of the glands. The stroma cells are normal in size, but apparently decreased in number; that is, the volume of tissue between the glands is rela-

tively small, and this makes the impression that there has been an actual atrophy of the stroma cells. In reality the increase in depth of the endometrium due to the dilatation of the glands distributes the stroma over a greater area than normal, and this gives the appearance of decrease in quantity. Both the epithelial cells and the stroma cells are deficient in chromatin. There is a slight increase in the small round cells.

The endometrium of this type resembles somewhat the normal premenstrual type, but is easily distinguished from it on superficial examination by the greater regularity of the outline of the glands and the apparent thinning out of the stroma. A closer examination shows that while the glands are dilated, the epithelial cells lining them are smaller and more regularly distributed than in the premenstrual type, and that the decrease in the stroma is only apparent and not actual.

GLANDULAR HYPERTROPHY

The true adenoma is shown in Figure 3. This illustration was taken from a case in which the growth projected through the cervix. The patient was 57 years of age and had been bleeding almost constantly for seven years.

This growth is characterized by the great increase in the number of glands associated with a moderate increase in the stroma. The glands are lined by a single layer of epithelial cells which have very large nuclei that contain much chromatin.

The uterine adenoma is very closely related to adenocarcinoma of the body of the uterus, and may be confused with it. The essential points of difference are that the epithelial cells in the glands of an adenoma are uniform throughout the growth, and present the same general appearance as in the normal uterine glands. And while the glands of a given specimen may vary some in caliber, the general appearance of all is the same. On the other hand, the epithelial cells lining the gland spaces of an adenocarcinoma are very irregular both in size and in chromatin content. Also the epithelium tends to pile up within the glands and later to break through into the stroma. No two of the gland spaces in an adenocarcinoma present the same kind of outline.

INTERSTITIAL HYPERTROPHY

Interstitial hypertrophy of the endometrium (Fig. 4) much more commonly involves the whole endometrium than does the glandular form. It is charac-

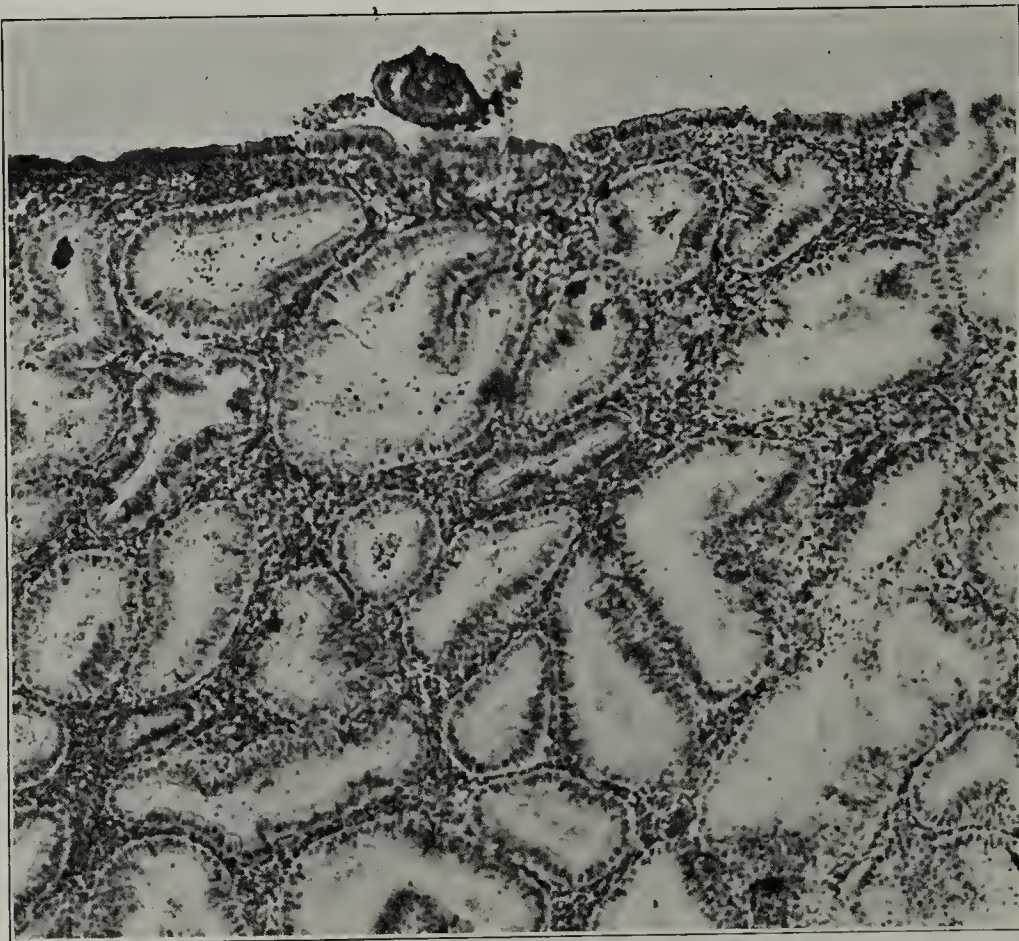


Fig. 2.—Ovarian type. Found when the uterine bleeding is due to an ovarian lesion. Glands dilated; stroma apparently diminished.

terized by a great increase in the stroma and by very little if any increase in the number of glands. The glands may be so narrow as to resemble those of the postmenstrual endometrium, or they may be much dilated. What is most common is to find narrow

groups. Of the endometriums examined, 50 per cent. were of the interval type and the other half were about equally divided between the premenstrual and postmenstrual types. Fifty per cent. of all slides showed marked congestion. In a few instances there was an increase of spindle cells. It is probable that these cells were the result of an old infection, but it was not always possible to decide this point.

The changes found in the endometrium of the retrodisplaced uterus are apparently the result of interference with circulation, due to the position of the uterus, and not caused by any active process. Before this was recognized, we followed the dictum that practically every retrodisplaced uterus had an infected endometrium which demanded curettage. Realizing several years ago the incorrectness of this teaching, we now curet very few patients on whom it is necessary to operate for retrodisplacements but rely on the correctness of the position of the uterus to relieve the symptoms of leukorrhea and menorrhagia due to the passive congestion of the endometrium.

THE ENDOMETRIUM WITH FIBROIDS

The endometrium associated with uterine fibroids acquires no characteristic appearance. All types are seen and none of them bear any direct relation to uterine hemor-

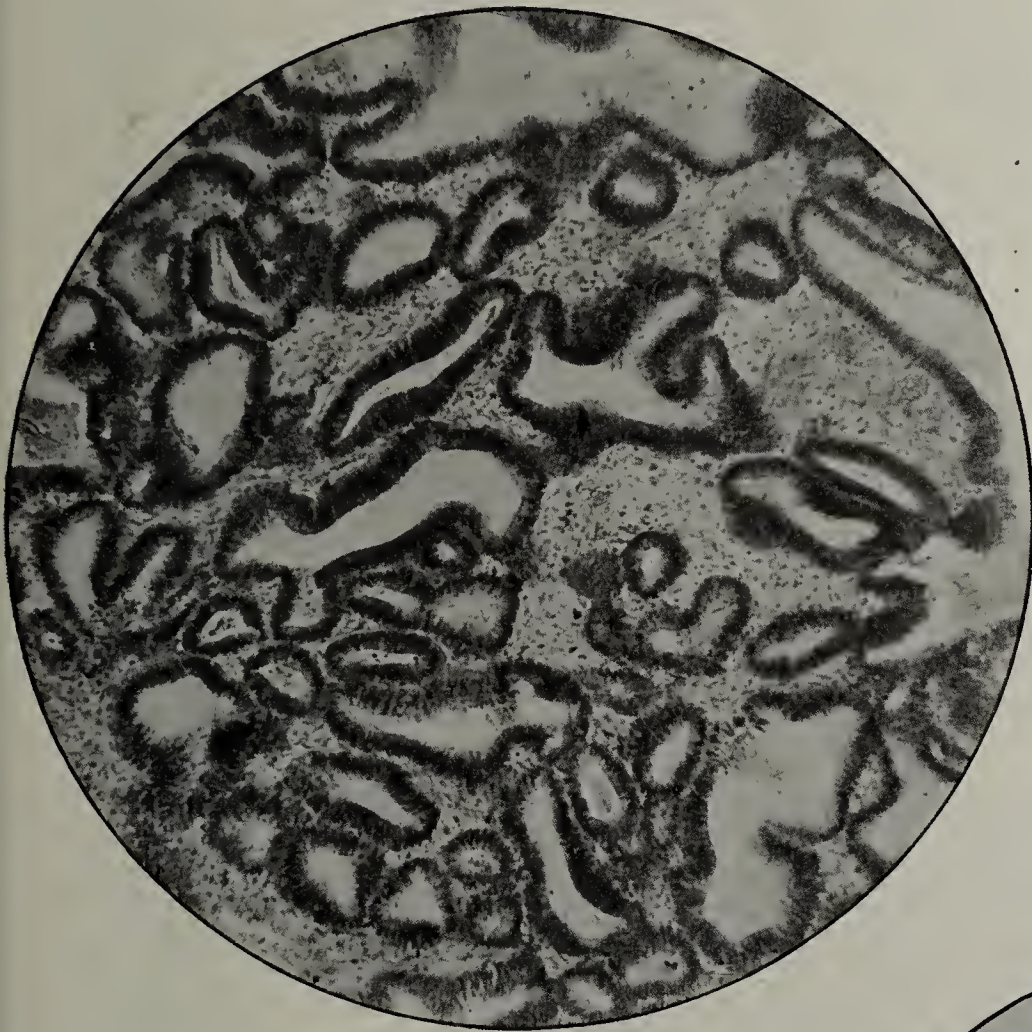


Fig. 3.—Glandular hypertrophy: adenoma. Great increase in the number of glands; epithelium of the glands regularly distributed.

and dilated glands irregularly distributed throughout the entire thickness of the endometrium. Without reference to the caliber of the glands, the epithelium lining them resembles that in the postmenstrual endometrium and retains its regularity of distribution. There is an entire absence of the saw-tooth appearance of the postmenstrual endometrium, as well as the piled up, irregular epithelium, that is so characteristic of adenocarcinoma.

This type of hypertrophy of the endometrium is not infrequently associated with marked hypertrophy of the uterine walls. In some instances the thickening of the uterine walls may be so great that on bimanual examination one may think that the enlargement is due to a submucous or interstitial fibroid; but on section the walls will be seen to be uniformly thickened, and the microscope shows that they are made up of normal cells.

THE ENDOMETRIUM WITH RETRODIS- PLACEMENT

The general appearance of the endometrium in retrodisplacement varies with the period of the menstrual cycle, but shows an almost constant increase above the normal of small round cells. The increase is in the scattered round cells and not in the defined

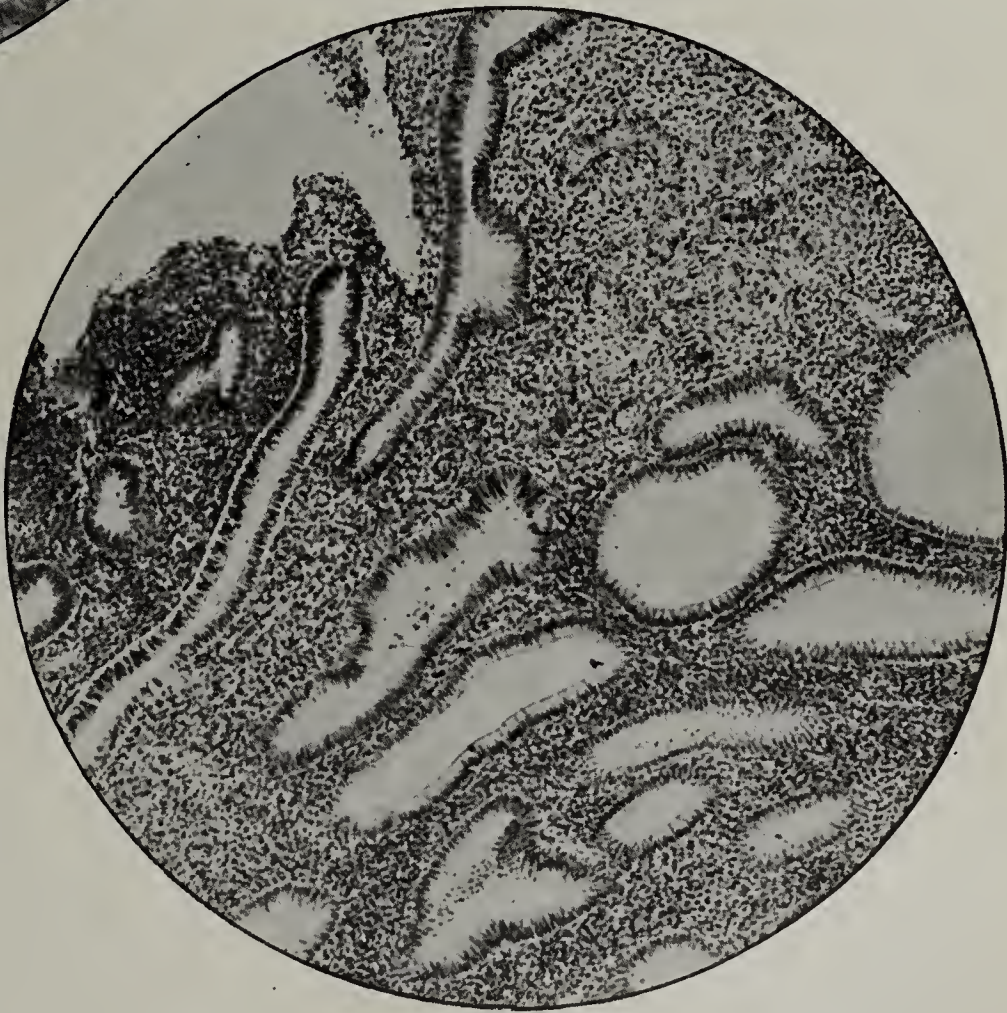


Fig. 4.—Interstitial hypertrophy. Stroma much increased in quantity; glands irregular in caliber and lined by low columnar epithelium.

rhage. For example, of three cases in which the endometrium was of the senile type, one patient was menstruating normally each month, one was bleeding frequently and profusely, and one had lost no blood for five months. The variation in type is just what would

be expected when we bear in mind that the hemorrhage caused by fibroids is due to a growth in the uterine wall and the consequent local disturbance of the circulation, and has no relation to the changes in the endometrium which result from ovarian influence.

6 West Preston Street.

PSEUDOMUCINOUS CYST OF THE APPENDIX.

ITS RELATION TO PSEUDOMYXOMA PERITONEI *

D. B. PHEMISTER, M.D.

CHICAGO

Among the rarer lesions of the vermiform appendix, pseudomucinous cyst is of particular interest because of its peculiar pathologic nature, its mode of development, and the complications to which it sometimes gives rise. It results from the slow accumulation of an altered secretion of the appendix produced by a mild inflammatory process, and usually unaccompanied by subjective symptoms. There is a direct relation between the development of the disease and the normal involution of the appendix, as most of the cases have occurred between the ages of 35 and 50, or during the period in which retrogression with the obliteration of the appendix lumen takes place.

Very little was known about the normal secretion of the appendix before the recent experimental work of Heile,¹ which showed it to be of the same nature as the secretion of the cecum. It possesses both tryptic and amylolytic ferments which were demonstrated not only in the appendix secretion but also endocellularly in the mucosa of the organ. An internal secretion of hormones was also extracted from the wall of the human appendix which possessed the power of stimulating peristalsis of the intestines when injected into rabbits.

During an acute attack of appendicitis, the fluid which accumulates is an exudate varying in nature from serous to purulent or ichorous. The accumulation either disappears rapidly with the subsidence of the acute inflammation, or escapes into the surrounding peritoneal cavity through a perforation. Persistence of this type of fluid with chronic cyst formation is rare. However, cases are reported of stenosis of the proximal portion with pus accumulation in the part beyond leading to the formation of chronic empyema of the appendix, which never reaches a very great size, and possesses a much thickened wall similar to an empyema of the gallbladder. Chronic hydrops following milder attacks in which the appendix is filled with a simple serous exudate is also very rare, because the mucous membrane is preserved in such cases, and its secretion changes the character of the contents so that pseudomucinous cysts are nearly always the result.

There is much uncertainty as to the cause of the stenosis and retention of secretion. Normal involution of the appendix begins any time between the ages of 18 and 40, and on an average by the 39th year the mucous membrane and lymphatic tissue have disappeared at the expense of an increased submucous fibrous tissue, and the lumen of the appendix is obliterated. According to Sprenkel, this obliteration of the lumen nearly always begins at the distal portion and

progresses slowly toward the base. Faber examined longitudinal sections of appendixes undergoing involution, and reports that there are always signs of active inflammation with granulation tissue in the mucosa and submucosa about the point of obliteration. Sprenkel also believes that involution of the appendix is usually accompanied by an inflammatory process; on the other hand, Ribbert and his followers assert that it is unaccompanied by inflammation. Possibly in some cases this process may begin at the proximal end of the appendix and thereby lead to retention and distention of the distal portion. Acute inflammation may destroy a part or all of the mucosa and lead to rapid obliteration of the lumen. It is probable that inflammation and involution are associated in varying degrees in the causation of the condition.

In many cases there is no history of preceding attacks of appendicitis, and in those with previous disturbance the attacks have been mild. Usually the lumen of the appendix is obliterated at the seat of constriction, but in some instances it is patent so that some of the gelatinous secretion may escape into the cecum. The amount of the appendix involved is variable. Usually it is almost the entire extent of the organ, the constriction being located close to the cecum; but it may be located anywhere along its course with dilatation of the part beyond. Rarely the lumen of both proximal and distal portions is obliterated and the middle portion dilated. In other instances the appendix remains little or undilated while one or more diverticula form along its course, which may reach considerable dimensions, as in the specimen reported by Dr. Herb,² now in the museum of Rush Medical College, in which the diverticulum measured 7 cm. in diameter. The changes in the wall of the dilated portion are variable. When moderately distended there is very little variation from the normal, except that the folds of the mucosa are obliterated. When the dilatation is more extensive, the wall becomes very thin and transparent in places, while in others there may be fibrous thickenings in the serosa. The mucous membrane is very much thinned and in places disappears. Along its surface may be seen secreting and broken down cells which appear to be giving rise to the peculiar contents of the lumen. The muscle fibers gradually atrophy and eventually are replaced by fibrous tissue. In very large specimens the wall consists of fibrous tissue which may be largely devoid of a mucous lining. The lumen is filled with a transparent gelatinous material which in some instances is thin, but usually is quite thick and escapes from the incised appendix either very slowly or not at all. It contains no feces, and in most instances in which bacteriologic examinations have been made, they have been negative. Chemically, the material gives the tests for pseudomucin. When acidulated with mineral acid and heated, a substance is precipitated which reduces copper salts; but no precipitation occurs on heating with acetic acid. Formerly some of these cases were mistaken for colloid carcinoma of the appendix, but histologic examination fails to reveal the presence of a tumor.

Clinically, the condition is remarkably free from symptoms. It usually develops slowly without pain, but rarely following a mild attack of appendicitis. Occasionally there is a dull ache or light colicky pains in the appendix region. Sometimes the patient's atten-

* From the Surgical Clinic of Rush Medical College.
1. Heile: Beitr. z. klin. Chir., 1914, xciii, 520.

2. Herb: Tr. Chicago Path. Soc., 1907.

tion is first attracted by the appearance of a mass in the right lower quadrant of the abdomen which on examination is smooth, oval or spherical, movable, and may extend beneath the brim of the pelvis. The condition is illustrated by the following case from the service of Dr. D. D. Lewis at the Presbyterian Hospital, to whom I am indebted for the privilege of making this report:

V. N., woman, aged 36, married, with no history of previous abdominal disturbance, for a year had noticed a lump in the right lower quadrant of the abdomen which had gradually increased in size. It gave her no trouble until three months before, since which time there had been a dull ache in the region, but never any acute attacks of pain. Examination showed a visible and palpable elongated mass in the right lower quadrant, parallel to, and just above Poupart's ligament. It was movable and slightly tender and could be felt on vaginal examination. Under the diagnosis of an ovarian cyst, a median abdominal incision was made and a cystic tumor delivered from the right side of the pelvis. Its only attachment was found to be at the base of the cecum, and a mesenterium was present which served to identify it as a cyst of the appendix. The pedicle was clamped, the appendix cut away and the stump invaginated. The abdominal cavity was otherwise normal, there being no signs of peritoneal involvement.

The tumor (shown in the accompanying illustration) is a sausage-shaped mass 17 cm. long and 21 cm. in its greatest



Appendix, with base ligated.

circumference. It is slightly curved along the border of the mesenterium, which extends about half its length. Blood vessels from the mesentery run out into the wall on either side and toward the tip. The surface of the appendix in most of its extent is smooth, but toward the end and in several places along its course there are slight bulgings of the wall, which in these regions is very thin and transparent. Between these slightly herniated portions, and particularly opposite the mesentery, there is considerable fibrous thickening of the wall, and some of the dense, opaque areas suggest calcified plaques. The appendix is filled with a thick, clear, gelatinous material which escapes very slowly from the excised windows of the hardened specimen. On chemical examination it proved to be pseudomucin, as it is not precipitated by the addition of acetic acid and does not coagulate on boiling but acquires a milky hue. Alcohol produces a coarse, thready precipitate. The appendix at the neck of the cyst is of normal size and structure except for some fibrous thickening of the serosa. The lumen is patent.

Microscopically the wall consists of fibrous tissue lined by an incomplete smooth mucous membrane, the regions where the wall protrudes being entirely devoid of a mucous covering. The cells of this layer are variable, the superficial ones being irregular and filled with mucus, which they seem to be liberating in the lumen by disintegration. In numerous places, but particularly where the wall is thickest, there is calcification of the submucous portion. All traces of muscularis have disappeared. This is one of the largest specimens thus far reported.

An attempt was made to produce the condition experimentally in dogs by obliterating the lumen of the proximal portion of the appendix. Seven animals were operated on in the following manner:

After removal of the contents of the appendix by stripping out, a longitudinal incision was made through the wall at its base, the mucosa dissected up and divided transversely, and

each end closed with a purse-string suture. The incision in the muscularis and serosa was then closed, leaving the lumen obliterated for a distance of about 1 cm. In none of the cases were the blood vessels in the meso-appendix interfered with. Six of the animals died in from four to seven days, and at necropsy each showed a gangrenous appendix distended with an ichorous exudate similar to the gangrenous portion frequently seen beyond a fecal stone in human appendicitis. In four instances an extensive local and in two a general peritonitis was found.

One dog survived and was killed at the end of two months. At necropsy it was found that the operation had been unsuccessful, as a narrow lumen had reformed through the obliterated portion, and the appendix secretions escaped into the cecum without producing any dilatation.

Evidently the obstruction is produced too suddenly and accompanied by a too severe and extensive traumatism to bring about the condition of retention cyst formation, as gangrenous infection resulted in every case in which the lumen was successfully closed.

Complications of the disease are of interest. Rarely an acute inflammation of the cyst develops which may necessitate immediate surgical interference. A striking condition known as pseudomyxoma peritonei results from rupture of the cyst, with the escape of its contents into the peritoneum. This condition was first described by the gynecologist Werth as coming from the rupture of a colloid cystoma of the ovary; but subsequent observations showed that it may come from other organs, as the gallbladder and intestinal diverticula. Frankel, in 1901, described the first case arising from a perforated colloid cyst of the appendix. Since then about twenty cases arising from the appendix have been reported.

Perforation occurs usually without any accompanying symptoms, and the pseudomucinous material becomes disseminated over the peritoneal surface in various-sized masses. These may be confined to the vicinity of the appendix, but usually they are found in the pelvis and over the peritoneum of the lower part of the abdomen. The peritoneum may be irritated and throw out an investing fibrous sheath by which the particles become attached to it. The colloid material probably never contains living epithelial cells (as when derived from the ovaries) which proliferate and continue their secretion. The opening in the appendix usually persists so that there is a more or less constant escape of material into the abdominal cavity. In a few instances it has been found closed at operation or necropsy. These patients usually have little or no symptoms, as the contents are sterile. Loth recently reported a case in which rupture was accompanied by acute abdominal symptoms, and slight temperature and pain continued irregularly for four months, when the appendix was removed. Removal of the cystic appendix results in a cure, as the source of the material is removed and the remaining portion is silently absorbed. This peculiar complication was illustrated by a case in which Roberg³ operated in 1907, the specimen of which is in the museum of Rush Medical College.

3. Roberg, O. T.: Tr. Chicago Path. Soc., 1908, p. 180.

The patient was a woman aged 46. She came for advice because of a left inguinal hernia, the presence of a palpable tumor in the right lower quadrant not having been noted. At operation the peritoneum was studded everywhere with gelatinous masses, large numbers of which were removed from the hernial sac and from the culdesac of Douglas. The cystic appendix, which measured 13 cm. in length, was filled with a pseudomucinous material, and a small perforation existed through which the gelatinous contents escaped into the peritoneal cavity. The condition was at the time thought to be colloid carcinoma of the appendix, but following the operation all symptoms disappeared and one year ago the patient was living and well.

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THE EXTERMINATION OF THE MOSQUITO

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Those who undertake for the first time the work of mosquito extermination are confronted with various theories concerning the means by which this important protective measure may be successfully carried out, which are often perplexing. It is quite necessary that these theories should be promptly dealt with, in order that methods which have no practical value may be eliminated from the plan of procedure.

Included among these theories is the widespread belief that birds, fishes, bats, aquatic fowls, etc., render valuable aid in the extermination of the mosquito. Some years ago, it was seriously recommended that certain birds be propagated for this purpose, and more recently this has been suggested in connection with bats. The truth is that the number of mosquitoes devoured by birds and bats has no practical effect in diminishing the danger and annoyance caused by this insect. It is the presence of mosquitoes rather than the number involved which calls for action.

An attempt to propagate birds or bats for the purpose of exterminating the mosquito would be not only a foolish but also an unscientific procedure, and would end in disappointment. It may be pertinently asked, Who would attend to the propagation, care and distribution of these creatures in connection with this work, and what reason is there to believe that they would remain in sections where they are most needed? For neither one is dependent on the mosquito for sustenance. Besides, an enterprise such as this, assuming it could be reasonably carried out, would sooner or later cause a plague of birds and bats, and become an intolerable nuisance, particularly in the case of the latter, for there is no more unwelcome or repulsive visitor than the bat. Furthermore, the money spent in carrying out such an impracticable measure would go far toward defraying the expenses of destroying the breeding places of the mosquito.

This theory is about on a par with the belief that buzzards render valuable aid in cleaning streets and in the removal of garbage and other filth. To my personal knowledge, these birds were to a certain extent depended on for this purpose in Vera Cruz not many years ago, and until this medieval practice was abandoned, and modern sanitary measures enforced, Vera Cruz was the home of yellow fever.

The danger of these various impracticable theories concerning the extermination of the mosquito lies

chiefly in the fact that they distract the attention of the public from the real means by which this work may be successfully accomplished.

There is also a popular theory that fish and aquatic fowls render valuable aid in the extermination of the mosquito by the consumption of the larvae found in bodies of water where they abound, and it is advocated that small fish be propagated for this purpose.

In order to understand more intelligently the impracticability of this theory, it is necessary to know something of the habits of mosquitoes, their breeding places, etc. For this reason, it may be said that in the United States, these insects are divided into two classes: the inland mosquito, of which the *Stegomyia* or yellow fever mosquito, and the *Anopheles* or malarial mosquito are types; and the *Sollicitans* or Atlantic Coast mosquito, commonly known as "striped legged" or "salt water swamp" mosquito.

The inland mosquito is the one most commonly dealt with, for it may be found in almost every state of the Union; whereas, the striped legged mosquito breeds on the salt marshes along the Atlantic Coast.

Some important and interesting facts have been obtained in recent years pertaining to the habits of these two groups of mosquitoes. In connection with my own work on Staten Island, conclusive evidence was presented, as a result of a careful and extended investigation, that a distinct line of demarcation exists between the breeding places of the inland and coast mosquito; that is, they do not, as it was formerly supposed, occur in the same places; for the striped legged breeds only on the salt marshes along the coast, while the inland mosquito never breeds in these localities, but in the interior. These results are in full accord with the experiences of the late Dr. John B. Smith, state entomologist of New Jersey, than whom no one has more carefully and exhaustively studied the habits of these insects, or has contributed more to their extermination.

This knowledge renders the work of mosquito extermination far easier; particularly along the Atlantic Coast; for if the striped legged mosquitoes are present, it may be depended on that their breeding places are not in the interior, but must be sought for in the salt water swamps. Yet this variety is often found inland, probably of its own volition; and in this way differs from the inland mosquito, which most likely prefers to remain close to its breeding place.

I suspect that the apparent migratory habit of the striped legged mosquitoes is due to the fact that they get beyond the confines of their breeding place and cannot find their way back, and continue their flight to obtain the food most suitable to them, which is probably the vegetation found in the salt water swamps. If this nourishment were obtainable everywhere I question whether they would go further from their homes than the inland variety. The fact that the striped legged mosquitoes have been found a number of miles at sea is satisfactorily accounted for by adverse winds.

Those who are not familiar with the vast area of swamp land along the Atlantic Coast can form no satisfactory idea of the enormous breeding places which these great stretches of land afford. The ground is always water soaked and spongy from the incoming tide, and surface water cannot escape by absorption. These swamps are sometimes traversed by natural

ditches or creeks frequently containing very small fish, which regard as a choice morsel the larvae which find their way to these streams; but the number destroyed in this way is so infinitesimally small compared with the great and inexhaustible supply produced on these extensive breeding places, often miles in extent, that it offers no practical value in the extermination of mosquitoes of this variety; nor for various reasons would the propagation of small fish in these places, even if it could be reasonably carried out, make any practical difference in the result.

The inland mosquito will breed in almost any receptacle which contains water, preferably that which is stagnant and polluted; for the latter is rich in organic matter, and the larvae are voracious eaters. The fact that the inland mosquito breeds in unsuspected places, frequently not detected, is one reason why crusades against this insect are often unsuccessful.

Contrary to the general belief, mosquitoes, as a rule, do not breed in large bodies of water, but prefer small pools, where there is an abundance of vegetation and nourishment, and where they may be quiet. Mosquitoes are essentially vegetarians, notwithstanding the fact that the females, the only ones which bite, subsist largely on blood.

It is true that there are immense fresh water swamps found inland, particularly in the southern part of the United States, and these are most prolific breeding places; still these swamps, to a great extent, consist of comparatively small collections of surface water which are shallow and rich in vegetation. It may be added that while mosquitoes do not, as a rule, breed in large bodies of water, they lay their eggs along their borders, particularly if there is plenty of vegetation and the water is still.

While the *Anopheles* or malarial fever mosquito sometimes breeds in the same receptacle with other inland mosquitoes, the most common of which are the *Culex* "*pungens*" or "*pipiens*," it is more often with its own kind. I have frequently found the *Anopheles*' larvae in the open country in small collections of water covered with green scum, or having an abundance of vegetation and shade. These conditions are also found in the inland swamps already referred to.

The *Stegomyia*, or yellow fever mosquito, prefers to breed in built up communities, and in all sorts of receptacles which are favorable to insanitary conditions. During a visit to Havana some years ago, I was informed by a resident that he was unable to account for the presence of the *Stegomyia* in his house for a long time, but by continued and diligent search, found that the mosquitoes were breeding in small tin cans in which the legs of the refrigerator were placed as a protection against rats.

Mosquitoes have their likes and dislikes as to the selection of their breeding places. Just why they favor certain parts of the same section of the country for their propagation and avoid others is not fully known, but it is quite likely because of climatic conditions, or the character of breeding places and of the vegetation or nourishment which is available. That one place is more favorable than another cannot be doubted, for in some parts, mosquitoes appear regularly each year in great numbers, while in other localities, although these insects are annually present, they are few in number and do not constitute a great annoyance. The latter condition is often erroneously attributed to the presence of certain birds, etc.

A distinguished physician has stated that he was led to believe from personal observation that ducks are valuable agents in the extermination of the mosquito, and has suggested that in this way they might be of aid in the prevention of yellow fever and malaria.¹

I am quite sure that the varied, innumerable and often unrecognized breeding places of the inland mosquito to which I have referred will quite clearly indicate that but little dependence can be placed on birds, fishes, fowls or animals, or anything else in the extermination of this insect, *except the destruction of its breeding place.*

The experimental stage in connection with the extermination of the mosquito has long since passed, and no doubt remains that this important work may be successfully accomplished, provided proper means are employed, and provided that the work is under the direction and control of federal, state or municipal authorities. The brilliant results obtained in Cuba, in Panama and on the Roman Campagna may be cited as conclusive proof that the inland mosquito may be exterminated; and the success of the work on Staten Island, where about ten square miles of salt water swamp land was drained and freed from breeding places, furnishes indisputable evidence that the striped legged mosquito may be dealt with in the same way.

The extermination of the mosquito can be accomplished only by the destruction of its breeding place. If birds, bats, fishes and fowls are of some aid in this direction, so much the better; but no dependence should be placed on these creatures in the work of elimination.

There is but one way by which the breeding place of the striped legged mosquito can be successfully destroyed, and that is by the proper draining of the swampland where these insects propagate.

The extermination of the inland mosquito requires a different procedure, for in this instance, small and innumerable receptacles of every description are to be dealt with, and these must be detected and destroyed. This will require the greatest amount of patience, but the reward will compensate for the time and trouble expended.

Furthermore, this work must be uniformly carried out in the entire infested section; for if the breeding places are destroyed only here and there, and adjoining ones are left untouched, successful results cannot be obtained, for there will be sufficient breeding places left to supply mosquitoes for all purposes. It is to secure uniformity of action in this direction that makes it so necessary that the work of mosquito extermination should be under some form of official control.

A word may be said regarding the use of petroleum oil. This agent should be employed only for temporary purposes, and must not be accepted as a substitute for the permanent destruction of breeding places. Semirefined and not the crude oil should be used, for the latter does not spread over the surface of the water, and the refined is rather too thin and is more expensive. Petroleum does not poison the larvae, but destroys them in a mechanical way; for when it is spread over the surface of the water as a film, it plugs up the minute openings of the respiratory tract of the larvae when they come to the surface for air, which is necessary every minute or so. The oil is afterward disposed of in various ways, and the receptacles after some days become breeding places again.

1. Dixon, S. G.: The Duck as a Preventive Against Malaria and Yellow Fever, THE JOURNAL A. M. A., Oct. 3, 1914, p. 1203.

There is no agent which may be used as a substitute for petroleum oil, for it acts quickly and is cheap and not dangerous. The latter is an important consideration, for if poisonous solutions are used, for instance in pools in the country where animals have access, unpleasant results are apt to follow. Besides larvae are hardy little bodies, and not easily affected by poisonous agents. My experiments in this direction showed that larvae will remain alive for over twenty-four hours in a 1:1,500 solution of mercuric chlorid, and a comparatively strong solution of phenol (carbolic acid) and other products which are often advocated for this purpose.

While petroleum oil is a valuable temporary agent in dealing with the inland mosquito, it is worthless in the destruction of the striped legged or coast mosquito, chiefly on account of the great area involved, and must not be considered in connection with this work.

I may add that after long personal experience in the extermination of both the inland and coast mosquitoes, I have yet to know of any method by which this work may be successfully carried out except the destruction of breeding places. Besides, this is in full accord with the modern methods of preserving health; for it is the prevention of mosquitoes rather than their treatment that is called for.

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FULLER'S EARTH; ITS ADSORPTIVE
POWER, AND ITS ANTIDOTAL
VALUE FOR ALKALOIDS *

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INTRODUCTION

For several decades fuller's earth (Parsons¹) has been used extensively for the removal of coloring matter from oils. It owes this use to its capacity for adsorbing basic colors from solutions, which resides in the finest particles of the clay. The union between the basic substance and the earth is believed to be physical, as it can be easily broken up by use of proper solvents.

In 1910, John Uri Lloyd² of Cincinnati discovered that the addition of fuller's earth to alkaloids greatly diminished or almost abolished their bitter taste and that most alkaloids could be quantitatively removed from solutions by means of it. Further research revealed that this activity resided in the finest particles of the earth, which Lloyd separated by elutriation from the coarser portion and to which the name "Lloyd's reagent" has been applied.

In view of the theoretic interest as well as of the practical possibilities inherent in this property of fuller's earth, this research was undertaken to determine, first, the relation of alkaloids to "Lloyd's reagent" and to various other specimens of fuller's earths; and, secondly, to see to what extent the action of various alkaloids may be modified by combination with these earths. Lloyd, Eli Lilly & Co., and various producers

of fuller's earth have kindly supplied liberal quantities of material, by means of which the following data were obtained.

TABLE 1.—ADSORPTIVE VALUE AND ACIDITY OF VARIOUS SPECIMENS OF FULLER'S EARTH *

Specimen	Morphin Sulphate, 0.5% sol.	Quinin Bisulphate, 0.5% sol.	Mala-chite Green 1%, with 0.25% Morphin	For 100 Gm. Earth Phenolphthalein, c.c. of Tenth Normal Sodium Hydroxid	Congo-red
Colloidal portion of Lester Clay without drying,†	6.5	9	20	77	Purplish.
Lloyd's Reagent, Eli Lilly & Co.	8	10	30	155	Bluish purple.
General Reduction Co., Dry Branch, Ga.	20	30	60	175	Blue.
Olson Fuller's Earth, Benton, Ark.	26	44	70	20	Red with trace of blue.
Specimen F (source unknown)	28	50	75	215	Bluish purple.
Lester Clay Co. (xx F) Jacksonville, Fla.	36	50	100	25	Reddish purple.
Specimen D (source unknown)	52	74	105	30	Red with trace of blue.
Midway, Fla., Fuller's Earth	70	80	120	40	Bluish red.
Manatee (E x F) Ellenton, Fla.	80	104	115	15	Bluish red.
Atlantic Refining Co. (xxF) Ellenton, Fla.	110	140	130	5	Red with faint tr. of blue.
Specimen E (source unknown)	200	280	160	5	Red with faint tr. of blue.
Pear's Precipitated....	500	400	600	5	Red with faint tr. of blue.
Kaolin	600	600	1,000	0	Red.

* The figures in the first three columns indicate parts by weight of the respective earths required to remove from solution 1 part of the substance named at the head of the column. The figures in the fourth column indicate c.c. of tenth normal sodium hydroxid needed to neutralize 100 gm. of fuller's earth, phenolphthalein being used as indicator. The specimens are arranged in order of adsorptive power. Variations in adsorptive power of different specimens from the same source have been noted.
† Drying would reduce activity somewhat.

THE ALKALOID ADSORBING QUALITY OF VARIOUS SPECIMENS OF FULLER'S EARTH

This was studied by briefly shaking accurately measured quantities of alkaloidal solutions with varying amounts of fuller's earth, filtering and then testing the filtrate for the alkaloid to determine the smallest amount necessary to remove the alkaloid from the solution. The figures given in Tables 1 and 2 show how many parts of fuller's earth had to be used to remove 1 part of alkaloid from solution. There is some difficulty in deciding on the end-point in these determinations, owing to the fact that water dissociates the combination to a slight extent, so that it is almost impossible to get rid of traces of the alkaloids in the filtrate. Therefore the smallest amount of fuller's earth that would remove the alkaloid as thoroughly as a larger amount was the quantity looked for.

In Table 1, the various earths have been arranged in order of their adsorptive power. It must be understood that the figures given in this table are only of relative value. Slight modifications in the technic of the test give quite different results. Nevertheless, when the same technic was applied to each of the different specimens, their relative position in the table was well maintained. It must furthermore be realized that the adsorptive power of fuller's earth from various sources depends, to a certain extent, on the degree and uniformity of fineness of the specimen. Mere

* From the Pharmacologic Laboratory of the College of Medicine of the University of Illinois.
1. Parsons, Charles L.: Fuller's Earth, Bull. 71, Mineral Technology, Dept. of the Interior, Bureau of Mines, October, 1913.
2. Lloyd, John Uri: Lloyd's Reagent—Preliminary Announcement, Jour. Am. Pharm. Assn., May, 1914, iii, No. 5, p. 625.

sifting raises the value, if a considerable amount of coarse particles be present; so does elutriation. Nevertheless there is a limit to which the adsorptivity of any one specimen may be raised by these means.

It will be noted that "Lloyd's reagent" is considerably more powerful than any one of the specimens of fuller's earth. It will also be seen that the specimens obtained from Ellenton, Fla., are quite deficient in this power. Pear's precipitated fuller's earth, a very fine white powder, is surprisingly inert. The activity of kaolin is practically nil. In view of the fact that the United States Dispensatory as well as the National Dispensatory quote "fuller's earth" as one of the synonyms of kaolin, it seems of importance to point out that there is a marked difference in the adsorptive power of these substances.

Kaolin as well as fuller's earth is considered to be essentially composed of hydrous aluminum silicate; the latter being merely less pure than the former. That this is the case can be readily seen by comparing the composition of kaolin (Watts³) with that of fuller's earth (Vaughan⁴) and of Lloyd's reagent (Waldbott⁵).

	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	CaO	MgO	Alkalies	Water
Kaolin	45.40	37.34	1.92	0.44	0.20	0.52	14.0
Fuller's Earth..	57.26	18.33	1.87	2.58	1.06		18.4
Lloyd's Reagent	55.30	9.82	14.80	1.58			17.41

It is an interesting question, why such great difference in adsorptive power exists among these substances. The following theories present themselves: First, it might be due to a physical difference, namely, the amount of colloidal material present; secondly, it might be due to difference in reaction; thirdly, it might be due to difference in chemical composition.

THE AMOUNT OF COLLOID IN FULLER'S EARTH

Ashley⁶ believes that the power of adsorbing certain dyes by clay supplies a measure of the amount of colloid present. He selected malachite green as the best dye known for this purpose, as it is wholly non-colloidal. Colloidal dyes, even if as feebly colloidal as methylene blue, introduce complicating factors that vitiate results, as may be seen by comparing the figures for malachite green with those arrived at with methylene blue: of Specimen F 40 times the amount was required, of Specimen D 60 times, of Specimen E 50 times, of Midway, Fla., fuller's earth 60 times—figures that are very near together in spite of great difference in alkaloid adsorbing power of these various specimens. Ashley agitates the clay with the dye solution for an hour, by means of a small ball mill, permits the clay to settle over night, and determines the amount of malachite green adsorbed by comparison with dilutions of a standard solution of malachite green. He found that half an hour's settling gave results that were too erratic, in view of the slow sedimentation of some specimens of fuller's earth. It must be understood that colored colloidal material in suspension makes the solution appear darker, so that it would seem less color was adsorbed, leading to the judgment that the clay is less colloidal, when it would be actually more colloidal than another clay that settled readily. I believe I have hit on a much less troublesome, more rapid and probably as accurate method of

estimating the adsorptive power of fuller's earth by means of malachite green. The addition of a small quantity of an alkaloid, for example, morphin, to a fuller's earth suspension produces immediate deflocculation. On the other hand morphin does not readily salt out the malachite green. I therefore used in the determination of the malachite green figures (Tables 1 and 2) a solution of the following composition:

Malachite green	1.0
Morphin sulphate	2.5
Distilled water to.....	1,000
Filter after prolonged agitation.	

The amount of fuller's earth needed to remove a certain quantity of malachite green from this solution, expressed in multiples of that quantity, is represented by the figures in Table 1. It will be noted that these figures run quite closely parallel to the figures indicating alkaloid adsorptive power. Other electrolytes, for example, sodium chlorid, also produce deflocculation of suspended fuller's earth. However, considerably larger quantities of sodium chlorid are needed to produce this result promptly: quantities that are capable of salting out the malachite green, thus interfering with the test.

From Tables 1 and 2 it will be seen that the adsorption of malachite green runs parallel with the adsorption of alkaloids, and is therefore presumably due to the same cause. To use this adsorption as a measure of the amount of colloid present, as is proposed by Ashley, merely rests on the assumption that it is due to colloid. It does not prove that this is the case. Inasmuch as other colloids experimented with, such as colloidal aluminium hydroxid, colloidal ferric hydroxid, colloidal silicic acid, mastic emulsion, do not have the power of adsorbing alkaloids to nearly the same degree as active fuller's earth, it is reasonable to assume that we have here a case of specific adsorption; and that, while no doubt the colloidal state is necessary for this effect, it is not the essential cause of it.

THE "ACIDITY" OF FULLER'S EARTH

To determine whether the acid reaction generally displayed by fuller's earth is the cause of the effects observed, the degree of "acidity," or rather the power of the earth to adsorb bases, was determined for each specimen by titration of 2 gm. of the earth, suspended in 100 c.c. of distilled water, with tenth normal sodium hydroxid, using phenolphthalein as an indicator. A priori one might expect that the power of adsorbing alkali would be proportionate to, or at least run parallel with, the power of adsorbing alkaloids. This, however, is not the case, as can be seen by a glance at Table 1. Nevertheless, specimens devoid or practically devoid of acidity, like kaolin or Pear's precipitated fuller's earth, fail to adsorb alkaloids and those of lowest acidity are lowest in the list of alkaloidal adsorbents. Hence the presence of "acidity" is necessary to enable fuller's earth to adsorb alkaloids; though its degree is by no means a measure of the degree of this power. It therefore appears there are at least two factors involved in the adsorption phenomenon under consideration: the one the "acidity," the other the colloidal state. Whether the reason for the comparatively high adsorptive power of "Olson" and "Lester" fuller's earth, in spite of their rather low "acidity," is due to a relatively higher content of colloid than is present in more acid earths of lower activity, or whether there are two different "acidities" involved, one of importance in adsorption of alkaloids and the

3. Watts, A. S.: Mining and Treatment of Feldspar and Kaolin, Bull. 53, Dept. of the Interior, Bureau of Mines, 1913, p. 37.

4. Vaughan, T. W.: Fuller's Earth Deposits of Florida and Georgia, Bull. 213, Dept. of the Interior, U. S. Geo. Survey, 1902, p. 393.

5. Waldbott, Sigmund: Precipitation of Alkaloids by Lloyd's Reagent, Jour. Am. Chem. Soc., June, 1913, p. 837.

6. Ashley, Harrison Everett: The Colloidal Matter of Clay and Its Measurement, Bull. 388, U. S. Geol. Survey, 1909.

other not, remains to be settled. Nor have I the data at hand, at present, to discuss with any degree of profit the other theory previously advanced. On work on these questions I hope to report in the near future.

TABLE 2.—PROPORTION OF FULLER'S EARTHS NEEDED TO REMOVE 1 PART OF ALKALOIDAL SALT FROM SOLUTION

Alkaloidal Salt	Lloyd's Reagent	General Reduction Co.	Olson Fuller's Earth	Lester Fuller's Earth
Morphin sulphate.....	8	20	26	36
Quinin bisulphate.....	10	30	44	50
Nicotin hydrochlorid.....	20	50	100	110
Cocain hydrochlorid.....	20	75	95	150
Aconitin nitrate.....	50	70	100	120
Strychnin sulphate.....	40	110	120	200
Colchicin hydrochlorid.....	130	160	200	
Malachite green.....	30	65	70	100

The addition of Congo-red to fuller's earths enables one to determine roughly, but quickly, the presence and the degree of "acidity." It will be seen (Table 1) that all the earths that gave a blue or purple color with Congo-red were found active, while with the inactive kaolin there was no change; the others produced intermediate tints.

THE ADSORPTION OF VARIOUS ALKALOIDS BY FULLER'S EARTH

It will be seen from Table 2 that the various alkaloids differ in their relation to fuller's earth. For instance, a smaller quantity of an earth is needed to remove a morphin than a quinin salt; and less fuller's earth is needed to remove quinin bisulphate than strychnin sulphate. Colchicin needs the largest amount. As will presently be seen, these relations are significant in connection with the antidotal value of fuller's earth for these different alkaloids.

THE ACTIVITY OF ALKALOIDAL FULLER'S EARTH COMPOUNDS

The alkaloidal fuller's earth compounds resist dilute acid; but are decomposed by alkalies, even as dilute as fiftieth normal sodium carbonate, which is approximately the alkalinity of the intestinal juice. When fuller's earth compounds of various alkaloids are treated with fiftieth normal sodium carbonate solution and the solution is acidified, it yields precipitates with Mayer's reagent, apparently in proportion to the solubility of the free alkaloid in water: the nicotin precipitate is much more copious than that obtained with cocain; and the latter more abundant than the aconitin or the strychnin precipitate. Emetin yields only a trace. The concentration of the morphin solution obtained under these circumstances is below the threshold of distinct precipitation by Mayer's reagent, as is also a saturated solution of morphin in water; it yields, however, a copious precipitate with phosphomolybdic acid. Colchicin does not, of course, precipitate with Mayer's reagent, but does with tannic acid.

In view of this dissociability of the alkaloidal fuller's earth compounds by very dilute alkali, it is easy to understand why they become active in the animal body in spite of the fact, as Gordin and Kaplan⁷ have shown, that the digestive ferments have no disrupting effect on these compounds. Being insoluble in acid liquids, even in the presence of pepsin, they pass through the stomach without acting on this viscus and without being acted on. On arriving in the intestine, they are gradually dissociated into their constituents, yielding the alkaloid to absorption. This explains why the general action of alkaloids, administered in this combination, is markedly delayed; and why a larger dose is needed to obtain the same effect. This modification of the action of alkaloids is of toxicologic, of pharmacodynamic, and of therapeutic interest. The diminution of taste, for instance,

TABLE 3.—EFFECT ON RABBITS OF SMALL FATAL DOSE OF STRYCHNIN SULPHATE, 5 MG. PER KILOGRAM GIVEN ORALLY, WITH AND WITHOUT FULLER'S EARTH AND ACID

Rabbit		Dose			Effect	
No.	Weight Gm.	Strych. Mg.	Fuller's Earth	Acid	Symptoms	Result
A 1	624	0.0031	0	0	Convulsions in 15 min.	Death in 35 min.
A 2	1,190	0.006	0	0	Convulsions in 20 min.	Death in 25 min.
A 3	800	0.004	0	0	Convulsions in 15 min.	Death in 18 min.
A 4	2,000	0.010	0	0	0	Recovery.
A 5	680	0.0034	0	0	Convulsions in 72 min.	Recovery.
A 6	680	0.0034	0	0	Convulsions in 47 min.	Recovery.
B 1	794	0.004	0.400	0	Convulsions in 47 min.	Death in 50 min.
C 1	1,021	0.005	1.500	1.500 tartarie	0	Recovery.
C 3	1,190	0.006	0.600	0.600 tartarie	0	Recovery.
C 4	794	0.008	0.800	0.800 tartarie	0	Death in 20 hrs.
C1 1	680	0.0034	1.020*	1.020 tartarie*	0	Recovery.
C1 2	737	0.0037	0.370*	0.370 tartarie*	Convulsions in 45 min.	Death in 49 min.
D 1	740	0.0037	1.110	2.220 NaH ₂ PO ₄	0	Recovery.
D 2	680	0.0034	0.340	1.020 NaH ₂ PO ₄	0	Recovery.
D 3	737	0.0037	0.370	0.740 NaH ₂ PO ₄	0	Recovery.
D 4	624	0.0031	0.310	0.310 NaH ₂ PO ₄	0	Recovery.
D 5	2,265	0.0115	1.150	1.150 NaH ₂ PO ₄	0	Recovery.
D1 1	740	0.0037	1.110*	1.110 NaH ₂ PO ₄ *	0	Recovery.
D1 2	1,070	0.0054	1.600*	1.600 NaH ₂ PO ₄ *	0	Recovery.
D1 3	1,640	0.0082	1.640*	1.640 NaH ₂ PO ₄ *	0	Recovery.
D1 4	500	0.0025	0.750*	0.750 NaH ₂ PO ₄ *	0	Recovery.
D1 5	570	0.0028	0.840*	0.840 NaH ₂ PO ₄ *	0	Recovery.

* Five minutes later.

TABLE 4.—EFFECT ON RABBITS OF LARGE FATAL DOSE OF STRYCHNIN SULPHATE, 10 MG. PER KILOGRAM GIVEN ORALLY, WITH AND WITHOUT FULLER'S EARTH AND ACID

Rabbit		Dose			Effect	
No.	Weight Gm.	Strych. Mg.	Fuller's Earth	Acid	Symptoms	Result
A 1	2,250	0.0225	0	0	Convulsions in 17 min.	Death in 19 min.
B 1	2,500	0.025	7.50	0	?	Death in 23 hrs.
C 1	624	0.00624	1.25	1.25 tartarie	0	Recovery.
D 1	2,320	0.0232	2.32	2.32 NaH ₂ PO ₄	0	Recovery.
D 2	570	0.0057	1.14	1.14 NaH ₂ PO ₄	0	Recovery.
D1 1	1,870	0.0187	5.60*	5.60 NaH ₂ PO ₄ *	Convulsions in 15 min.	Death in 17 min.
D1 2	1,870	0.0187	5.60*	5.60 NaH ₂ PO ₄ *	Convulsions in 15 min.*	Death in 17 min.

* Five minutes later.

obtained in this manner has made it possible to produce perfectly pleasant sweet tablets of strychnin (Fantus⁸) for administration to children. The absence of effect on the stomach might be of value in connection with some of the alkaloids. Though, in

7. Gordin and Kaplan: Jour. Am. Pharm. Assn., December, 1914, iii, 1656.
8. Fantus, Bernard: Tabellae Dulces, Sweet Tablets for Children's Medication, Jour. Am. Pharm. Assn., May, 1914, p. 656.

case of ipecac, the removal of the emetic action by means of fuller's earth also seems to destroy action on certain infusoria, as I have found in as yet unpublished experiments. The delayed absorption might increase the effect on the intestine and its contents; for example, the quinin combination might exhibit amebicidal action in the intestine. The delayed absorption of cocain may make the cocain combination of value as an antipruritic in weeping skin disease. Work on some of these questions is being carried on at present.

THE NAMING OF THE ALKALOIDAL FULLER'S EARTH COMPOUNDS

Inasmuch as some of these alkaloidal fuller's earth compounds are likely to prove of therapeutic value, it might be well to discuss the terms that have been

Lloyd at first hoped that his reagent would prove a universal antidote for alkaloids and he describes it as one of the bitterest disappointments of his life when it was shown by Dr. Felter, in 1911, that the combination of Lloyd's reagent with strychnin was still capable of killing a dog in convulsions. Lloyd suggested to me that the addition of tartaric acid or of stearic acid to his reagent might raise its antidotal value. It will presently be seen that this is indeed the case with tartaric acid. Experiments with the stearic acid combination proved negative.

The experiments recorded below were undertaken primarily to study the toxic action of alkaloidated fuller's earth. It soon became apparent, however, that fuller's earth did possess antidotal value against certain alkaloids, while it had little value against others, as will be shown by the following data.

TABLE 5.—EFFECT ON DOGS OF FATAL DOSE OF STRYCHNIN SULPHATE, 2 MG. PER KILOGRAM, GIVEN ORALLY, WITH AND WITHOUT FULLER'S EARTH AND ACID

Dog		Previous Adm. of Morphine, 5 Mg. per Kg.	Dose				Effect	
No.	Weight, Gm.		Strychnine Sulphate, 2 Mg. per Kg.	Accomp. (+) or Followed	Fuller's Earth	Acid	Symptoms	Result
A 1	8,500	0	0.017	.....	0	0	Convulsions in 12 minutes	Death in 26 minutes.
A 2	9,500	0	0.019	.....	0	0	Convulsions in 10 minutes	Death in 11 minutes.
A 3	7,000	0.035	0.014	.....	0	0	Convulsions in 100 minutes	Death in 135 minutes.
A 4	7,300	0.037	0.0146	.....	0	0	Convulsions in 25 minutes	Death in 40 minutes.
A 5	14,000	0.070	0.028	.....	0	0	?	Death in 24 hours.
A 6	8,150	0.040	0.014	.....	0	0	Convulsions in 7 hours....	Death in 20 hours.
B 1	8,000	0	0.016	+	4.80	0	Convulsions in 30 minutes lasting for 6:30 hours.	Recovery.
C 1	19,500	0	0.039	+	12.00	12.0 Tart.	Emesis + Conv. 0.....	Recovery.
C 2	9,000	0	0.018	+	5.4	5.4 Tart.	Emesis (?) Conv. 0.....	Recovery.
C 3	5,000	0	0.010	+	3.0	2.0 Tart.	Convulsions in 2:30 hours	Death in 2:45.
C 4	9,000	0	0.018	+	5.4	1.8 Tart.	Convulsions in 1:30 hours	Recovery.
C1 1	8,500	0	0.019	5 min. later	5.7	5.7 Tart.	Convulsions in 14 minutes	Recovery.
C1 2	12,500	0	0.025	5 min. later	7.5	7.5 Tart.	Emesis in 20 minutes.....	Recovery.
C1 3	6,500	0	0.013	5 min. later	3.9	3.9 Tart.	?	Death in 20 hours.
C1 4	16,000	0	0.032	5 min. later	9.6	9.6 Tart.	0	Recovery.
C1 5	7,500	0	0.015	10 min. later	4.5	4.5 Tart.	Convulsions in 10 minutes	Death in 20 minutes.
D 1	15,500	0	0.031	+	9.3	18.6 NaH ₂ PO ₄	Emesis, slight.....	Recovery.
D 2	14,500	0	0.029	+	8.7	17.4 NaH ₂ PO ₄	Defecation	Recovery.
D 3	12,000	0	0.024	+	7.2	14.4 NaH ₂ PO ₄	Emesis	Recovery.
D 4	8,500	0	0.019	+	5.7	5.7 NaH ₂ PO ₄	Convulsions in 78 minutes	Death in 130 minutes.
D1 1	7,000	0	0.014	5 min. later	4.2	8.4 NaH ₂ PO ₄	Emesis, convulsions (?)....	Death in 20 hours.
D1 2	15,500	0	0.031	5 min. later	9.3	18.6 NaH ₂ PO ₄	Convulsions in 4 hours....	Death in 20 hours.
D1 3	4,000	0.020	0.003	5 min. later	2.4	2.4 NaH ₂ PO ₄	0	Recovery.
D1 4	8,500	0.043	0.017	10 min. later	5.1	5.1 NaH ₂ PO ₄	Convulsions, slight	Recovery.
D1 5	6,350	0.0325	0.0127	10 min. later	3.8	3.8 NaH ₂ PO ₄	0	Recovery.
D1 6	6,900	0.035	0.014	15 min. later	4.2	4.2 NaH ₂ PO ₄	0	Recovery.
E 1	4,125	0	0.00825	+	2.475	5.0 Potas.Bitart.	Convulsions (?)	Death in 5 hours.

applied to them. Lloyd named these "alcresta" alkaloids. It is under this title that Eli Lilly & Co. propose to place them on the market. The name is unfortunately not descriptive of the nature of the compound.

McGuigan⁹ has applied the name "colloidal" strychnin to the strychnin compound with fuller's earth; a name I believe to be erroneous, as the moment the combination between the colloid and the alkaloid occurs, the colloidal state is destroyed and a coarse suspension results, as may be shown by the readiness with which morphine produces deflocculation of a fuller's earth sol or gel. It appears to me that the best name to apply to the strychnin compound would be "strychninated fuller's earth"; to the morphine compound "morphinated fuller's earth"; to the cocaine compound "cocainated fuller's earth," etc.; terms analogous to "chlorinated lime" and "sulphurated potash."

9. McGuigan, Hugh: A Colloidal Compound of Strychnin and Its Pharmacology, THE JOURNAL A. M. A., Nov. 28, 1914, p. 1933.

ANTIDOTAL VALUE IN STRYCHNIN POISONING

The antidotal value of fuller's earth in strychnin poisoning in the rabbit may be estimated from Tables 3 and 4. It will be seen in Table 3 that 5 mg. per kilogram is invariably convulsive and frequently fatal for small rabbits; that, on the other hand, a large rabbit (A 4) showed no effect from such a dose. Eliminating, therefore, the only other large rabbit in this series (D 5) from consideration, we find that fuller's earth alone is not antidotal to strychnin. The addition of tartaric acid or of sodium dihydrogen phosphate to the fuller's earth renders it, however, capable of preventing convulsions and of saving life in small rabbits, even if administered five minutes after the poison has been given. The sodium dihydrogen phosphate showed itself superior to the tartaric acid by having this effect invariably, while with the tartaric acid combination convulsions and deaths have occurred. The dose of 10 mg. per kilogram (Table 4) is invariably fatal; and yet the addition of tartaric

acid or of sodium dihydrogen phosphate to fuller's earth has enabled it to prevent effects, if administered at the same time; but not, if administered five minutes later. Against 15 mg. per kilogram, fuller's earth with sodium dihydrogen phosphate has been useless so far as saving life of rabbits is concerned; but it, no doubt, postponed the effects to a considerable degree, as will be seen from the following observations:

Rabbit D 10, weighing 907 gm. was given 0.015 gm. strychnin with 4.50 gm. each of fuller's earth and of sodium dihydrogen phosphate. Death occurred in four hours and thirty minutes.

Rabbit D 11, weighing 2,660 gm. was given 0.040 gm. of strychnin with 13.3 gm. each of fuller's earth and sodium dihydrogen phosphate. Death occurred in thirty-two hours.

Table 5 shows that a dose of 2 mg. per kilogram is invariably fatal to dogs. The addition of fuller's earth saved life, but did not prevent convulsions. The addition of tartaric acid and of sodium dihydrogen phosphate frequently prevented convulsions and generally saved life. However, emesis was so frequently produced as to vitiate the results. Therefore morphin was given about one hour before the administration of the poison. This preliminary administration of morphin, of course, produced vomiting and often defecation within the hour, followed by a depression of the vomiting center, so that the doses were now regularly retained. Experiments A 3 to A 6 (Table 5) show that the morphin does not save the life of the animal, though it delays results. Experiments D 3 to D 6 show that fuller's earth and sodium dihydrogen phosphate are capable of saving life, even though no emesis takes place. The fact that it was possible to save the life of morphinized dogs, even if the antidote was given five, ten and fifteen minutes after the poison,

tartaric acid. There was slight emesis at 11 a. m. The animal was found dead next morning, no convulsions having been observed.

ANTIDOTAL VALUE IN MORPHIN POISONING

Table 6 shows that the antidotal value of fuller's earth is much greater for morphin than it is for strychnin. This is probably due to the fact, shown in Tables 1 and 2, that morphin is much more readily removed from solutions by fuller's earth than are any of the other alkaloids, as well as to the slight solubility of

TABLE 7.—EFFECT ON DOGS OF FATAL DOSES OF COCAIN WITH AND WITHOUT MORPHIN AND FULLER'S EARTH

Dog		1 Hour Prev. Hypo. of Morphin, 5 Mg. per Kg.	Dose		Effects	
No.	Weight, Gm.		Cocain, Gm.	Fuller's Earth	Symptoms	Result
A 1	7,250	0	0.1 per kg.	0	Convulsions in 25 min.	Death in 90 min.
A 2	3,000	0	0.1 per kg.	0	Convulsions in 15 min.	Death in 20 hrs.
A 3	3,800	0	0.2 per kg.	0	Convulsions in 7 min.	Death in 16 min.
A 4	7,500	0.040	0.1 per kg.	0	Whining occ.	Recovery.
A 5	5,946	0.025	0.1 per kg.	0	Depr., later excit.	Recovery.
A 6	6,850	0.035	0.2 per kg.	0	Convulsions in 220 min.	Death in 260 min.
A 7	7,140	0.035	0.2 per kg.	0	Convulsions in 15 min.	Death in 30 min.
A 8	4,700	0.030	0.2 per kg.	0	Depression.....	Death in 20 hrs.
B 1	6,000	0	0.1 per kg.	60.0	Emesis in 85 min.	Recovery.
B 2	12,000	0.600	0.1 per kg.	120.0	0	Recovery.
B 3	6,800	0.035	0.2 per kg.	136.0	0	Recovery.
B 4	4,800	0.025	0.2 per kg.	96.0	0	Recovery.
B 5	3,740	0.020	0.2 per kg.	76.0	0	Recovery.

the alkaloid morphin and the large dose needed to produce death in these animals. It will be noted that the mere addition of fuller's earth saved rabbits from as much as twice the fatal dose of morphin, and that fuller's earth was still capable of saving life, if given ten and fifteen minutes later; but not if given twenty minutes later. The administration, at intervals, of fuller's earth in morphin poisoning in human beings, even after hypodermic administration of the poison or evacuation of the stomach, appears indicated; as the morphin excreted into the stomach would be adsorbed by the clay and its reabsorption prevented or at least delayed.

TABLE 6.—EFFECT ON RABBITS OF FATAL DOSES OF MORPHIN GIVEN ORALLY WITH AND WITHOUT FULLER'S EARTH

Rabbit		Dose			Effects	
No.	Weight, Gm.	Morphin Sulph. per Kg.	Accom. (+) or followed	Fuller's Earth	Symptoms	Result
A 1	850	1 mg.	.....	0	Depr. Conv. in 2 hrs.	Death in 3 hrs.
B 1	794	1 mg.	+	20.00	Some depression.....	Recovery.
B 2	1,248	1.6 mg.	+	50.00	Some depression.....	Recovery.
B 3	1,134	2 mg.	+	56.25	Some depression.....	Recovery.
B1 1	510	1 mg.	10 min. later	12.50	Some depression.....	Recovery.
B1 2	624	1 mg.	15 min. later	15.75	Some depression.....	Recovery.
B1 3	1,134	1 mg.	20 min. later	30.00	Depr. Conv. in 30 min.	Death in 2 hrs.
B1 4	740	1 mg.	20 min. later	18.50	Depr. Conv. in 2 hrs...	Death in 3 hrs.

while the antidote failed to produce such result without the morphin, is most interesting and requires further study. Possibly it is due to delayed evacuation of the stomach.

A dose as large as 4 mg. per kilogram makes demands on the antidote that it is not able to meet, as will be seen from the following experiments:

Dog C 6, weighing 9 kg., was given, at 9:15 a. m., 0.036 gm. strychnin with 5.4 gm. each of fuller's earth and tartaric acid. It was found dead next morning, no convulsions having been observed.

Dog C 7, weighing 13.5 kg. was given at 9:30 a. m. 0.108 gm. strychnin with 9.1 gm. each of fuller's earth and of

ANTIDOTAL VALUE IN COCAIN POISONING

In view of the local anesthetic quality of cocain, it is of interest to note that the dog B 1 (Table 7), that received it together with fuller's earth, vomited. Evidently the compound produced by fuller's earth with cocain is not decomposed in the stomach, which is entirely in accord with the general tendency of the alkaloidal fuller's earth compounds not to give up the alkaloid to an acid solution. This made it necessary again to use hypodermic injections of morphin, one hour previously, to prevent the emesis. However, inasmuch as morphin is an antagonist to cocain, as will be seen by comparing the result in A 1 and A 2 with A 4 and A 5, it was necessary to use a large fatal dose of cocain (0.2 gm. per kg.), in order to have a fatal dose in the presence of morphin. The antidotal value of fuller's earth under these circumstances is demonstrated by the uniformly fatal results in experiments A 6, A 7 and A 8, as compared with the uniformly negative results in Experiments B 3, B 4 and B 5. Evidently fuller's earth is an antidote to cocain, and it does not need acid to produce this effect, at least in

the presence of morphin, which probably enhances the antidotal effect of fuller's earth by delaying the emptying of the stomach.

ANTIDOTAL VALUE IN NICOTIN POISONING

Rabbits are killed within twenty minutes by 0.20 gm. nicotin per kilogram, as will be seen from Table 8. The addition of fuller's earth to such a dose is followed by recovery. A dose of 0.40 gm. per kilogram is fatal even when fuller's earth and sodium dihydrogen phosphate are added. If the antidote is given five minutes after the poison was administered, it is unable to save life. Evidently nicotin acts too rapidly to admit of any interval between the giving of the poison and of the antidote.

ANTIDOTAL VALUE IN IPECAC POISONING

Emetic Dose.—If two dogs of similar size and with empty stomachs are chosen, and one of these is given, by means of the stomach tube, 0.3 c.c. per kilogram of fluidextract of ipecac mixed with ten times the volume of water, while the other receives the same dose with the addition of 3 gm. of active fuller's earth per cubic centimeter of fluidextract used, the first dog will vomit profusely and many times—usually not until after half an hour, but within one hour—and soon afterward may have bowel evacuations, which sometimes become bloody. The other dog will show no effects whatever excepting perhaps, occasionally, a looseness of the bowels on the next day.

Fatal Dose.—A dose of 1.5 c.c. of fluidextract of ipecac per kilogram has been found uniformly fatal in dogs, as will be seen from the following experiments:

Dog A, weighing 15.5 kg. was given 23.25 c.c. of fluidextract of ipecac, diluted with 232.5 c.c. of water, at 9:42 a. m. Formed bowel movement occurred at 11:25; vomiting at 12, and again at 12:15; semi-liquid bowel movement at 12:30. Several other attacks of emesis occurred during the afternoon, the animal refusing food, but drinking water freely. The next day it was found that the animal had bloody bowel movements; and on this day it died at 10 a. m. Necropsy showed hemorrhagic gastro-enteritis. The urine obtained from the bladder contained albumin and a few red blood corpuscles, but no casts.

Similar results were obtained in three other dogs. A different result was obtained in Dog E. This dog, weighing 7.25 kg. was given 10 c.c. of fluidextract of ipecac diluted with 100 c.c. of water. Within half an hour, the dog showed marked depression, salivation, and had a fluid defecation, but did not vomit. The animal died within five hours after the administration of the poison, without having had emesis or bloody purging. On post-mortem examination, performed twenty hours later, the gastro-intestinal tract was found pale and without gross evidence of inflammation. Death had evidently occurred too soon for inflammation to have developed.

Entirely different is the result when the fatal dose of fluidextract of ipecac is mixed with fuller's earth, 3 gm. per cubic centimeter, as may be seen from the protocol of experiment on Dog J. This animal, weighing 9.5 kg., was given 14.25 c.c. of fluidextract of ipecac diluted with 142.5 c.c. of water, to which 42.75 gm. of fuller's earth were added. There was no effect whatever, excepting that the animal refused food and

drink for several hours afterward. During the succeeding days the animal was perfectly normal. Its bowel movements were hard and clay-colored lumps. Its urine was free from albumin. The animal was chloroformed five days afterward. Its gastro-intestinal tract was found normal. Identical results were obtained in three other dogs. On the other hand, one dog whose stomach was full of food vomited shortly after administration of the dose, probably from over-distention of the stomach. Two other dogs recovered from twice the surely fatal dose of fluidextract of ipecac, namely, 3 c.c. of the fluidextract per kilogram, diluted with ten times the amount of water to which a proportionate amount of fuller's earth had been added. Both dogs had a single emesis soon after injection, probably from overdistention of the stomach, for the bulk of the dose is considerable; but developed no further results of any importance and recovered completely, as may be seen from the protocol of one of these experiments:

A dog, weighing a little less than 12 kg., was given 35 c.c. of fluidextract of ipecac with 350 c.c. of water and 14 gm. of Lloyd's reagent. The dose was administered at 9:50

TABLE 8.—EFFECT ON RABBITS OF FATAL DOSES OF NICOTIN, GIVEN ORALLY WITH AND WITHOUT FULLER'S EARTH AND ACID

Rabbit		Dose				Effects	
No.	Weight, Gm.	Nico- tin per Kg.	Aecom. (+) or Foll.	Ful- ler's Earth	Acid	Symptoms	Result
A 1	1,500	0.10	.....	0	0	0	Recovery.
A 2	964	0.20	.....	0	0	Convulsions in 15 min.	Death in 20 min.
A 3	900	0.20	.....	0	0	Convulsions in 12 min.	Death in 20 min.
A 4	1,416	0.20	.....	0	0	Convulsions in 10 min.	Death in 13 min.
B 1	740	0.20	+	18.0	0	0	Recovery.
B 2	800	0.20	+	16.0	0	Depression in 30 min.	Recovery in 60 min.
B 3	570	0.40	+	23.0	0	Depression...	Death in 120 min.
B1 1	740	0.20	5 min.	18.0	0	Convulsions in 11 min.	Death in 30 min.
D 1	900	0.20	+	10.0	5.0 NaH ₂ PO ₄	0	Recovery.
D 2	680	0.40	+	13.6	6.8 NaH ₂ PO ₄	?	Death within 20 hrs.

a. m. Shortly afterward, profuse salivation appeared and lasted for over an hour. Twenty minutes after the injection a single emesis occurred, the vomit consisting of thin watery fluid with a small amount (3 gm.) of the injected preparation. There was no further emesis. A fine muscular tremor appeared at 12 m., and lasted about an hour. Complete recovery took place.

Evidently fuller's earth is a powerful antidote to ipecac. To test its practical value in case of poisoning, the antidote was administered at varying intervals of time after the introduction of the poison with results that might best be shown by tabulation.

It will be noted (Table 9) that, when the fuller's earth was given mixed with the poison, no damage occurs.

When the fuller's earth was given ten minutes afterward, the animal was seriously affected by the poison, but recovered. Fuller's earth was incapable of saving animals when administered twenty minutes or longer after the poison; but it rendered the picture of intoxication milder and postponed death in inverse proportion to the length of time that elapsed between the administration of the poison and of the antidote.

ANTIDOTAL VALUE IN ACONITIN POISONING

Table 10 shows that fuller's earth has some antidotal value in this condition also. It is difficult, however, to arrive at a definite judgment as to the degree

that died vomited. They generally vomited more profusely than the dogs that recovered. Therefore emesis was probably not a factor in those cases in which recovery took place. It will be noted that in practically all the animals that did recover rather marked symptoms occurred: emesis generally the next day, and in several of them bloody defecation, which in one case lasted for several days. The death of the animal D 5 may not have been due to the poison, as the animal was sick before it was subjected to the experiment, as was discovered subsequently. In another series of animals, in which the alkaloid aconitin (crystallized) was used—not the salt—death occurred in every case, even when fuller's earth or fuller's earth with acid were added, the fatal result being postponed for from twenty-four to forty-eight hours. Evidently the free alkaloid does not combine with fuller's earth as readily as does the salt.

TABLE 9.—RESULTS OF ADMINISTRATION OF FATAL DOSE (1.5 C.C. PER KG.) OF FLUIDEXTRACT OF IPECAC, WITH AND WITHOUT FULLER'S EARTH AT VARYING INTERVALS

Dog	Administration	Emesis		Defecation	Result	Post-Mortem Examination
		Onset, Min.	Times			
A	Ipecac.....	138	5	Bloody.....	Death in 24 hours.	Violent gastro-enteritis.
E	Ipecac.....	...	0	Liquid not bloody.	Death in 5 hours.	Gastro-intestinal tract pale.
F	Ipecac and fuller's earth 40 minutes later.	...	0	Liquid not bloody.	Death within 20 hours.	Gastro-enteritis.
G	Ipecac and fuller's earth 30 minutes later.	55	6	Bloody.....	Death in 25 hours.	Gastro-enteritis.
H	Ipecac and fuller's earth 20 minutes later.	70	1	Bloody.....	Death within 44 hours.	Less severe gastro-enteritis.
I	Ipecac and fuller's earth 10 minutes later.	22	13	Bloody.....	Aborted 5 fetuses. Lived for 5 days.	Gastro-intestinal tract showed evidences of past enterocolitis.
J	Ipecac and fuller's earth mixed.	...	0	Hard, clay-colored.	Recovery....	Gastro-intestinal tract normal.

TABLE 10.—EFFECT ON DOGS OF FATAL DOSE OF ACONITIN NITRATE, CRYSTALLIZED (MERCK'S), (4 MG. PER KILOGRAM), GIVEN ORALLY, WITH AND WITHOUT FULLER'S EARTH AND ACID

Dog		Morphin Sulph., 5 mg. per kg. Hypo. 1 Hour Prev. Gm.	Dose			Effects	
No.	Weight, Gm.		Aconitin	Fuller's Earth	NaH ₂ PO ₄	Symptoms	Result
A 1	6,850	0.032	0.0254	0	0	Profuse emesis in 5 min.	Death in 50 min.
A 2	5,096	0.025	0.0204	0	0	Conv., emesis in 4 hours.	Death in 5 hrs.
B 1	8,600	0.043	0.0344	17.20	.....	0	Recovery.
B 2	10,800	0.055	0.0432	21.60	.....	Emesis next day	Recovery.
B 3	4,760	0.025	0.0190	7.60	.....	Emesis (slight) in 6 hours.	Death in 24 hrs.
D 1	9,500	0.048	0.0330	19.00	19.00	Emesis next day	Recovery.
D 2	9,060	0.045	0.0362	18.10	15.10	Emesis next day.	Recovery.
						Bloody defecation.	
D 3	8,600	0.043	0.0344	13.76	13.76	Emesis, clear in 2:30 hours.	Recovery.
D 4	6,570	0.033	0.0263	13.14	13.14	Bloody defecation next day.	Recovery.
D 5	7,250	0.036	0.0290	14.50	14.50	Emesis in 1:30 hours.	Death in 44 hrs.

TABLE 11.—EFFECT ON DOGS OF FATAL DOSES OF COLCHICIN (2 MG. PER KILOGRAM), GIVEN ORALLY, WITH AND WITHOUT FULLER'S EARTH AND ACID

Dog		Dose				Effects	
No.	Weight.	Preliminary Morphin, 0.005 per Kg.	Colchicin	Fuller's Earth	Acid	Symptoms	Results
A 1	19,500	0	0.039	0	0	Vomiting in 1:30 hours. Bloody defec. in 4:30 hours.	Death with violent gastritis and colitis within 20 hrs.
A 2	7,700	0.0375	0.0155	0	0	Vomiting and bloody defec. next day.	Death with violent gastritis and colitis in 30 hours.
D 1	9,300	0.050	0.0186	5.60	5.60 NaH ₂ PO ₄	Bloody defec. next day.	Death with less severe colitis in 68 hours.

of its value. It produces emesis even after the previous administration of morphin. That the emesis does not save life, will be seen from the fact that all the dogs

addition of a larger dose that acted on the bowel within an hour and thirty minutes markedly lessened the period and amount of discoloration. It seems safe to

ANTIDOTAL VALUE IN COLCHICIN POISONING

The antidotal value of fuller's earth against colchicin poisoning is, no doubt, very slight, even though the number of experiments on this point, as shown by Table 10, may be insufficient. With the comparative indifference, however, of colchicin toward fuller's earth, as shown in Table 2, a different result could hardly be expected.

PERSONAL EXPERIMENTS WITH METHYLENE BLUE AND FULLER'S EARTH

To put the question to an approximate test whether fuller's earth would be likely to act in human beings as it does in the lower animals, I and one of my colleagues took doses of methylene blue with and without fuller's earth with the following results:

When a dose of 0.010 gm. of methylene blue is taken a dark green color appears in the urine within a short time and disappears within twenty-four hours. If 1.0 gm. of fuller's earth is added to 0.010 gm. of methylene blue in solution, the urine acquires a faint greenish tint for twenty-four hours; the difference between the two specimens of urine being striking.

The results of larger doses might probably best be presented as in Table 12.

It will be noted that fuller's earth alone postponed the appearance of the discoloration, lessened the duration of intense discoloration, but not the duration of slight discoloration. The addition of a small amount of sodium dihydrogen phosphate did not increase very greatly the effect of fuller's earth. The

conclude that fuller's earth, especially when combined with a laxative dose of sodium dihydrogen phosphate, is capable of greatly lessening in the human the absorption of substances that are readily adsorbed by fuller's earth.

CONCLUSIONS

1. Alkaloidal fuller's earth compounds do not act on the stomach; but are gradually dissociated in the intestine, producing a delayed and milder general action.

2. Fuller's earth has antidotal value in morphin, cocain, nicotin, and ipecac poisoning. It has less value in strychnin and in aconitin poisoning, though even in these conditions it is capable of saving life, when combined with sodium dihydrogen phosphate. In colchicin poisoning it is of little value.

3. The power of adsorbing alkaloids is strongly developed in some fuller's earths and very feeble in others. The adsorptive value of commercial fuller's

TABLE 12.—RESULTS OF DOSES OF METHYLENE BLUE WITH AND WITHOUT FULLER'S EARTH AND SODIUM DIHYDROGEN PHOSPHATE

Experiment	Dose	Effect
1	0.050 gm. methylene blue	Urine green in 1 hr. 25 min., lasting for 2½ days.
2	0.050 gm. methylene blue 2.500 gm. fuller's earth..	Urine green in 9 hrs., lasting for 24 hrs. Traces of discoloration occasionally for 2 days longer.
3	0.050 gm. methylene blue 2.500 gm. fuller's earth.. 2.500 gm. NaH ₂ PO ₄	Urine green in 10 hrs. 30 min., lasting for 17 hrs. Traces of discoloration occasionally for 2 days longer.
4	0.050 gm. methylene blue 2.500 gm. fuller's earth.. 5.000 gm. NaH ₂ PO ₄	Bluish brown liquid defecation in 1 hr. 30 min. Urine light green in 10 hrs. Urine green in 14 hrs., lasting for 7 hrs. Traces of discoloration occasionally for 12 hrs. longer.

earths should be stated by the dealers; and pharmacists should demand specimens of high activity. Lloyd's reagent possesses this power to the highest degree.

4. Fuller's earth is not synonymous with kaolin, as the United States Dispensatory and the National Dispensatory would lead one to infer. It is a substance with markedly different properties.

CHRONIC APPENDICITIS, PYLOROSPASM AND DUODENAL ULCER

A PRELIMINARY NOTE *

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DETROIT

Two years ago I called attention to the fact that in chronic appendicitis, though unsuspected, a continuous firm pressure with the ends of the first three fingers over McBurney's point frequently induced distress or pain in the epigastrium.¹ Recently, while examining a case of chronic appendicitis with the Roentgen fluoroscope, I was surprised to find that I was able to induce a pylorospasm by this pressure over the appendix. The pressure also produced the reflex pain in the epi-

gastrium of which the patient complained. I am inclined to believe that this pain was due to spasm of the pylorus.

I wish to report the following case:

Miss L., aged 23, American, with negative family history, had had mastoiditis on the left side two years before. She had stomach trouble for three or four years, with an acute attack, sixteen months before, of epigastric pain and nausea, not associated with jaundice or vomiting. For the past eight months she had complained of a pressing sensation in the upper abdomen occurring about thirty minutes after eating. This sensation was accompanied by eructations and was somewhat relieved by the taking of food.

The physical examination showed a well-nourished young girl, presenting only epigastric pain on deep pressure over McBurney's point.

With the Roentgen fluoroscope it was seen that the bismuth and buttermilk introduced tended to remain in the upper pole of the stomach. The walls of the stomach were parallel; the pyloric portion was well outlined; there were good contractions, and the duodenal cap was well formed and pointed upward. Pressure over the appendiceal region caused a spasm of the lower quarter of the stomach and the first portion of the duodenum. This contraction was so pronounced that it prevented the passage of the bismuth meal through the spastic areas. On releasing the pressure, we noticed that the pylorus and duodenum relaxed and the bismuth could be plainly seen passing through the pyloric canal and the first portion of the duodenum into the second and third portions of the latter.

If this demonstration can be confirmed, I believe it will be found of considerable importance, as pointing the way in which we can utilize reflex spasm of the stomach and duodenum in diagnosing disease in a remote part of the abdomen.

This phenomenon of spasm of the pylorus and first portion of the duodenum induced by pressure in the appendicular region is easily understood when we recall that the appendix has a rich nerve connection derived from the superior mesenteric plexus of the sympathetic, and from the cardiac, hepatic and gastric plexuses. Therefore any irritation originating in the appendix will readily send impulses to the other viscera. Because of the direct nerve connection between the appendix, pylorus and duodenum, it follows that a chronic appendicitis may induce over this arc a reflex gastropspasm, pylorospasm or enterospasm.

If it be granted that the pain elicited in the epigastrium by pressure over the appendiceal region in chronic appendicitis is due to pylorospasm caused by such pressure, the etiology of the gastric symptoms and the hyperchlorhydria associated with appendicitis is clear.

In the case reported we have an interesting demonstration of what we have long believed, that the gastric distress, eructations and other symptoms of appendicitis are due to pylorospasm.

It may be that this will suggest an explanation for the cause of the frequent occurrence of duodenal ulcer in chronic appendicitis, on the basis that the associated spasm of the pylorus and first part of the duodenum induces an ischemia, which allows the gastric juice to attack the mucosa, the resistance of which has been lowered.

38 West Adams Avenue.

The Inactive Scholar.—A mere display of absorbed knowledge does not make a scholar. He is not a passive creature. He is continually active in making old and creating new knowledge.—Theobald Smith: *Boston Med. and Surg. Jour.*

* Read at the annual meeting of the American Gastro-Enterological Association, Baltimore, May 10, 1915.

1. Aaron, Charles D.: A Sign Indicative of Chronic Appendicitis, *The Journal A. M. A.*, Feb. 1, 1913, p. 350.

Special Article

PRACTICAL PHARMACOLOGY *

(Continued from page 1763)

XXI

DIAPHORETICS

One of the functions of the sweat glands is to provide moisture, which by its evaporation cools the body, the secretion of sweat being increased when the production of heat by the body is increased.

This secretion is controlled largely by the heat regulating centers, and when the blood flowing through the carotids is warmed it causes an increased secretion, as does the warming of the surface of the body also.

The activity of the sweat glands is influenced less by the blood supply than is that of most of the glands of the body, and profuse sweating may occur when the skin is pale, and, on the other hand, there may be little secretion when the skin is flushed and hot in fever. However, heat increases the excitability of the nerve endings in the sweat glands and an abundant supply of blood often promotes the secretion.

The composition of the sweat and the daily amount secreted varies widely under normal conditions, and still more widely under pathologic conditions.

The amount of sweat secreted in twenty-four hours by a healthy man with light exercise probably does not often fall below 500 c.c. (1 pint), but with hard work during hot weather the secretion may become more than ten times as active, and under pathologic conditions, as during sudden collapse, the amount secreted in a few minutes may equal the amount which is secreted in an entire day under ordinary conditions.

The sweat contains small amounts of salts, of which sodium chlorid constitutes much the larger amount, and usually only insignificant amounts of organic matter, but when the activity of the glands is greatly increased, during severe muscular exercise or by hot vapor baths, the amount of organic matter is increased notably, and when the kidneys become incapable of secreting urea as fast as it is formed, so that it accumulates in the blood, a considerable amount is found in the sweat, and it is commonly stated that crystals of urea sometimes may be found on the skin under those conditions.

It seems probable that one of the functions of the sweat glands is to provide a means of eliminating water from the blood without a corresponding loss of its salts, but when the loss of water from the blood is made up by absorption either from the gastrointestinal tract or from the tissues, the loss of salts may be important, and the blood may then have a lower concentration than before active sweating was induced. From this it would seem that the sweat glands supplement the action of the kidneys to an important degree.

Sweating also serves to remove large numbers of bacteria from the deeper layers of the skin, and it is probable that with the profuse sweating of exercise that this action is not without importance.

The methods of inducing active sweating without the use of drugs do not call for discussion in this

place; the actions of the analgesic antipyretics and various vasodilators have been discussed elsewhere.

PILOCARPIN

Pilocarpin stimulates all parasympathetic nerve endings and the sympathetic nerve endings in the sweat glands, which, as previously stated, behave toward several drugs like the parasympathetic.

The sweating begins in about fifteen minutes and lasts about two hours. The stimulation of the chorda causes profuse salivation, while the secretion of the bronchial glands may embarrass respiration, and pilocarpin is therefore contra-indicated in patients in whom there is a predisposition to edema of the lungs.

Pilocarpin stimulates the vagus endings, causing moderate slowing of the heart rate, but the action differs essentially from that of digitalis, for the stimulation resulting from small doses tends to pass into depression so that the heart rate increases, and when large doses have been administered the stimulation is brief and the depression almost as great as that resulting from atropin. Hence it is impossible to induce an important degree of slowing of the heart by doses of pilocarpin.

The action of physostigmin resembles that of pilocarpin qualitatively, but it is so much more depressant than pilocarpin to the central nervous system in doses producing an equal diaphoretic effect that it is never used for that purpose.

THERAPEUTIC USES

Sweating serves to increase the concentration of the blood, thus promoting the absorption of dropsical effusions if the amount of water ingested is restricted sufficiently.

Profuse sweating serves to remove a certain amount of various substances which are usually excreted by the kidneys, and while the amount of nitrogenous matter normally excreted in the sweat during rest is insignificant, a much larger amount is excreted during profuse sweating.

The amount of urea eliminated during even profuse sweating would seem to be too small to account for the improvement which results from sweat baths in nephritis and uremic poisoning, hence one cannot say to what the improvement is attributable. It is possible that the removal of chlorids from the blood may relieve the kidney, for, as previously stated, sodium chlorid is actually injurious to the kidneys under certain circumstances.

It is popularly supposed that other toxic substances are excreted in this way, but our knowledge of this subject is as yet very imperfect.

A popular treatment of "colds" consists in the use of large quantities of hot lemonade while the body is kept warm to induce sweating. A hot mustard foot bath is commonly taken at the same time, and this treatment frequently results in the disappearance of the symptoms, probably because the alteration in the distribution of the blood which is induced relieves the local congestion in the nasal passages.

The same objects are often accomplished by the use of the compound powder of ipecac and opium and the mustard foot bath, or by a hot bath taken just before retiring in a warm room; this induces active sweating which continues for some hours, if the patient is kept warmly covered.

Chronic rheumatism and gonorrheal arthritis are often treated by placing the affected limb in a hot-air

* This is the twenty-first of a series of articles on useful drugs—on practical pharmacology for the general practitioner. As soon as completed, these articles, elaborated by additional subjects, will be published in book form.

chamber for half an hour, while maintaining a temperature of from 70 to 90 C. (150 to 180 F.).

A limb, or even the whole body except the head, may be subjected to a high temperature for a short time if care is taken to provide for a sufficient circulation of air to insure the evaporation of water as fast as it is eliminated in the sweat. Heating a limb or the body causes the body temperature to rise—sometimes as much as several degrees—and cold water or an ice bag should be applied to the head to prevent the effects on the brain which would ensue.

Solution of ammonium acetate and spirit of nitrous ether are commonly used as diaphoretics during fevers, but their action is feeble, and we have many better means of inducing sweating.

Pilocarpin is used as a diaphoretic in certain diseases of the skin, and it is generally credited with the property of stimulating the growth of the hair, but failure is far more common than success when it is used in baldness.

Doses just short of that required to induce sweating are sometimes used to relieve itching in generalized acute eczema, urticaria and other conditions. Its use as a miotic has been discussed.

Pilocarpus owes its therapeutic effects to the pilocarpin which it contains, but it also contains pilocarpidin, which has an atropin action, hence it would seem that there is never any occasion to use the crude drug rather than pilocarpin.

DOSAGE

The diaphoretic dose of the compound powder of ipecac and opium is 0.6 gm. (10 grains); the dose of the hydrochlorid or nitrate of pilocarpin is from 0.001 to 0.01 gm. (1/60 to 1/6 grain).*

EVACUANTS

Drugs that are used to cause evacuation of the bowels are variously classified; according to their origin and chemical nature; according to the intensity of their action, and according to their general mode of action. The term laxative is applied to those which cause a nearly normal movement of the bowel, attended with little or no pain; if the action is much more vigorous and several movements are induced, the term purgative or cathartic is employed; and when a large amount of fluid is evacuated with the feces the action is termed drastic, or hydragogue.

For practical purposes it will be convenient to discuss the evacuants with reference to the part of the intestine on which they exert their main action, for a drug may be laxative or drastic, dependent on the dose employed and other conditions, and evacuants must be chosen with strict regard to their mode of action and the seat of this action.

The processes of digestion are so closely related to the intestinal movements that a brief discussion of the physiology of the gastro-intestinal tract is indispensable for a clear presentation of the subject of evacuants.

The stomach is an automatic organ, containing within its walls the plexuses of Meissner and Auerbach, on which its automaticity probably depends; at any rate the surviving excised stomach is capable of maintaining regular movements, and the processes of secretion of gastric juice may take place after the connection with the central nervous system has been severed, but the stomach is influenced both as to move-

ments and secretions, by two sets of nerves from the central nervous system, the parasympathetic (vagus), the functions of which are here mainly motor, and the sympathetic (splanchnic) which is mainly inhibitory. The control of these two nerves is so coordinated that when one of them is stimulated the other is usually depressed.

The functions of the stomach are to secrete the gastric juice and to maintain movements which serve to mix the food with this juice and to drive the digested food into the intestine.

The length of time during which food remains in the stomach varies with the nature of the food, and it may be influenced greatly by drugs. Proteins are digested more slowly than carbohydrates, and fats pass still more slowly into the intestine, and if they be taken before proteins and carbohydrates they delay their passage through the pylorus.

The sphincter of the pylorus relaxes periodically to allow the fluid portions of the stomach contents to pass into the intestine. An alkaline reaction in the duodenum promotes, an acid reaction delays, this relaxation, but when water or a dilute solution of a salt is taken during digestion, it passes along the lesser curvature of the stomach, and reaching the pylorus without mixing with the rest of the stomach contents, passes rapidly into the intestine. This is of some practical importance with reference to the action of certain of the purgatives.

Strong stimulation of the vagus, such as toxic doses of morphin induce, cause spasmodic contraction of the pylorus and the passage of the stomach contents may be delayed indefinitely. Stimulation of the splanchnic causes cessation of the movements of the normal stomach and relaxation of the pylorus, but such stimulation of the splanchnic cannot overcome strong vagus stimulation. In such cases depression of the vagus is more effective, hence atropin is used to lessen excessive movements of the stomach in gastric ulcer. This also serves to explain why large doses of morphin are contra-indicated in that condition, but small doses, sufficient to lessen pain, may be used, for the gastric effects of vagus stimulation are not usually elicited from less than 10 mg. (1/6 grain), while half that amount exerts a marked analgesic action.

Atropin is not so effective in quieting the movements of the stomach when these are due to diminished tone of the splanchnic, for then the automatic mechanism alone suffices to increase the activity of the movements and depression of the vagus is then of little value. Unfortunately, we have no drug which is of much use in increasing the tone of the sympathetic, unless it be ergot.

The mechanism controlling the activities of the intestines is much like that of the stomach. Peristaltic movements in the intestine consist of waves of contraction preceded by relaxation of the musculature of the wall; these are automatic, but they are influenced by parasympathetic (vagus) and sympathetic (splanchnic) nerves.

The function of the parasympathetic nerve to the intestine is mainly motor and that of the sympathetic is mainly inhibitory, as in the stomach, but it seems probable that there are some inhibitory fibers in the vagus, and some motor fibers in the sympathetic. The vagus is distributed to the intestine as far down as the descending part of the colon, where its place as a parasympathetic motor nerve is taken by the erigens, on which atropin and some other drugs act in the

* On account of lack of space the materia medica of this group is omitted from THE JOURNAL. It will be included when the series is published in book form.

same way that they do on the vagus, but less effectively. The nerves which supply the colon and rectum also supply the uterus, which explains in part the effect of certain purgatives on that organ.

Stimulation of the parasympathetic (vagus or erigens) nerve to the intestine causes active peristalsis, and strong stimulation of certain centers in the medulla is followed by diarrhea. The intestinal movements are also subject to psychic influence, but the mechanism of this is not understood. It is possible that the intestinal peristalsis which accompanies certain emotions may be due in part to an increase of carbon dioxid in the blood, this increase being due to respiratory depression, for carbon dioxid and hydrogen sulphid are normal stimuli to the intestine, causing peristalsis.¹

The movements of the large intestine differ considerably from those of the small. The contents of the colon are forced along to the descending part because of overfilling from the ileum, and such movements as occur in the ascending and transverse portions are in the reverse direction, serving to keep the contents thoroughly mixed and promoting absorption. In the descending colon the contents are driven very slowly toward the rectum by means of peristaltic movements much like those in the small intestine. It is uncertain whether the rectum normally contains fecal matter except just before defecation, but there is no reason to doubt that its distention by feces causes a desire to go to stool. The retention of feces in the rectum may lead to dilatation, and the development of a form of chronic constipation.

Anything which increases the bulk of the intestinal contents will promote intestinal peristalsis, for this distention of the intestine seems to be one of the chief stimuli to the automatic mechanism. The fluid contents of the intestine may be increased by augmented gastric or intestinal secretion, or by diminished absorption from the intestine into the circulation.

Estimates of the total amount of fluid secreted by the different digestive organs vary considerably, but it may be accepted that from 3 to 5 liters (from 6 to 10 pints) of fluid are secreted daily by the salivary, gastric and intestinal glands and the pancreas and liver together, and that nearly all of this, together with the liquefied food, enters the small intestine, and a large part of this reaches the colon. From this it is evident why so much fluid may be removed from the body by even a mild, but rapidly acting, evacuant. The composition of the blood can be altered rapidly in this way, and especially by those cathartics which stimulate the intestinal glands to increased secretion. With the changes in the composition of the blood thus induced are associated corresponding changes in the secretions and excretions throughout the body, for most of the glands are influenced profoundly by the composition of the blood, as well as by changes in the amount with which they are supplied.

The passage of fluid through the small intestine requires from eight to twenty hours, as a rule (only a few minutes in some conditions of hyperexcitability of the intestine), and the passage through the large intestine requires a shorter period, during which active

absorption of fluid takes place, leaving the fecal mass composed mainly of bacteria, undigested food particles, such as the lignin of vegetables, detritus of the intestine, and various principles in small amount, together with enough moisture to make it plastic.

If the intestinal movements are unduly sluggish, opportunity is afforded for the absorption of too large a proportion of fluid, the feces become hard, dry and difficult to propel by the normal peristaltic movements, and it becomes necessary to soften such masses before they can be evacuated.

There are various physiologic ways of preventing this sluggishness of the intestinal movements, and it is obvious that such means should be tried before resorting to the use of drugs. The taking of an adequate amount of cold (not iced) water between meals affords the simplest means of hastening peristalsis in the small intestine, and thus indirectly, in the large, for, as previously stated, when water is taken during digestion it passes rapidly into the intestine, and probably even more rapidly if taken when the stomach is empty.

Some stress is placed on the taking of this cold water between meals, rather than with them, for secretion of the digestive fluids depends to some degree on the amount of fluid in the circulation and tissues. If a normal amount of the digestive secretions is available it supplies the fluid which is requisite for normal peristalsis, and it is only when this has been absorbed, at least in large part, that the additional water taken between meals is required to maintain the bulk of intestinal fluid which is required for active peristalsis.

Some stress is also placed on the use of cold water rather than hot fluids, such as tea and coffee, for hot fluids promote rapid absorption from the small intestine and even less fluid will then reach the colon. It seems probable that the constipating effect which tea and coffee often exert is due in part to the fact that the rapid absorption of fluid from the small intestine induces active diuresis, which is further augmented by the action of the caffeine which they contain, and that this diuresis increases the viscosity of the blood, which in turn diminishes the gastric and intestinal secretions, the increased absorption from the intestine, and the diminished secretion into it cooperating to deprive the intestine of its normal stimulus to peristalsis.

A glass of cold water taken on rising is often sufficient to cause prompt evacuation of the bowels.

Laxatives increase the peristalsis slightly and the feces are evacuated before they become dehydrated in the colon.

Many persons eat too little habitually, and without advocating an excessive diet, it is a matter of common observation that one who suffers from mild chronic constipation associated with a spare diet will often have a normal stool soon after taking a large meal.

It is often urged that a part of the food should not be too readily digestible, and while it is true that indigestible food does promote peristalsis, it does not appear to be necessary, provided that the diet is abundant.

A good appetite, which insures the taking of a fairly large amount of food, and good digestion, which insures the secretion of an adequate amount of fluid in the gastro-intestinal tract, are far more effective in securing active peristalsis than a small amount of indigestible food would be, for undigested food constitutes only an insignificant part of the normal intestinal contents, and furthermore, soft indigestible matter always invites the activity of pathogenic micro-organisms.

1. Certain emotions, such as fear, exert two types of action in different individuals; in one type the effects are referable to stimulation of the sympathetic, and include high blood pressure and inhibition of the gastro-intestinal movements; in the other their effects are referable in part to stimulation of the parasympathetic nerves, and include low blood pressure and active movements of the gastro-intestinal tract.

An ideal cathartic should pass through the stomach without disturbing it and exert its action on the intestine without causing pain or inflammation, and these conditions must be approximated in order that a drug may be of any use as an evacuant of the intestine.

We are in need of an evacuant which is suitable for subcutaneous injection, and which will then produce purgation without giving rise to excessive irritation at the point of injection, or irritating the kidneys. None of the agents which we use as cathartics is well adapted for therapeutic use by subcutaneous injection, some being local irritants, others having undesired side actions.

(To be continued)

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

PAPAVERINE.— $C_{20}H_{21}O_4N$.—An alkaloid obtained from opium, belonging to the benzyl iso-quinoline group (i. e., it is not a morphine derivative).

Actions and Uses.—Pal found that papaverine relaxes smooth muscle in general—although different organs are affected in a varying degree.

Papaverine is most effective in hypertonic conditions, while it does not interfere materially with the normal movements, for instance of the intestines. It is also a rather feeble central analgesic and a local anesthetic. Its toxicity is low, and neither tolerance nor habituation has been reported. These actions have prompted its use, with reported success, in various spasmodic conditions of the smooth muscles. Pal recommends it especially in all kinds of gastric and intestinal spasms (also for the diagnosis of pyloric spasm); in biliary colic; and in bronchial spasm. Of more doubtful value is its employment in pertussis, hyperemesis, and vascular spasm—angina pectoris, acute uremia and eclampsia. It is admitted to be ineffective in chronic hyper-tonus. The local anesthetic action, with vasodilatation, has been used against rhino-asthma, and to mitigate the pain of irritant injections.

Dosage.—The oral and hypodermic single dose is 0.03 to 0.08 Gm. ($\frac{1}{2}$ to $1\frac{3}{4}$ grains); daily dose to 0.5 Gm. Single doses of even 1 Gm. are said to be non-toxic.

Papaverine occurs in fine, white rhombic prisms or needles or sometimes in scales; odorless and tasteless.

Papaverine is nearly insoluble in cold water; very sparingly soluble in alcohol, ether, chloroform and benzene if cold; somewhat more soluble in these liquids when hot, but deposited by them on cooling; soluble in warm petroleum ether and in acetone.

Papaverine melts at 147 C.

If about 0.01 Gm. of papaverine be dissolved in 10 Cc. of water containing a few drops of diluted hydrochloric acid, and a few drops of potassium ferricyanide solution added, a lemon-yellow precipitate of papaverine ferricyanide should form at once (distinction from other opium alkaloids).

If about 0.001 Gm. of papaverine be dissolved in 0.1 Cc. of sulphuric acid containing in each c.c. one drop of formaldehyde solution, a colorless solution, or at most a faintly yellowish-green color, should be produced; this gradually changes to deep rose and finally becomes brown (distinction from morphine and its esters, which give purple or violet colors).

If 0.01 Gm. of papaverine be dissolved in 0.2 Cc. of sulphuric acid the solution should not be colored more than very faintly pinkish or brownish (limit of cryptopine, thebaine or of other organic impurities).

If 0.01 Gm. of papaverine be dissolved in 10 Cc. of water containing a few drops of hydrochloric acid, a few drops of a saturated aqueous solution of iodic acid added, and the mixture shaken with chloroform, the chloroform layer should not be colored violet (absence of morphine).

If from 0.2 to 0.3 Gm. of papaverine be weighed, dissolved in 20 Cc. of warm water containing a few drops of diluted hydrochloric acid, the solution cooled, 1 Cc. of freshly prepared potassium ferricyanide solution added, the mixture agitated, allowed to stand over night, filtered, the filtrate made alkaline with ammonia water, shaken with several successive portions of ether, the ether solutions combined, washed with water, evaporated, the residue dried at 100 C. and weighed, the weight should not amount to more than 2 per cent. of the weight taken (limit of foreign opium alkaloids).

PAPAVERINE HYDROCHLORIDE.—Papaverinae Hydrochloridum.— $C_{20}H_{21}O_4N.HCl$.—The hydrochloride of the alkaloid, papaverine, containing not less than 88 per cent. of papaverine.

Actions and Uses.—See papaverine.

Dosage.—See papaverine.

Non-Proprietary Preparations:

Papaverine Hydrochloride, Merck.—Manufactured by E. Merck, Darmstadt, Germany (Merck & Co., New York).

Papaverine Hydrochloride, Roche.—Manufactured by F. Hoffmann-LaRoche & Co., Basel, Switzerland (Hoffmann-LaRoche Chemical Works, New York City).

Papaverine Hydrochloride, Roche, Tablets.—Each tablet contains papaverine hydrochloride, 0.04 Gm.

Papaverine hydrochloride occurs in a fine white, crystalline powder or in small monoclinic plates or prisms; odorless and having a bitter taste; permanent in the air.

Papaverine hydrochloride is sparingly soluble in water; soluble in alcohol; very soluble in chloroform; insoluble in ether.

An aqueous solution of papaverine hydrochloride has an acid reaction toward litmus paper.

If from 0.2 to 0.3 Gm. of papaverine hydrochloride be weighed, dissolved in 20 Cc. of warm water, the solution cooled, a slight excess of ammonia water added and the mixture shaken with three successive portions of 25 Cc. each of ether, or a sufficient quantity to complete the extraction, the ether solutions combined, washed with water, evaporated to dryness, the residue dried to constant weight at 100 C. and weighed, the weight should indicate not less than 88 per cent. of papaverine. The alkaloid obtained by this process should conform to the tests for identity and purity described under Papaverine.

PAPAVERINE SULPHATE.—Papaverinae Sulphas.— $(C_{20}H_{21}O_4N)_2.H_2SO_4$.—The sulphate of the alkaloid, papaverine, containing not less than 85 per cent. of papaverine.

Actions and Uses.—See papaverine.

Dosage.—See papaverine.

Papaverine Sulphate, Roche, Ampules.—Each ampule contains papaverine sulphate solution equivalent to 0.04 Gm. papaverine sulphate. Manufactured by F. Hoffmann-LaRoche & Co., Basel, Switzerland (Hoffmann-LaRoche Chemical Works, New York City).

Papaverine sulphate occurs in white, crystalline powder; odorless and having a bitter taste; slightly hygroscopic.

Papaverine sulphate is soluble in water and in alcohol; very soluble in chloroform; insoluble in ether.

An aqueous solution of papaverine sulphate has an acid reaction toward litmus paper.

If from 0.2 to 0.3 Gm. of papaverine sulphate be weighed, dissolved in 20 Cc. of water, a slight excess of ammonia water added and the mixture shaken with three successive portions of 25 Cc. each of ether, or a sufficient quantity to complete the extraction, the ether solutions combined, washed with water, evaporated to dryness, the residue dried to constant weight at 100 C. and weighed, the weight should indicate not less than 85 per cent. of papaverine. The alkaloid obtained by this process should conform to the tests for identity and purity described under Papaverine.

For a Flyless Town.—The *Bulletin* of the health department of Chicago for April 3 says it is known that 90 per cent. of flies breed in horse manure, and if the manure pile could be gotten rid of the 90 per cent. of flies would vanish and the other 10 per cent. could easily be taken care of. The present ordinance regulating the manure problem would, if enforced, go far toward making Chicago a flyless city. Attempts have been constant to enforce it and over 6,000 notices were given and 1,500 suits were brought last year to abate manure nuisances, many of which suits have not been reached on account of congestion of the courts.

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SATURDAY, MAY 29, 1915

TETANUS CARRIERS

It is thirty years since Nicolaier succeeded in producing tetanic symptoms in animals by inoculating them with soil. The micro-organisms responsible for this result are now known to occur in the superficial layers of the earth's surface. One bacteriologist has reported that soils from thirty-eight cities in different parts of the world were tested by him and that positive evidence of the tetanus bacteria was obtained from all except twelve of the cities. The fact that the soil of cultivated and manured fields seems to harbor the *Bacillus tetani* with especial frequency has been attributed to the probable presence of this germ in the dejecta of some of the domestic animals. Indeed, this is more than a mere supposition, since the bacillus has been found by some to be particularly abundant in the feces of horses. Pizzini¹ even asserted that he had found it in 5 per cent. of the human feces examined; with the added indication that whereas 30 per cent. of the men working about horses and stables have tetanus bacilli in their feces, only 2.2 per cent. of men engaged in other occupations have them.

The tetanus organism is so prominent as a danger to mankind that the problems of its sources and distribution become of the utmost importance. This is intensified by the unusual viability of the spores of this species. Protected from sunlight and other deleterious influences, they may remain virulent for many years. A case has actually been reported in which tetanus was produced with bacilli from a splinter of wood infected eleven years before.² The comparative infrequency of tetanus infection in ordinary life does not in any way minimize the wide distribution of the exciting organism in nature.

From observations made in the laboratories of the Sheffield Scientific School of Yale University, Noble³ has reached the conclusion that the tetanus bacillus appears in the intestines of many normal animals, especially of the herbivora. Apparently it is impossible, with the current technic available, to detect the

micro-organism unless it is present in relatively large numbers. Park⁴ states that 15 per cent. of horses and calves in the vicinity of New York City harbor tetanus bacilli in their intestines. Noble found that eleven out of sixty-one horses examined, or 18 per cent., showed this organism in their feces. He failed to find them in the excreta of cows; but the investigations on this species were not conclusive, because they were made on a herd of cattle confined in a barn during the winter months when the diet of ensilage was such as to exclude the probability of its containing tetanus spores.

Noble is inclined to the belief that the tetanus bacillus may multiply within the intestines of suitable animals. Some of these seem to offer especially favorable conditions for this growth. Tests on two selected horses showed that the tetanus spores disappeared from the feces of one fourteen days after the beginning of the observations; whereas the other animal harbored them continuously for four months, although, here too, they eventually disappeared. It is highly improbable that this persistence was due to repeated reinfection, because other horses in the same stable showed no signs of fresh invasion by the tetanus bacilli.

If these observations are valid in demonstrating that individual horses may harbor tetanus bacilli in their alimentary tract for many months following an initial infection, the phenomenon would appear to present the case of a "tetanus carrier" comparable with the well-known typhoid carriers and other seemingly healthy disseminators of human infection. How common the "tetanus carriers" may be among horses remains to be ascertained; but, as Noble contends, if we grant their existence, the universal distribution of tetanus spores is not difficult to explain. In any event, the presence of these forms in soils, street dust, fresh vegetables, on the clothing and the skin is easily attributable to fecal contamination, as has so often been maintained.

MENTAL CHANGES IN EXOPHTHALMIC GOITER

It is well known that the mental condition of patients with exophthalmic goiter is frequently not normal, and that a loss of balance of the nervous and psychic equilibrium is one of the first signs of beginning thyroid intoxication. Since these mental disturbances often become prominent, they have received much attention under the title of the "Basedow psychosis."

Léopold Lévi and Rothschild call the thyroid the "glande de l'émotion," and refer to the mental status of exophthalmic patients as a "hyperthyroid temperament." Homburger believes that exophthalmic goiter and the accompanying mental derangements are related in that they spring from a common ground, there being a neuropsychopathic anlage. In six epileptics suffering with exophthalmic goiter, the influence of

1. Pizzini: Baumgarten's Jahreshb., 1894, xiv, 236.

2. Henrijean: Ann. Soc. méd. chir. de Liège, 1891.

3. Noble, W.: Experimental Study of the Distribution and Habitat of the Tetanus Bacillus, Jour. Infect. Dis., 1915, xvi, 132.

4. Park, W. H.: Pathogenic Bacteria and Protozoa, 1910, p. 232.

the latter disease on concomitant psychic disturbances was marked. Many other writers refer to a relation between psychoses and exophthalmic goiter.

The most conclusive proof of relationship lies in a parallelism between the two disorders. As the usual symptoms of exophthalmic goiter increase in severity, the psychosis becomes more marked; as the symptoms improve, the psychosis improves, and if the patient recovers entirely from the goiter, the psychosis likewise disappears. In a series of eighty-six cases of exophthalmic goiter collected by Pharon,¹ he holds the goiter responsible for the accompanying psychosis in sixty-seven instances because of this parallelism. Among these cases were many manic-depressive and psychasthenic individuals. Colla² found a similar parallelism in a series of goiter cases compiled for an entirely different purpose. He had under observation two patients who, after having had a Basedow neurosis for some time, finally developed an exophthalmic goiter. Star states that we may have a Basedow neurosis without the typical exophthalmic goiter ever developing. The syndrome of such a neurosis is given by Kraepelin as follows: cracking of the voice, tremor of the hands, poor judgment, illusions, hallucinations, mistrust or suspicion, groundless dislikes and jealousy.

Attempts to explain the occurrence of psychic disturbances in disease of the thyroid gland are based on a relationship between the activities of this gland and the central nervous system. Modern investigators believe that exophthalmic goiter is due to an increased activity of the thyroid (Moebius), to a perverted function (Gauthier), or to a combination of the two. It is not unreasonable to suppose that altered thyroid function would have some effect on the nervous tissues. Recently a connection between the thymus and the thyroid has been established in this disease, and during the time of its maximum development, the thymus seems of special importance to the nervous system. In instances of decreased thyroid activity, the hypertrophied or persistent thymus may act in a compensatory manner, and excessive activity on the part of this gland may be as dangerous as hyperactivity of the thyroid. Bainbridge³ suggests that the mental changes are dependent on nutritional disturbances of the brain, the latter resulting from a perverted secretion or hypersecretion of these glands. Undoubtedly thyroid secretion influences the nutrition of the entire body, but too little is known of the interrelation of the secretions of the ductless glands to allow us to determine in what manner the nervous tissues are affected.

So far as is known, there has been no microscopic examination of brain tissues from patients with exophthalmic goiter and the Basedow psychosis. Ramadier and Marchand, however, have examined the thyroid

glands of many insane patients to find if there was any connection between the psychic condition and the parenchyma of the gland. Among the cases studied were acute and chronic dementia, melancholia, dementia praecox, epilepsy, etc. Aside from considerable fluctuation in the weight of the gland, which is also true in normal individuals, there were no gross changes. Microscopically, numerous circumscribed, sclerotic foci or regions of interstitial inflammation were found, but glands from persons who have not suffered with mental or thyroid disease present similar changes. Further, these changes were present in nearly every instance of mental disease, and did not seem to depend on the type or severity of the malady. These investigators could find no relation between changes in the thyroid and mental disease, and conclude that toxins or other injurious substances which are able to affect the brain and cause mental disturbances may at the same time attack the thyroid.

The manner in which the so-called Basedow psychosis is affected by operation has been considered by Bainbridge, who states that surprisingly prompt effects are noted following thyroidectomy, and that a complete recovery may be reasonably expected in all but the severe forms of psychoses. In such cases it is unreasonable to hope that merely removing the causative factor will repair permanent damage already done the nervous centers.

Thus the rather large and varied group of nervous disturbances attendant on exophthalmic goiter may be classed under one head as the Basedow psychosis. The relation between the goiter and the psychosis is clear and well defined, but the factors which produce the mental changes and the structure alterations which occur are not definitely known.

ENDOWED MEDICAL SCHOOLS

Until the last decade, medical education seemed to have no attraction for the philanthropists. On the contrary, medical schools were considered not only as self-supporting but also as money-making institutions. It is noteworthy, however, that, as the colleges have changed in character during the rapid improvement in medical education in recent years, their financial needs have been met. Especially with the tremendous development of medical education during the past ten or twelve years, there has been a corresponding increase in the number of gifts for endowments, new buildings and support.

These gifts have been so generous for some institutions as to make them equal if not superior in resources to the leading medical schools abroad. Since, in 1906, Harvard Medical School secured its beautiful new buildings, the Peter Bent Brigham Hospital, the Huntington Cancer Hospital, the State Psychopathic and other hospitals have been built in the imme-

1. Pharon: *Neurol. Zentralbl.*, 1913, No. 3.

2. Colla: *Allgemein. Ztschr. f. Psychiat.*, 1913, lxx, 525.

3. Bainbridge: *Med. Press*, 1915, xcix, 86.

mediate vicinity and brought into close affiliation, resulting in the development of a great medical center. Johns Hopkins Medical School, with its modest start in 1896, has since been developed by large additions to its endowment, by the increased provision for medical research and the expansion of its hospital, until it, likewise, ranks among the world's great medical schools. There have been marked developments at Pennsylvania and Michigan and, more recently, at Minnesota and Tulane. New medical buildings at less expense but proportionally of equal importance, in recent years, have been erected for the medical schools of the Universities of Georgia, North Carolina and Nebraska and for the Medical College of South Carolina. A beautiful new medical library building has been secured for Leland Stanford, and greatly increased hospital connections, leading to the development of more compact medical teaching plants, have been obtained by Western Reserve University and the University of Cincinnati, as well as by Jefferson, Louisville and Iowa. Vanderbilt has emerged from a long struggle with adversity, has received a liberal endowment and is now undergoing a rapid growth.

Because of the multiplicity and variety of these developments in medical schools, one is inclined to underestimate the importance and magnitude of the recent achievements at St. Louis. The dedication of the new buildings of Washington University Medical School marks the completion of another great medical teaching institution in the United States, of which the whole country may well be proud. With generous endowment, the Barnes and the St. Louis Children's hospitals and this high grade medical school have built splendid new buildings in immediate proximity, the total expense being over three million dollars. Of greater significance, however, is the fact that these institutions have formed a close affiliation by which they can work together to fulfil in the best manner possible a threefold function: (a) to furnish the best and most enlightened care of the sick in accordance with modern medical knowledge; (b) to add to the positive knowledge regarding the cause, cure and prevention of disease through scientific research, and (c) to furnish courses of instruction by which the public will be provided with thoroughly trained physicians and nurses.

In the light of all these remarkable achievements in medical education, it is not surprising that as great, or perhaps greater things are being planned in other parts of the country. These recent accomplishments, therefore, give confident expectation that the plans for a ten million dollar medical center at Columbia University will be successfully worked out. Surely, no development is more worthy of generous support; no investment could bring greater returns in the saving of lives, in the prevention of sickness and distress, and in promoting the welfare of the public.

BACTERIAL VARIATIONS

The question of variation, which has long attracted attention in connection with the biologic study of the most diverse forms of animal and plant life, has at length become a timely topic in bacteriology. The variability of micro-organisms in certain respects has, of course, been known since the days of Pasteur; for it was early realized that within the same species of bacteria, different races or strains may exhibit widely varying degrees of virulence. Such fluctuations have appeared to represent, to a large extent, degrees of adaptation on the part of bacteria to the conditions found in the living body. Not only, furthermore, can infectiousness be enhanced by the passage of micro-organisms through animals of certain species, but the virulence of bacteria can also be attenuated by laboratory manipulation.

The problem of variation in bacteria, however, is something more than one of alterations in the property of infectiousness which may or may not be a biologic attribute of relatively recent acquisition. Professor Jordan¹ of the Department of Hygiene and Bacteriology at the University of Chicago points out that in recent years some confusion has arisen through the difficulty of distinguishing true variations from the development of latent characteristics, and from environmental variation. There are qualities or properties which may be dormant in the organism or cell and are manifested only in response to definite external influences. This Jordan illustrates by the case of certain bacteria which form spores in the presence, but not in the absence, of oxygen. He very properly maintains that the sudden appearance in this way of a definite morphologic character cannot be looked on as an instance of true variation. Such a manifestation is merely an immediate response to changed conditions of life—it is the awakening of a dormant character. The importance of standardizing culture mediums lies in no small measure in the fact that latent qualities often play an important part in bacterial identification, and that it is sometimes impossible to recognize a given organism until it is brought into a peculiar environment and has given an appropriate response.

Although the great majority of bacterial variations that have been described belong to the class of apparently adaptive modifications, it now seems likely that true mutations occur. To fit this category they must fill the requirements of appearing suddenly without intermediate stages, of being irreversible, and of not involving all the cells of the parent strain. Jordan describes a bacterial mutation of this sort exemplified in the sudden acquisition of sucrose-fermenting powers by one of a pure line strain of *Bacillus coli*. Cultures of the parent organism grown in sucrose broth for a series of generations as yet have shown no gas or

1. Jordan, E. O.: Variation in Bacteria, Proc. Nat. Acad. Sc., 1915, i, 160.

acid production. The particular mutation noted, therefore, seems to be due, in the words of Jordan, to the intracellular or molecular changes brought about by nonspecific influences and not to a direct adaptation to particular environmental conditions. All who are interested in questions of bacterial identification will appreciate the significance of such contentions. The distinction between an innate capability for certain types of reaction and a true fundamental mutation is not always easy to discover. In relation to the possible pathogenicity of organisms, this comparatively new domain of research calls for special critique and discriminating reserve of judgment. New micro-organisms are sometimes merely old ones in a new guise.

THE NOMENCLATURE OF DRUGS

The decision of the International Commission on Zoological Nomenclature in regard to the name "ancylostoma" has excited lively interest.¹ This seems somewhat singular in view of the general indifference to the nomenclature of drugs. Perhaps it would be better to say that the apathy of the medical profession toward the deplorably chaotic condition of drug nomenclature is singular and requires explanation. Certainly no irregularity and no innovation in the naming of a parasite can produce the harm and inconvenience that result from the haphazard naming of remedial agents.

The first requisite of successful prescribing is to know what one is giving. If the prescriber has not clearly in mind the exact properties and character of the drug prescribed, he does not know that drug. The mellifluous and meaningless name preferred for its "convenience" to a chemically descriptive name is too often an alias, masking the actual relationships of the substance. Thus, whereas the name "diacetylmorphin" tends to remind the user of the dangerous properties of the drug, the convenient name "heroin" has no such associations; undoubtedly the name has conduced to more reckless employment of this habit-forming preparation. The name "atoxyl" was given to sodium arsanilate presumably to indicate its alleged harmlessness; but the preparation has belied its name by exhibiting decidedly poisonous action. The influence of the name must have been both actively and passively mischievous—actively, so far as it seemed to promise innocuousness, and passively so far as it merely disguised the real nature of the drug.

Since the action of drugs depends on their chemical nature, the names should at least suggest the chemical composition and relationship of the substances (as the name "acetanilid," indicating a compound of acetic acid and anilin) or, at any rate, indicate from what they are derived (as the names "cocain" from coca, and "strophanthin" from strophanthus). The ten-

dency toward names like antipyrin (against fever), diuretin (to promote the urinary flow) and migrainin (for headache)—that is, toward names suggestive of a therapeutic use rather than of the actual properties and character of the drugs—is one to be deplored and discouraged. Such monstrosities as "veronal" (said to commemorate the fact that one of the promoters of the drug thought of this name while passing through Verona) and "stovaine" (a pun on a man's name) are objectionable simply because they give no clue to the real character of the substance.

Then in the case of preparations protected only by trademarked names, the financial side comes in. Hexamethylenamin is quoted under this, its correct name, in a current catalogue at 13 cents an ounce; under the proprietary and therapeutically suggestive names "Uritone," "Urotropin" and "Cystogen," at 35 cents, 60 cents and \$1 an ounce, respectively—certainly a high tax for a short name. Theobromin sodium salicylate was for years quoted under its true name at 35 cents an ounce; under the proprietary name "Diuretin," the same substance, not superior in any respect, is quoted at \$1.75 an ounce—an increase of 400 per cent. in price for a name!

Why are arbitrary proprietary names accepted so readily, and correct scientific names rejected? Why do some physicians, for instance, stumble over "phenolphthalein," but readily remember the therapeutically suggestive proprietary name "Purgen"? The difference in the number of syllables is not the sole reason, for the five-syllabled name "acetanilid" has become so familiar that even laymen use it freely.

In the first place, the proprietary name is advertised and the scientific name is not. We have adopted the "catchy" names bestowed by manufacturers, not simply because they are short and therapeutically suggestive, but because they are kept before our eyes, forced on our consciousness and stamped on our memories by advertising.

In the second place, in the past every medical student was compelled to learn anatomy and pathology, and was thus enabled to understand the meaning of anatomic and pathologic terms, no matter how many syllables they contained, whereas chemistry and pharmacology were so slighted that most medical students had little, if any understanding, of the principles of chemical terminology. Such students (now physicians) find no difficulty in remembering the anatomic names "supinator radii brevis" because they understand what each component of the term means; but the U. S. P. name "hexa-methylen-amin," so thoroughly understood by the organic chemist, means nothing to them, and consequently they forget it readily. For this they may be pardoned; but they are less pardonable if they try to make their ignorance a reason against the general adoption of a scientific nomenclature. The younger members of the profession,

1. "Ancylostoma, not Ankylostoma," Current Comment, THE JOURNAL A. M. A., March 27, 1915, p. 1081; Correspondence, April 17, 1915, p. 1346.

moreover — those who have graduated from the better class of medical colleges within the last ten years — ought to feel that an admission that they do not understand such chemical terms is discreditable; it means that they have failed to profit as they should have profited from both their preliminary and their medical education. It is time for the profession generally to realize that an anatomy whose nomenclature depended on the inexact terminology of common speech would be no more discreditable and hampering to modern medicine than a pharmaceutical chemistry similarly bereft of scientific nomenclature. We should eschew the fanciful and therapeutically suggestive names provided by manufacturers. For nonpatented substances, let us use the U. S. P. or other nonproprietary names, and for new patented products, let us insist that names at least suggesting the chemical (not the alleged therapeutic) nature of the drug be adopted.

Current Comment

UREA IN HUMAN SPINAL FLUID

One of the criteria which have been offered as an indication of the genesis of special fluids in the body by a process of true secretion, that is, cell function, instead of mere transudation, is the existence of specific constituents in the product. Pepsin is ordinarily not found in the blood or the lymph; and similarly, other individual enzymes are confined to special secretions in the organism. The boundary lines respecting the distribution of enzymes are perhaps not so strictly drawn as they were a few years ago, but distinct limits of occurrence unquestionably exist. So in the case of other chemical substances, their appearance may be limited to a single fluid, as is that of the lactose of milk. The index of secretion is not limited, however, to the qualitative nature of the product. The dynamic factors of its production are also significant. Whether the cerebrospinal fluid is a true secretion or merely a modified tissue space fluid, or lymph, has not been conclusively determined on the basis of the foregoing principles. Some of the existing evidences have already been reviewed.¹ At one time the cerebrospinal fluid was looked on as unique in that it was supposed to be devoid of some of the soluble constituents characteristics of blood and lymph, notably sugar and some of the inorganic components. Little by little, with the increasing use of lumbar puncture, evidence has been furnished for the abundant presence of such substances for which the walls of the cerebrospinal spaces were once supposed to be impermeable. The latest to be added to the list is urea, the widespread distribution of which has been indicated before.² At the Hospital of the Rockefeller Institute for Medical Research, Cullen and Ellis have shown

that when samples of human blood and spinal fluid are drawn within a few minutes of each other, the differences in the urea content of these two fluids is rarely greater than 2 milligrams per hundred cubic centimeters.³ The greatest difference observed in thirty-two determinations on fifteen different patients was 11 mg. per hundred c.c. of fluid. The urea values varied from 20 to 42, and from 22 to 46 mg. of urea per hundred c.c. of serum and spinal fluid, respectively. These figures all lie within the possible range of normal variation. The occasional difference between the spinal fluid and the blood serum may be due to the rapid rise and fall of blood urea at different stages of protein digestion. From the nature of the processes of production of the spinal fluid, one might expect the changes in its urea content to lag somewhat behind those of the blood. As Cullen and Ellis remark, the results are in accordance with the already well-founded view² that the animal tissues are, in general, osmotically permeable to urea, which therefore tends to reach the same level of concentration in the different body fluids.

PELVIC MEASUREMENTS OF PHILIPPINE WOMEN

There is a traditional belief, supported by statements of scientific observers, that in childbirth among primitive peoples the mothers experience comparatively easy labor. An important, if not dominant factor in bringing about such a result must rest in anatomic conditions, and notably in the relationship in size between the pelvis of the mother and the head of the newly born infant. It has been asserted⁴ that the pelvis of the females of less civilized races is narrower than that of the Caucasian race. A study of pelvimetry and cephalometry among Filipinas undertaken by Dr. Honoria Acosta-Sison⁵ among patients in the obstetric wards of the Philippine General Hospital at Manila has furnished new data on this subject. It shows, by comparison with standard measurements made in the United States and elsewhere, that the diameters of the Filipino pelvis are shorter than those of the American or European pelvis. The relation of one diameter to another is altered in such a way that the proportion of the crests with the spines in the Filipino pelvis is much smaller than the proportion of the same diameters in the European or American pelvis, and that the proportion of the diagonal conjugate with the other diameters in the Filipino is very slightly larger than in the American. These facts, elicited by measurements of 117 cases, would seem to show that the Filipino pelvis is narrower and relatively deeper than the American pelvis. This diminution may be explained by the smaller stature of the Filipinas. More striking, however, is the observation that despite the smaller pelvis, the trans-

3. Cullen, G. E., and Ellis, A. W. M.: The Urea Content of Human Spinal Fluid and Blood, *Jour. Biol. Chem.*, 1915, xx, 511.

4. Riggs: A Comparative Study of White and Negro Pelvis with a Consideration of the Size of the Child and Its Relation to Presentation and Character of Labor in the Two Races, *Johns Hopkins Hosp. Rep.*, 1904, xii, 421.

5. Acosta-Sison, Honoria: Pelvimetry and Cephalometry among Filipinas, *Philippine Jour. Sc., Sec. B*, 1914, ix, 493.

1. The Production of Cerebrospinal Fluid, editorial, *THE JOURNAL A. M. A.*, March 28, 1914, p. 1018; The Cerebrospinal Fluid, Nov. 14, 1914, p. 1764; Cushing, Harvey; Weed, L. H., and Wegefarrth, P.: *Jour. Med. Research*, 1914, xxxi, 1.

2. The Distribution of Urea in the Body, editorial, *THE JOURNAL A. M. A.*, Sept. 26, 1915, p. 1115.

verse diameter of the pelvic outlet in the Filipinas is the same as that of the Caucasian race. The relative enlargement of the outlet is explained by Acosta-Sison as the outcome of the habitual squatting position that the Filipino assumes, and by the fact that the custom of carrying of children astride the mother's or nurse's hip may also have an effect toward enlargement of the transverse diameter. The cephalic diameters of the Filipino children are smaller than those of Americans, and thus they are proportionate to and compensate for the smaller maternal pelvis.

AMERICAN SANITARY MISSIONARIES

A note from Dr. Samuel T. Darling, mailed at Gibraltar, announces his safe arrival to that point on his journey to Asia. It will be remembered that Dr. Darling was appointed as a member of the International Commission, Rockefeller Foundation, to investigate the cause of anemia in Malay. He has been connected for about ten years with the health administration in Panama—the work which set a standard for the world to follow. It is significant that the men connected with that work are being selected to act as missionaries in carrying to other parts of the world the efficiency of service there displayed. The work of Dr. Darling had already been recognized abroad by an honorary fellowship in the Society of Tropical Medicine and Hygiene of London, and a corresponding membership in the Société de Pathologie Exotique de France, the latter for his discovery of *Trypanosoma hippicum*. The discovery of this organism was followed by a complete investigation, which yielded a method of immunizing against this type of trypanosomiasis of mules, horses and other animals, and the knowledge that the disease was transmitted in corrals by the common house-fly. Dr. Darling accompanied Major-General Gorgas to the Rand and Rhodesia, and took part in the studies made there. The best wishes of his colleagues go with him to his new field of endeavor.

ONCE MORE A WARNING!

There is continually coming to this office evidence of the fact that doctors are still allowing themselves to be swindled by unauthorized solicitors under various representations. Evidence has been received that at least ten physicians have been victimized by these persons during the last six weeks. One active worker calling himself E. B. Huntington carries blanks bearing the name of the National Educational Association, 130 Nassau Street, New York City. As we have intimated before, there is no such association at that address. Two checks bearing the endorsement of this individual have been received this week. In one Huntington inserted his own name, making the check payable to him "or to the American Medical Association"—a pure case of forgery; in the other case the doctor apparently was inveigled into making the check payable to Huntington direct. In the latter case the doctor wrote "for the American Medical Association," evidently supposing that this would protect him. Huntington is not the only man who is

traveling over the country working doctors and others. May we suggest that those who would avoid being swindled should not pay money to traveling men whom they do not personally know? Checks should not be made payable to any person, but to the concern the person claims to represent; and even then one should be very sure that there actually is such a concern. Money should not be paid to any one claiming to represent the American Medical Association unless he carries credentials bearing the signature of the Editor and General Manager and the seal of the Association.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ILLINOIS

Personal.—Dr. William P. Davidson, Sullivan, sustained a fracture of the clavicle by the overturning of his automobile near Danville, May 14.—Dr. Edmund A. Behrendt, Bloomington, who has been ill in St. Joseph's Hospital, is reported to be improving.—Dr. Isaac L. Beatty, Fairview, has been appointed an internal revenue collector and inspector under the Harrison law.—Dr. James A. Boyer, Carmi, injured his arm seriously while cranking his automobile, May 10.

State Medical Society Meeting.—At the sixty-fifth annual meeting of the Illinois State Medical Society held in Springfield, May 18 to 20, the following officers were elected: president, Dr. Charles W. Lillie, East St. Louis; president-elect, Dr. William L. Noble, Chicago; vice-presidents, Drs. Fred S. O'Hara, Springfield, and Henry P. Beirne, Quincy; secretary, Dr. Wilbur H. Gilmore, Mt. Vernon (reelected); and treasurer, Dr. Andrew J. Markley, Belvidere (reelected). The next annual meeting will be held in Champaign in May, 1916.

Lax State Health Laws.—After a three-months investigation of health conditions in Illinois by Surg. Samuel B. Grubbs, U. S. P. H. S., the Illinois State Board of Health, health laws of the state and the attitude of the people of Illinois toward the betterment of conditions are criticized severely. Recommendations are made that the State Department of Health should be reorganized by establishing the following divisions: communicable diseases, sanitation, vital statistics, publicity and education and examination, registration and accounts. The state, outside of Chicago, should be divided into at least eight districts with an inspector in each; a sanitary engineer should be named; births and deaths should be registered; the board should be notified of certain diseases, and vaccination should be required as a prerequisite to school attendance; occupational diseases should be studied; factories should be inspected, and communicable diseases should be placed under a stricter control. The practice of licensing itinerant medicine vendors is vigorously condemned. The recommendation is made that the State Board of Health should be given supervision over the entire system of dairy inspections and, in conclusion, a vigorous campaign of sanitary education for the people of the state is urged.

Chicago

New Psychopathic Hospital.—Drs. Harold N. Moyer, Hugh T. Patrick and Sydney Kuh have been appointed a committee to investigate the new Psychopathic Hospital and to make recommendations for its utilization. The county board will then be asked to make the necessary appropriation for carrying on the work.

Play and Recreation.—On May 19 a special meeting of the City Club was devoted to a discussion of play and recreation in Chicago, and a special exhibit of Chicago's school parks and properties was held. Papers were read by the mayor, members of the park commission, principals of the schools, and several invited authorities on playground subjects.

Personal.—Dr. Wallace K. Harrison has been elected a director of the Western Unitarian Conference.—It is

announced that Mayor Thompson has decided to retain Dr. Theodore B. Sachs at the head of the Municipal Tuberculosis Sanatorium.—Dr. and Mrs. Anders Doe celebrated their silver wedding anniversary May 17.—Dr. Julius Gottlieb is reported to be seriously ill with pneumonia.—Dr. Robert L. I. Smith has arrived in Bordeaux on the Steamer *Espagne*.—Dr. James W. Walker has been placed in charge of a military hospital in London and will sail for England in a few days.—Dr. R. C. Crumpton, for the past year connected with St. Luke's Hospital, has removed to Webster City, Iowa.

The Chicago Unit for Service Abroad.—The following physicians have already volunteered for service in the field hospital organization under the charge of Dr. James M. Neff, chief of staff: Drs. Philip S. Chancellor, Earl P. Ball, Robert B. Acker, Elbert L. Cavenee, Philip M. Dale, Joseph J. Hilton, R. B. Haven, A. H. Hixon, Frederick C. Jacobs, Daniel F. Hayes, John G. O'Malley, Charles A. Maghy, William A. McGuire, C. R. Stanley, S. Walker, George G. Davis, G. E. Meyer, and the following out-of-town physicians have volunteered, Drs. John S. Fox, Silverton, Colo.; Lee Edgar and Waldo Richardson, Seattle, Wash.; R. D. Long and J. K. McLean, Oklahoma City; C. S. Smith, Kalispell, Mont.; S. Terrall, Dallas, Tex.; J. R. Taylor, Madison, Wis.; W. J. Uppendahl, Peoria, Ill.; R. L. Thompson, St. Louis, and George P. Gill, Rockford. Headquarters of the Chicago unit have been established at rooms 237-238 Monadnock Building, and are open from 2 to 6 each day.

MARYLAND

Honor to Councilman.—A banquet was given May 13, by his former students and friends, in honor of Dr. William T. Councilman, formerly of the medical faculty of Johns Hopkins and now of Harvard Medical School. At the banquet a portrait of Professor Councilman was presented to him. The presentation address was made by Dr. Charles W. Mitchell, Baltimore, and Dr. William S. Thayer acted as toastmaster.

Special Medical Department Established.—Dr. Winford H. Smith, Baltimore, superintendent of Johns Hopkins Hospital, announces that a gift of \$16,500, to be paid in three yearly installments, has been made by John D. Rockefeller, Jr., to be used for a special medical department at the hospital, to be established in September for the treatment of contagious diseases, with special reference to syphilis. The money is donated through the Rockefeller Bureau of Social Hygiene. The work of the clinic will be in charge of a committee consisting of Drs. George Walker, Theodore C. Janeway and Smith, and the dispensary will be in charge of Dr. Albert Keidel, Baltimore.

Personal.—Dr. Roscoe W. Hall has succeeded Dr. David K. Henderson as resident physician of the Phipps Clinic of Johns Hopkins Hospital. Dr. Henderson has been appointed superintendent of the Royal Asylum of Scotland, Glasgow, and will assume his new duties about June 1. He sailed for Glasgow May 15. Dr. Charles B. Thompson, Baltimore, has been appointed first assistant resident physician at the Phipps Clinic.—Dr. Walter L. Nicholls, Baltimore, underwent operation at Mercy Hospital, May 13, and is reported to be doing well.—Dr. Paul M. Stewart, U. S. P. H. S., has been assigned to take charge of the branch office in Baltimore during the absence of Surg. James A. Nydegger, Baltimore, who sailed for Europe recently to study medical conditions abroad.—Senior Surg. Henry R. Carter, superintendent of the United States Marine Hospital, Baltimore, and government sanitary expert, is recovering from a slight operation. He leaves shortly for the South where he will engage in sanitation work in the malaria districts of Alabama, Georgia and other Southern states for the next three months. During Dr. Carter's absence, Surg. Charles W. Vogel will be in charge of the hospital.

NEBRASKA

State Board Changes.—Governor Moorhead on May 20 appointed Dr. Lucien Stark, Hartington, secretary of the State Board of Health, succeeding Dr. Porter F. Dodson, Wilber, removed.

Correction.—In THE JOURNAL for May 22, it was announced that the state hospital building to be erected on the campus of College of Medicine of the University of Nebraska, Omaha, would cost with equipment, \$50,000. The state legislature has appropriated \$50,000 for the erection of the building and the equipment is not included in this sum. The hospital is to be a teaching hospital for the University of Nebraska, under the control of the board of regents, and is to receive indigent patients from the entire state.

State Association Meeting.—At the forty-seventh annual meeting of the Nebraska State Medical Association held in Hastings, May 18 to 20, under the presidency of Dr. John P. Gilligan, O'Neill, the following officers were elected: president, Dr. Edward W. Rowe, Lincoln; vice-presidents, Drs. Arthur C. Stokes, Omaha, and James V. Beghtol, Hastings; secretary, Dr. Joseph M. Aikin, Omaha (reelected); treasurer, Dr. Alexander S. von Mansfelde, Ashland (reelected); librarian, Dr. William P. Wherry, Omaha; delegates to the American Medical Association, Drs. Albert R. Mitchell and Artemas I. Mackinnon, Lincoln; alternates, Drs. Francis A. Long, Madison, and Burton W. Christie, Omaha; councilors, first district, Dr. B. Potts, Omaha; second district, Dr. Henry J. Lehnhoff, Lincoln; third district, Dr. Ira H. Dillon, Auburn; fourth district, Dr. Lucien Stark, Hartington; fifth district, Dr. Robert C. Byers, Nickerson; sixth district, Dr. John C. Malster, Stromsburg; seventh district, Dr. Wesley L. Curtis, Fairburg; eighth district, Dr. Patrick J. Flynn, O'Neill; ninth district, Dr. Miles S. Moore, Gothenburg; tenth district, Dr. Claude B. Calbreath, Hastings; eleventh district, Dr. Axel E. Hedlund, Dalton, and twelfth district, Dr. Alfred J. Stewart, Mitchell. The next meeting of the association will be held in Omaha.

NEW YORK

Tuberculosis Ward for Penitentiary.—In the Clifton prison there are said to be 407 convicts suffering from tuberculosis while there are only eighteen beds for tuberculosis patients. For this reason the governor has approved an appropriation for \$75,000 for the erection of a general hospital containing a tuberculosis ward.

Reunion of University.—The fortieth annual reunion of the Alumni Association of the Medical Department of the University of Buffalo will be held in Buffalo June 1 to 4. On the first day there will be class reunions of the classes graduated five years and multiples of five years ago, and luncheons. On the second and third days, there will be scientific sessions and the annual business meeting. On Thursday evening, the alumni banquet will be held and on Friday morning, the graduating exercises will be held at the Teck Theater.

Fines for Quacks.—Of the 53 persons arrested several weeks ago in a campaign started by the district attorney, the police and the Medical Society of the County of New York against alleged fake medical museums, 23 were arraigned in special sessions on May 21. Six of the defendants were fined amounts ranging from \$500 to \$150. The others, who were merely employees, were released on suspended sentences. The defendants agreed to vacate the premises they had been occupying, not to advertise, to destroy exhibits in the museums, and not to permit unlicensed men to represent themselves as physicians.

Will Not Cut State Hospital Appropriations.—Governor Whitman announces that he will not veto the request for about \$1,250,000 in the supply and construction bills of the state hospitals. Dr. William Mabon, superintendent of the Manhattan State Hospital and ex-state health commissioner, recently appeared before the governor and showed why this large appropriation was required. His data shows that the average overcrowding in the state hospitals is 22 per cent. and the overcrowding in the Manhattan State Hospital is 30 per cent. There are at present 1,400 more inmates than are provided for by the capacity of the buildings.

Rochester Has Clean-Up Week.—The Public Health Committee of the Rochester Chamber of Commerce had a "clean-up week," beginning May 16. Thirteen teams were appointed for the purpose of inspecting the city conditions, each team consisting of one member of the public health committee, one member of the fire prevention committee, and one uniformed fireman. A circular listing all known methods of getting rid of rats, mice, flies and mosquitoes was prepared by the committee. In addition, 15,000 clean-up "ticklers," indicating numerous specific localities that might profitably be inspected, were distributed in the schools and the children were asked to examine their own homes and surroundings and record the conditions that should be remedied and what they have done to improve them.

Vaccination Campaign.—Under the title "The Mutilated Vaccination Law" a writer in the *Bulletin* of the Health Department discusses the menace in the amendment of the vaccination law which does not make vaccination compulsory for school children excepting in cities of the first and second class, "unless smallpox exists in any other city or school district or in the vicinity thereof and the state commissioner of health shall certify in writing to the school authorities" that smallpox exists. Under this law the school children of the

city will be protected in a fairly satisfactory degree, but the adult population with its immense quota of immigrants and visitors is by no means protected. A vigorous campaign for the protection of the adult population will be conducted.

New York City

Guarding Against Typhus.—Owing to the reported prevalence of typhus fever at Greek ports, eighty-two steerage passengers who arrived on the Steamer *Patris*, May 16, were held at quarantine for observation.

Arbuckle Memorial Building Opened.—The Arbuckle Memorial, completing the north wing of the Long Island College Hospital, Brooklyn, was opened May 24. The wing is five stories in height, 210 by 34 feet, and cost \$250,000. It was presented to the hospital in memory of the late John Arbuckle by two of his sisters. The new building will house 171 male patients and, besides the wards and private rooms, it contains a clinical laboratory for 45 medical students and three research laboratories. The addition of this wing completes the physical plant of Long Island College Hospital, valued at two million dollars. The institution now has seven buildings devoted to the education of medical students and to the care of the sick, with accommodation for nearly 500 patients.

Personal.—The degree of Doctor of Laws was conferred on Dr. Simon Flexner by Johns Hopkins University on May 20.—Dr. Lucien P. Brown, state food and drug commissioner of Tennessee, has been appointed director of the bureau of food inspection in the Department of Health at a salary of \$5,000 per annum.—Dr. and Mrs. George Paul have sailed for Liverpool on the *St. Paul*.—Dr. Robert T. Irvine, Ossining, was seriously injured by the overturning of his automobile near Ossining, May 15.—Dr. Benjamin Schwartz has been appointed to fill the vacancy in coroner's physicians caused by the resignation of Dr. Otto H. Schultze.—A dinner was tendered to Dr. A. L. Wolbarst on May 12 by the physicians who had attended his genito-urinary clinics at the West Side German Dispensary and Hospital, during the winter session.

NORTH DAKOTA

Hospital to Be Built.—The commissioners of Mercer County have accepted the proposition of the citizens of Hazen to erect a county hospital at that place to cost about \$10,000. The citizens of Hazen will erect the building and install the heating and lighting plant, and the county will furnish and maintain the institution until it becomes self-supporting.

State Association Meeting.—At the twenty-eighth annual meeting of the North Dakota State Medical Association held in Bismarck, May 11 to 13, under the presidency of Dr. R. Hudson Beek, Lakota, the following officers were elected: president, Dr. Victor H. Stickney, Dickinson; vice-presidents, Drs. Victor J. LaRose, Bismarck; George M. Williamson, Grand Forks, and Edgar A. Pray, Valley City; secretary, Dr. Hezekiah J. Rowe, Casselton (reelected); treasurer, Dr. William F. Sihler, Devils Lake; councilors, Drs. Allan L. Nicholson, Max; William P. Baldwin, Casselton; Gustave Golseth, Jamestown, and Charles MacLachlan, New Rockford; delegate to American Medical Association, Dr. Charles S. Crane, Grand Forks; alternate, Dr. James P. Aylen, Fargo.

The association recommended for the State Medical Examining Board, the names of Drs. Hugo O. Altnow, Mandan; B. Lyle Meigs, Edgerley, and Henry G. Woutat, Grand Forks. Devils Lake was selected as the next place of meeting.

PENNSYLVANIA

Jefferson Alumni Meeting.—More than seventy-five graduates of Jefferson Medical College and members of the southern chapter of the Jefferson Alumni Association met in York, May 13, and elected Dr. Martin L. Welford, Harrisburg, president, and Dr. J. Harvey Miller, York, secretary-treasurer. Harrisburg was selected as the place for the all-day clinic and meeting next year.

Summer Course in Anatomy.—The department of anatomy of the school of medicine of the University of Pittsburgh, announces that it will give six summer courses in anatomy this year, from July 5 to August 28, inclusive. These courses are in gross anatomy; cytology, histology and splanchnology; hematology; embryology; neurology, and anatomy of the eye, ear, nose and throat.

Antivivisectionists Lose Again.—An attempt made in the house, May 18, to destroy the effect of the Gerberich bill, which allows vivisection of animals in the interests of science, was voted down, 75 to 50. The bill has passed the senate

and is now on third reading in the house. The bill provides for the sale, distribution and use "for the promotion of biological science and for the discovery of new methods of treatment in medicine and surgery" of unclaimed animals in the public pounds. The amendment offered today provided that the bill should apply to animals "except dogs and cats." As this practically would have destroyed the purpose of the measure, it was voted down.

Personal.—Dr. Samuel A. Silk, for the last two and one-half years a member of the staff of the Pennsylvania State Sanatorium, Mt. Alto, has resigned to take up private practice in Sharon.—Dr. Robert Kilduffe, Jr., has been elected director of the pathological department of the Chester Hospital.—Dr. Henry J. Lacier, Bethlehem, underwent surgical operation at Johns Hopkins Hospital, May 6.—Dr. Charles H. Smith has been elected a member of the medical staff of the York Hospital.—Dr. Thomas C. Detwiler, Lancaster, sustained a comminuted fracture of the leg and other severe injuries by the overturning of his automobile near Lancaster, April 30.

Dixon Reappointed.—Dr. Samuel G. Dixon, Philadelphia, whose renomination as state commissioner of health was sent to the senate by the governor, May 17, was confirmed by that body, May 18. This is the third reappointment of Dr. Dixon to this responsible position and he has completed nearly ten years of valuable service to the commonwealth in this position. Under his direction the department of health has attained high rank among the public organizations of the country and its activities have reached all sections of the state. In the campaign against tuberculosis, 115 tuberculosis dispensaries have been established and three state sanatoriums have been constructed under Dr. Dixon's supervision. Since he assumed charge of the health department, the death rate from typhoid fever has decreased more than 75 per cent.

Philadelphia

Hospital Opened.—The new home of the Babies' Hospital of Philadelphia, Manoa Road near Llanerch, was formally opened May 15.

Rodman Honored.—The annual social evening of the West Branch of the Philadelphia County Medical Society was held at the Hotel Marlyn, May 17, and Dr. William L. Rodman was the guest of honor.

Personal.—Dr. Simon Wendcos has been elected a director of the Hebrew Literary Society.—Dr. William H. E. Wehner has been appointed medical director of the Fidelity Mutual Life Insurance Company, succeeding Dr. William H. King, resigned.

Municipal Courts New Clinic.—A clinic for inebriates has been introduced by the chief probation officer of the Domestic Relations Court, under which men addicted to drink and brought before the court or complained of by their wives, can undergo medical treatment. Dr. John Wanamaker, third city police surgeon, has volunteered his services.

Commencement.—The sixty-fifth anniversary and annual commencement exercises of the Woman's Medical College of Pennsylvania will be held Wednesday, June 2, at the Garrick Theater. The alumni conference of the college will be held June 4 and 5. Among the speakers at the commencement exercises will be Dr. Richard C. Cabot of Harvard University, the originator of social service work in connection with hospitals.

Philadelphia Contingent for Paris.—The Philadelphia contingent for service in the American Ambulance Hospital at Neuve will sail for Europe, June 12. Dr. J. William White will be executive head of the expedition; Dr. James P. Hutchinson, surgeon; Dr. Daniel J. McCarthy, neurologist; Drs. Edmund B. Piper, Walter Estell Lee, Arthur E. Billings and Peter McCall Keating, assistant surgeons, and Dr. Samuel Goldschmidt, bacteriologist. Four nurses will also accompany the party.

Doctors Volunteer for War.—The names of six physicians who have volunteered for the medical unit of thirty doctors now being raised by William Potter, former minister to Italy, for war medical service in France, have been made public. Those accepted are, Drs. John F. McCloskey, Frank C. Abbott, John A. Murray, Patton, Pa.; LeSieur Weir, Philadelphia; Edward L. Moore, Statesboro, Ga., and Alvin M. Struse, Roxborough. Dr. Charles E. de M. Sajous has made a conditional offer to join the unit, provided the situation between the United States and Germany does not become acute and war threaten.

Jewish Hospital's Semicentennial.—The fiftieth anniversary of the Jewish Hospital, which really occurred February 15 last, will be observed with impressive ceremonies on Memorial Day, when Governor Brumbaugh and other prominent men will take part in the exercises. Since the opening, fifty years ago, 33,248 patients have been treated in the hospital, 1,259 in the Lucien Moss Home, 3,300 in the Guggenheim annex, and nearly 164,000 in the dispensary. The cost of maintenance in 1865 was less than \$5,000, while during the last year it was more than \$149,000. In 1865 there was but one medical assistant, while at present there is a chief resident, with six assistants, and eighty-eight consulting physicians and surgeons.

Clean-Up Week.—So as to carry clean-up week into slum homes in the foreign section of the city, a group of women physicians from the Woman's Medical College has carried on an active campaign of sanitation, the out-patient department of the college being used for headquarters. The foreign settlement in the neighborhood was divided into sections to each of which a physician and one or more nurses was appointed. These started an energetic house-to-house canvass, urging the householders to clean and air their homes; disinfect sinks and drains and to clean up alleys and yards, etc. The committee in charge of this work consisted of Dr. Alice W. Tallant, chairman, and Drs. Theodore LeBoutillier, Ellen C. Potter, Leo H. Bernd, Katherine Radley, Helen H. Taylor and Jennie Severine.

CANADA

Health Inspector Killed.—Among the list of the killed in action, May 11, appears the name of Private Joseph H. Jones, formerly health inspector for the municipality of Assiniboia.

Public Hygiene Instruction.—The first class in public hygiene instruction under the direction of St. John's Ambulance Association was held May 10 in Saskatoon. Dr. John A. Valens was the lecturer of the evening.

Meeting Cancelled.—The annual meeting of the Canadian Association for the Prevention of Tuberculosis, which was to have been held in Vancouver at the same time as the Canadian Medical Association, has been cancelled until after the war.

Fraternity Cemented.—The council of the College of Physicians and Surgeons of Manitoba has been successful in its negotiations with Great Britain for reciprocity and now it is announced that graduates of the Manitoba Medical College may practice anywhere in the British dominions without further examination.

War Notes.—Capt. David Smith, M.D., Stratford, Ont., has been appointed to command the field hospital of the Thirty-Third and Thirty-Fourth Overseas Battalions at London Concentration Camp.—Vancouver, B. C., has offered to equip a general hospital of 1,040 beds for service abroad. It is to consist of 35 surgeons, 75 nurses and 200 men.—A Western contingent of the Canadian Army Medical Corps left Halifax, N. S., early in April. It comprised detachments from Victoria, Vancouver, Edmonton, Calgary and Winnipeg.—Dr. Neiley, New Glasgow, N. S., is serving with one of the hospitals in France.—Dr. Charles M. Burroughs, Sudbury, Ont., has enlisted for service in the Army Medical Corps.—Dr. Howard Ferguson, Toronto, is serving as surgeon on one of the English Channel transports.—Drs. Robert H. Smith, Wickware and William M. Brown, Moose Jaw, Sask., have received appointments in the Royal Army Medical Corps.—Dr. William R. Mason, Parry Sound, Ont., has volunteered for service with the St. John's Ambulance Corps in France.—Dr. Andrew Croll, Saskatoon, Sask., has left for hospital service, probably in Havre, France.—Major David A. Clark, Toronto, was among the wounded at Langemarck.—The divisional officers of the second Canadian contingent have been named. Lieut.-Col. John Taylor Fotheringham, Toronto, is named assistant director of medical services, and Major Jacques, Ottawa, deputy assistant director of medical services.—Dr. Herbert A. Bruce, Toronto, tendered a goodbye reception to the Toronto University Base Hospital on the afternoon of May 13. Lieutenant-Colonel Roberts was present with his staff, and some eighty nurses. The hospital required \$30,000 for equipment. They obtained some \$80,000, the Fulford estate, Brockville, Ont., contributing \$40,000. In addition a woman of Cleveland, Ohio, donated a handsome limousine for convalescent soldiers.—Lambton County (Ont.) medical men offer to furnish a general hospital of 200 beds for the use of the Canadian militia in France.

Personal.—Dr. Reginald de Lothbiniere-Harwood, Edmonton, Alta., has been gazetted lieutenant-colonel and placed in command of the Fifty-First Battalion and has volunteered

for overseas service.—Dr. Angus W. McPherson, medical officer of health of Peterboro, who left to join the army medical service May 10, was presented on the evening before with a silver tea service on behalf of the various civic bodies of Peterboro.—Dr. F. F. Wesbrook, president of the University of British Columbia, was entertained in Minneapolis, May 8, while on his way from the East to Vancouver.—Dr. Alexander Fisher, Calgary, Alta., has been appointed superintendent of the Calgary hospitals.—On April 30, Drs. J. J. Field and Warren A. Dakin, Regina, who have been appointed to the Royal Army Medical Corps, were given a banquet by the medical fraternity of the city.—Dr. H. V. Robinson, for three and one-half years a member of the medical staff of the Protestant Hospital for the Insane, Verdun, Que., resigned to accept a position in Montreal.—Dr. Darius A. Coon, Elgin, Ont., has been appointed superintendent of the General Hospital, Kingston, Ont., in succession to Dr. Harry A. Boyce, resigned.—Dr. John P. Sinclair has been appointed medical officer of health of Gananoque, Ont.—Dr. John W. S. McCullough, chief medical officer of Ontario, has been appointed assistant sanitary expert to the International Waterways Commission.—Dr. John D. Courtney, Ottawa, has been appointed a special member of the Canadian medical force at the front to look after wounds and diseases affecting the eyes, ears, noses and throats of soldiers.—During the absence abroad of the editor, Dr. Andrew Macphail, Montreal, and the general secretary, Dr. William W. Francis, Montreal, the Canadian Medical Association and its *Journal* will be conducted by Drs. George Gordon Campbell and John W. Scane, Montreal. The former for many years edited the *Montreal Medical Journal*, and the latter is registrar of the medical department of McGill University.—President Falconer of the University of Toronto and Prof. Irving Howard Cameron deny that the latter has tendered his resignation. Mr. Cameron has announced that after his long service, he is contemplating resigning.—Dr. John L. Chabot, M. P., for the city of Ottawa, was a passenger on the torpedoed *Lusitania*, and so far no report has been received of his survival.—Major Thomas Bedford Richardson, Toronto, who has recovered from a prolonged illness dating from September last, has taken up his military duties and has been placed in charge of the hospital at Exhibition Camp, Toronto.—Dr. W. J. Gibson, Belleville, Ont., is said to be seriously ill.—Dr. William Gunn, Clinton, Ont., has gone on a trip to the Panama-Pacific Exposition.

GENERAL

Climatologists to Meet.—The American Climatological and Clinical Association will hold its thirty-second annual meeting in San Francisco, June 18 and 19, under the presidency of Dr. Henry Sewall, Denver.

Federation Moves.—The Scientific Temperance Federation announces the removal of its headquarters and library and also the editorial department of the *Scientific Temperance Journal*, to 36 Bromfield Street, Boston, Mass.

Tuberculosis Foes to Meet in Seattle.—The annual meeting of the National Association for the Study and Prevention of Tuberculosis will be held in Seattle, June 14 to 16. Thus far, twenty-one states and the province of British Columbia have signified their intention of sending delegates.

Mid-West Specialists Hold Meeting.—The Mid-West Academy of Ophthalmology and Oto-Laryngology held its first semi-annual meeting in Joplin, Mo., May 24, under the presidency of Dr. John D. Pifer, Joplin. President and Mrs. Pifer entertained the members at dinner in the evening of May 24.

American Gastro-Enterological Association.—At the executive session, the following officers were elected for the ensuing year: president, Dr. Charles G. Stockton, Buffalo; first vice-president, Dr. William J. Mayo, Rochester, Minn.; second vice-president, Dr. Ludwig W. Kast, New York City; secretary and treasurer, Dr. Franklin W. White, Boston.

New Officers for Neurologists.—At the annual meeting of the American Neurological Association held in New York City, May 13 to 15, the following officers were elected: president, Dr. Llewellys F. Barker, Baltimore; vice-presidents, Drs. Herman H. Hoppe, Cincinnati, and John J. Thomas, Boston, and secretary-treasurer, Dr. Alfred Reginald Allen, Philadelphia.

Immunologists Hold Meeting.—The second annual meeting of the American Association of Immunologists was held in the New Willard Hotel, May 10, and the following officers were elected: president, Dr. James W. Jobling, Nashville,

Tenn.; vice-president, Dr. George P. Sanborn, Boston; secretary, Dr. Martin J. Synnott, Montclair, N. J.; and councilor, Dr. John A. Kolmer, Philadelphia.

Medical Milk Commissions to Meet.—The ninth annual conference of the American Association of Medical Milk Commissions will be held in San Francisco, June 17 to 19, under the presidency of Dr. Thomas C. McCleave, Berkeley, Cal. The headquarters will be at the Hotel Bellevue and the sessions will be held in the Municipal Auditorium, San Francisco, and the University of California, Berkeley.

Examination of Dentists for Army.—The Surgeon-General of the Army announces that examinations for the appointment of twelve acting dental surgeons will be held at Fort Slocum, N. Y.; Columbus Barracks, Ohio; Jefferson Barracks, Mo.; Fort Logan, Colo., and Fort McDowell, Calif., Oct. 18, 1915. Before October 4, application blanks and full information can be procured by addressing the "Surgeon-General, U. S. Army, Washington, D. C."

Canal Zone Personal.—Dr. Alfred G. Farmer, Gatun, who has been in the service of the Panama Canal since August, 1905, has resigned, to take effect May 31, and will return with his family to the United States. Dr. Farmer has served in both the Ancon and Colon hospitals, as district physician at Corozal and Gatun, and during the last year has been chief of the medical service of the Colon Hospital.—Dr. Edward P. Beverly has reentered the Canal service and has been assigned to duty as chief of the medical service of the Colon Hospital.

Southern Sociologists Hold Meeting.—At the annual meeting of the Southern Sociologic Congress in Houston, May 10, Dr. Oscar Dowling, New Orleans, was elected first vice-president, and Dr. J. W. Dillard, Lynchburg, Va., a member of the executive committee; and the following committee on medical profession and health was selected: chairman, Dr. Watson S. Rankin, Sanatorium, N. C.; secretary, Dr. Lewis B. McBrayer, Asheville, N. C.; and Dr. Powhatan S. Schenck, Norfolk, Va.; Surgeon Rudolph H. Von Ezdorf, U. S. P. H. S., New Orleans; Dr. Khleber H. Beall, Fort Worth, Tex.; Dr. Charles W. Garrison, Little Rock, Ark., and Miss Mary Gearing, Austin, Tex.

Medico-Psychological Association Annual Election.—The seventy-first annual meeting of the American Medico-Psychological Association was held in Old Point Comfort, Va., May 11 and 12, under the presidency of Dr. Samuel E. Smith, East Haven, Ind. The following officers were elected: president, Dr. Edward N. Brush, Towson, Md.; vice-president, Dr. Charles G. Wagner, Binghamton, N. Y.; secretary-treasurer, Dr. Henry C. Eyman, Massillon, Ohio, and executive council, Drs. Samuel E. Smith, East Haven, Ind.; Charles P. Bancroft, Concord, N. H.; Arthur P. Herring, Baltimore, and James M. Forster, Toronto, Ont. New Orleans was selected as the next place of meeting.

Internists Elect Officers.—The annual meeting of the Association of American Physicians was held in Washington, D. C., May 11 to 13, and the following officers were elected: president, Dr. Henry Sewall, Denver, Colo.; vice-president, Dr. George Dock, St. Louis; secretary, Dr. George M. Kober, Washington, D. C.; recorder, Dr. Thomas McRae; treasurer, Dr. J. P. Crozer Griffith, Philadelphia; member of the executive committee of the Congress of American Physicians and Surgeons, Dr. Theodore C. Janeway, Baltimore; and alternate representative, Dr. Richard P. Strong, Boston. The thirtieth anniversary dinner of the Association was held May 12, at which Dr. George M. Kober presided.

Pennsylvania Optometry Bill Vetoed.—The Pennsylvania Legislature recently passed a bill providing for a separate board of examiners for "optometrists" which Governor Brumbough promptly vetoed. In his veto message the governor said: "This board is created in a way that is contrary to all precedent. To limit the executive in his appointments to a professional body to whom is entrusted the conservation of human vision by compelling and directing him to appoint only those selected by the executive committee of a society that has no obligation or responsibility to the people, and a society whose members are in no legal way related to the people at large is contrary to the policy of law. Only members of said society would be eligible to place on the board, notwithstanding the fact that there may now be and in the future there may arise other societies whose functions it is or may be with equal competence to administer to the human eye. In the formation of other state boards the executive is not so limited and no reason has been given me why this limitation should be made. The judgment and the discretion

of the executive cannot be delegated to legally irresponsible bodies. This restriction is fundamentally wrong.

"There is no convincing reason why those practitioners should not voluntarily place themselves under the existing licensing body of the commonwealth. . . . The standards of professional service in this commonwealth are and have been high. We are a center of professional services of the most commendable standards. These standards must be safeguarded and exalted. No official act of the commonwealth should in any way lessen the standards of admission to a professional career in this commonwealth nor the standards of professional training to fit for technical service. The human eye is priceless. The care and treatment is a sacred service. The sanction of the state, which is the sanction of the people, cannot be lightly bestowed."

Bequests and Donations.—The following bequests and donations have recently been announced:

St. Luke's Hospital, New York City, \$3,000 for a bed for the use of Grace Church, by the will of Miss Adelaide Hamilton.

St. Francis' and St. Mark's hospitals, New York City, each \$500 by the will of Xavier Steultzle.

American Theatrical Hospital, Chicago, \$7,000, the proceeds of a benefit performance, May 9.

Harvard Medical School, \$10,000 for the endowment of a scholarship; Instructive District Nurses Association, Boston, \$24,000, to support a nurse under the direction of the Boston Lying-In Hospital by the will of Fannie Bartlett, Boston.

Seton Hospital for Consumptives, New York City, \$26,787, Service for the Relief of Incurable Cancer; St. Agnes' Hospital and Misericordia Hospital, each \$5,000 by the will of Catherine Reilly, New York City.

Presbyterian Hospital, New York City, one-half of the residuary estate of \$137,244, on the death of his wife, by the will of Frederic Baker, New York.

Hospital of the Protestant Episcopal Church, Philadelphia, \$10,000; Pennsylvania Hospital, \$5,000; Protestant Episcopal Home for Consumptives, \$5,000; Christ's Church Hospital, Philadelphia, \$10,000, on the death of her sister-in-law, by the will of Sally Robert Smith.

University Hospital, Philadelphia, \$5,000, for the endowment of a free bed to be known as the Dr. John Neill bed in memory of her father, by the will of Patty D. Neill.

Home for Crippled Children, \$2,000, by the will of Emma Paul.

St. Louis University School of Medicine, the estate of James Campbell, valued at from \$6,000,000 to \$10,000,000, subject to the life tenure of his wife and daughter.

Miami Valley and St. Elizabeth's hospitals, Dayton, Ohio, each \$5,000, for the establishment of free clinics for those suffering from ailments of the eye, ear, nose and throat, by the will of Mrs. Mary B. Greene.

Johns Hopkins Hospital, Baltimore, \$16,500, for the establishment of a new department for the treatment of contagious diseases, donation from John D. Rockefeller, Jr.

Presbyterian Hospital, Manhattan, \$20,000; St. Vincent's Hospital, Manhattan, \$10,000; Hospital Guild of the New York Medical Hospital and College, Manhattan, \$10,000; Bellevue Hospital, Manhattan, \$10,000; New York Ophthalmic Institute, Manhattan, by the will of William Washington Cole.

Miami Valley Hospital, Dayton, Ohio, \$1,000, by the will of Dr. Colby.

Indiana University, Bloomington, a donation of \$100,000, to be used in scientific research, from Dr. Luther D. Waterman, Indianapolis.

FOREIGN

Place de Curie.—The name of Curie, in honor of the discoverer of radium, has been given to a small park formed by the tearing down of the old rue Dauphine in Paris.

Edinger's Sixtieth Birthday.—A number of German and foreign neurologic journals dedicated their current issue to Professor Edinger of Frankfurt in honor of his sixtieth birthday, April 13. Several articles, also, in nonspecialist medical journals are being dedicated to him.

Vaccination Required of Matriculants.—Some of the universities and colleges in Austria are now requiring of applicants a certificate of vaccination since Jan. 1, 1910. Up to May 3 there had been 1,173 cases of smallpox in Vienna since the beginning of the war, with 252 deaths.

Reappearance of More French Exchanges.—The *Archives des Maladies du Cœur*, the *Journal d'Urologie*, and *Annales de Gynécologie et d'Obstétrique* have resumed publication, each saying that the missing numbers for 1914 will be made up in the course of the current year to complete the volume to which the subscribers are entitled.

Maternity Hospitals for Cuba.—The president of Cuba has signed a law providing \$400,000 for the erection of six maternity hospitals, one in each province of the island. Of this sum, \$100,000 is allotted for the hospital in the province of Habana, and \$60,000 each for the hospitals in the other provinces. The money is to be appropriated from the sum accruing to the state from unclaimed lottery prizes.

Campaign Against Alcohol in Austria.—The Austrian *Permanenz-Komitee* for industry, trade and commerce has

recently petitioned the government to interfere to check liquor drinking. The petition states that it is unwise to leave the restriction in the hands of local authorities and political interests. The state should take the matter in hand. Among the measures proposed are that the sale of whiskey and brandy should be limited to the hours between 7 and 12 in the morning, and 2 and 3 in the afternoon, and none be sold on Sunday and holidays nor to persons under 16 at any time, nor to persons known to be habitual drunkards. The petition urges strict enforcement of these measures, and the closing of saloons for repeated infractions, also a penalty for persons found drunk in public places, and for saloon keepers selling to those already drunk. The government, while appreciating the necessity for stricter measures against alcohol, is of the opinion that the matter should be left to the local authorities to handle, as they can conform the regulations to local conditions.

WAR NOTES

More Nurses for Austria.—The American Red Cross sent nine additional trained nurses to Austria, via Genoa, Italy, on the steamer *Duca d'Aosta*.

Captives of War in Germany.—According to an official statement, there were up to April 15, 812,803 prisoners of war in Germany. Before any of the Russian captives are detailed for work on farms they are carefully examined for trachoma, etc.

Anonymous Gifts to Red Cross.—The second anonymous gift of \$10,000 to the war relief fund of the American Red Cross was announced May 20. The first gift was reported from Philadelphia and the second donation from Massachusetts.

Sheets, Pillow Cases and Towels Needed.—Mr. H. O. Beatty, director-general of the American Relief Clearing House, Paris, writing under date of May 6, states that there is a great need for cotton sheets, pillow cases and towels in connection with war relief work in France.

Exposition of Arrangements for Caring for the Wounded.—Budapest is having an exposition showing the organized care for the wounded and sick in the war and for hygiene and sanitation in general at the front. It is similar to the exhibition recently held at Berlin, and Germany has sent a special exhibit.

Danish Field Hospital in France.—An exchange states that Professors Ehlers is in charge of the Danish hospital unit recently installed in one of the French cities near the seat of war. Tscherning, surgeon in chief of the public hospital of Copenhagen, and two other surgeons, are with him. The unit is planned for twenty-four beds.

Exchange of Severely Wounded Prisoners.—The *Medizinische Klinik* states that 200 severely wounded French soldiers have already reached Constance, ready to be exchanged for severely wounded German soldiers, captured by the French. This is the first consignment of 1,200 wounded prisoners whom the Germans are collecting for exchange.

High Cost of Drugs in Austria.—The wholesale dealers in drugs in Austria have raised their prices by 10 per cent., while the price of the raw materials has gone soaring to 400 per cent. and more. The associated pharmacists are complaining to the authorities that foreign specialties from the enemies' countries are being smuggled into the country.

Reinforcement for Sanitary Commission.—In response to an appeal from Dr. Richard P. Strong, Boston, for further assistance in Serbia to battle with typhus and other epidemic diseases, twenty-seven additional sanitarians sailed for Serbia, May 10, on the steamer *Athinai* for the Piraeus. A large quantity of medical and sanitary supplies was also sent by this steamer.

Appreciation from German Red Cross.—A letter from the president of the German Red Cross, dated in Berlin, April 15, acknowledges the aid of the American people and its appreciation therefor. The letter also acknowledges receipt of four carloads of gifts from the United States and of the ambulances donated by the students of Yale and Harvard universities.

Thanks from Austria.—The American Red Cross has received a letter from Count Traun, president of the Austrian Red Cross, acknowledging the receipt of a shipment of wearing apparel, linen and hospital supplies sent by the Finland via Genoa, and also of the four motor ambulances donated by the students of Harvard and Yale universities, which were shipped by the *Cretic*. Two motor ambulances and one-half

of the consignment of hospital supplies were forwarded to the Hungarian Red Cross.

Medical Practice at Rome in Case of War.—The Surgical Association of the Province of Rome has joined in the organized arrangements for civilian medical practice throughout the province. All in the arrangement have agreed to assume the practice on request of the members of the profession called to the colors, and to pay to the families of the colleagues they are substituting all the fees received minus a certain small percentage to be determined by the vote of the officers of the association.

Austrian Society to Combat Epidemic Diseases.—An association of medical and laymen has been founded at Vienna to disseminate information among the public as to the nature of epidemic diseases and means of warding them off. The officers include Profs. von Pirquet and O. Stoerk. One of the first measures to be undertaken is to send a mission to Turkey to aid in combating epidemic diseases there, as an important measure to save Austria from invading plagues. A leading merchant is getting up the expedition, assisted by other nonmedical men.

Appalling Conditions in Serbia.—Dr. Richard P. Strong, Boston, chief of the American Sanitary Commission sent to Serbia by the American Red Cross, Rockefeller Foundation and Serbian Relief Committee, to study epidemic diseases, cables that he has just returned from a second inspection trip, that typhus and recurrent fevers are prevalent among all classes, that at Monastir seven physicians are ill with typhus fever, that in many places there are no doctors at all and that although the conditions are very appalling, the work is progressing satisfactorily. A supplementary party of twenty-six sanitary experts and a large quantity of sanitary and medical supplies was sent to Serbia, May 16, on the steamer *Athinai*.

New Quarantine Hospital in Bohemia.—The largest military hospital on the continent is said by the *Wiener klinische Wochenschrift* to be almost completed at Pardubitz. All the wounded and sick soldiers reaching Bohemia have to spend a few days in this hospital, which will have 10,000 beds to begin with. There are 206 pavilions and 125 administration buildings, with railroad station, postoffice, etc. The personnel is to consist of 125 physicians and 750 nurses. The bacteriologic department is in charge of Professor Jedlicka of Prague. There are provisions also for barracks for soldiers. The sick and wounded reaching Bohemia are kept under observation here for a few days and are then transferred to the "clean" part or to one of the pavilions for contagious diseases, as the case develops. It is hoped in this way to keep epidemic diseases out of the country.

Aid for Belgian Physicians.—The following is an extract from a letter from Dr. George W. Crile of Cleveland:

"When I was in Belgium I received first-hand information from a number of Belgian physicians concerning their plight. They are indeed in dire need and there seems to be no way by which this need can be overcome until their land is restored to them again. The free masonry of the medical profession so binds all medical men together that it seems to me that no appeal to doctors for the aid of their associates in Belgium can be in vain. We should all realize also that no single appeal can satisfy what is going to be a long continued need, that we must give now, later again, and still later and so answer repeated appeals until later conditions may restore to the Belgians the wherewithal to aid themselves."

The report of the treasurer of the committee of American Physicians for the aid of the Belgian profession, for the week ending May 22, 1915, lists the following contributions:

Dr. H. M. Manning, P. A. Surg., U.S.P.H.S., Charleston, S. C.	\$ 5.00
Anonymous—K., Toledo, Ohio	5.00
Dr. Dwight G. Kreul, Davenport, Iowa	10.00
M. L. H., Wallum Lake, R. I.	3.00
Knox County Medical Society, Fredericktown, Ohio	10.00
The Medical Club of Portland, Portland, Ore.	25.00
Dr. Edward E. Bancroft, Wellesley, Mass.	10.00
Dr. Thomas St. Clair, Latrobe, Pa.	5.00
Dr. Fred T. Murphy, St. Louis, Mo.	50.00
Dr. Hermann Grad, New York, N. Y.	10.00

Receipts for the week ending May 22	\$ 133.00
Previously reported receipts	6,860.50

Total receipts	\$6,993.50
Disbursements for the week ending May 22:	
178 standard boxes of food at \$2.28	\$ 405.84
Previously reported disbursements:	
1,625 standard boxes of food at \$2.20	\$3,575.00
1,309 standard boxes of food at 2.30	3,010.70

Total disbursements	6,991.54
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Balance	\$ 1.96
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F. F. SIMPSON, M.D., Treasurer,
5 Jenkins Arcade Building.

PARIS LETTER

PARIS, May 6, 1915.

The War

THE DISCHARGE OF TUBERCULOUS SOLDIERS

Professor Landouzy, dean of the Faculté de médecine de Paris, recently presented to the permanent commission on tuberculosis of the interior department a report on this subject which is rendered very opportune by the war. He first takes up the army statistics showing temporary and final discharges for tuberculosis. The number is considerable already and is sure to be greatly increased by the present concentration of troops. Landouzy believes that the years 1915 and 1916 are going to send out over the country 20,000 tuberculous subjects to scatter the germs of the disease in the regions in which they settle after their discharge. This regrettable state of affairs could be modified by radical measures on the part of the war department. It is indispensable in the first place to eliminate without hesitation every man who is affected with open and hence dangerous tuberculosis. In the next place, tuberculosis should not be, as at present, the disease in which is most seldom applied the form of discharge which permits a temporary or permanent pension. It is believed, to be sure, that tuberculosis is rarely contracted in barracks and that military life is seldom the source of infection. This may be true, but the over-exertion inseparable from this life is without doubt the greatest factor in causing the latent disease to become active. Men who contract or develop tuberculosis under such conditions readily become sources of infection in their turn; they are eligible for the form of discharge just mentioned. Today the danger is increased by the fact that the *conseils de revision* have just placed in active service men who were previously discharged because of tuberculosis but who are now found in good condition and may again become a source of danger owing to the uncomfortable life of the trenches and promiscuity which it entails. When these men become unmistakably tuberculous and incapable of taking part in the campaign, as they too frequently do, has the army the right simply to rid itself of them by discharging them and taking no further interest in them? How about those whom these tuberculous patients infect? Landouzy believes that, on the contrary, the army should, to a certain extent and for a limited time, assume the responsibility for such invalids. This would tend to encourage a more rigorous selection at all stages of the service. Men discharged on account of tuberculosis ought not to leave the army without being assured of treatment, education in regard to tuberculosis and assistance. Such measures would tend to protect the general population from carriers of the disease. After this war there will be tuberculous patients who will be war invalids just as much as are the soldiers wounded in battle. The nation owes the same debt of gratitude to both. This debt is all the more sacred so far as the tuberculous patient is concerned because his disease has, to some extent, set him apart as a source of danger to the rest of the population.

THE WAR AND DECEPTIVE ADVERTISEMENTS

I mentioned in a previous letter (THE JOURNAL, Oct. 3, 1914, p. 1217) how certain unscrupulous manufacturers in advertising their goods have brazenly imitated the official notices to the public on the subject of hygiene. M. Edmond Bonjean, member of the Conseil supérieur d'hygiène publique de France, has just made a very detailed report to the Société de médecine publique, in regard to deceptive advertisements on subjects of public hygiene. He shows that certain preparations promoted by ingenious publicity and recommended as a sure means of avoiding epidemics are entirely without efficacy. Such advertising may have an injurious effect on the public health, for it leads those who put faith in it to neglect really effective methods, such as immunizing vaccinations or rational disinfections. In a period of national emotion, during a unanimous outburst of patriotism and generosity, says Bonjean, such misleading advertisements easily induce the public to buy these ineffective specialties and send them to the soldiers. Bonjean believes that the law for the repression of frauds might be applied to these dangerous misrepresentations.

AUTOMOBILE SURGICAL AMBULANCE

One of the aims most diligently sought by the military medical service has always been to be able to give soldiers wounded at the front the necessary surgical attention as soon as possible. The first aid posts and the first line ambulances unfortunately cannot perform major surgical

operations under satisfactory conditions and the wounded are compelled to be removed to base line hospitals before being operated on; often, therefore, the operation is made too late. Automobile surgical ambulances constitute a great advance in this respect. A real flying surgical hospital, capable of being installed near the front, in which it is possible to operate on a great number of the wounded, can thus be realized. The installation comprises nine 20 horse power automobiles. Six serve for the transportation of the supplies and the staff, one is a radiologic laboratory, another carries the autoclave and the last is the pharmacy. The head surgeon chooses a situation by the side of an ambulance in which he can place his patients after operation. The cars immediately take the places appointed for them. In half an hour a tent is pitched and a surgical pavilion installed. It includes three apartments; a preparation room, a dressing room and an operating room with four tables. The autoclave car is placed at a right angle to the side of the operating room so as to open into it. In front is the radiologic car provided with the latest improvements and permitting precise investigations. The whole is lighted up with electricity furnished by the motors and floored with sheets of aluminum. Everything is capable of being cleansed by having water turned on. The whole constitutes a complete surgical installation which might be envied by many permanently housed institutions. A hundred wounded men can be cared for there during a day. The staff consists of a head surgeon, six assistants, a pharmacist, an administrative officer and twenty-five nurses, of whom ten are medical students. The first of these mobile formations set out for the front May 5. The construction of thirty others is under way.

AID FOR MEN BLINDED IN THE WAR

Devoted teachers are instructing those poor soldiers who have become blind in the ingenious Braille method of writing and reading. The books in Braille characters, however, are very expensive, for the process of printing them is a lengthy and delicate one, and this has limited the output.

A cultivated young blind man has just founded an association the members of which pay a modest annual fee, the sum thus obtained being used to print in Braille characters good books of every kind. As a fitting token of gratitude, the association has been given the name of the Swiss oculist and friend of the blind, Dr. Marc Dufour. Among its active and honorary members the Association Marc Dufour numbers the surgeon C. Roux, Professor Combe and Dr. O. Dufour; it has already an income of about \$200 a year. Requests for further information, applications for membership, gifts, etc., may be addressed to the Association Marc Dufour, Chez M. E. G. Carey, avenue Agassiz, 3, Lausanne, Switzerland.

Death of Professor Thoinot

Dr. Léon-Henri Thoinot, professor of legal medicine at the Faculté de médecine de Paris, has just died suddenly of hemorrhage, aged 57. In 1906 he succeeded his master, Professor Brouardel, in the chair of legal medicine. He was a physician of the Laennec Hospital and since the outbreak of the war had been head of the contagious disease service at the military hospital of Val-de-Grâce. His studies had been especially on the subjects of hygiene, sanitation and disinfection. He had made numerous investigations on epidemics of typhoid in miliary fever and diphtheria. He was highly esteemed as an expert in judicial circles.

BERLIN LETTER

BERLIN, April 20, 1915.

Death of Löffler

April 9, the professor of bacteriology, Frederick Löffler, died at the age of 62. Immediately after the outbreak of the war he departed to the battle front and served as advisory hygienist to one of the army corps, performing his duties with great earnestness. In November, following an attack of severe intestinal trouble, he was compelled to return home. An operation was deemed necessary, and Professor Bier discovered the presence of a pancreatic carcinoma.

Löffler was born June 24, 1852, at Frankfurt-on-the-Oder, where his father, who subsequently was director of the Pépinière in Berlin and a distinguished military surgeon, was serving as regimental surgeon. After a short period of study in Würzburg, Löffler entered the Pépinière, which is today the Kaiser-Wilhelms Academy, and after his graduation became a military surgeon in Hannover. Later he served in the same capacity in Potsdam, and in 1879 was appointed to the state sanitary department, working chiefly in the

chemical and hygienic laboratory under Sell and Wolffhügel. In 1880, when Robert Koch* was appointed director of the national health department, he asked Löffler to enter his laboratory and Löffler had a large share in Koch's work on infection and sanitation. Löffler studied particularly questions of immunity. In 1881 he discovered a mouse bacillus against which, after several injections, he was able to immunize rabbits. After much study on the causes of nasal infections, he discovered the diphtheria bacillus, and for this work he obtained a world-wide reputation.

In 1884 he left this service and became a member of the staff of the Kaiser-Wilhelms Academy, where he continued his investigations. He was then offered the position of director of the chemical hygienic laboratory in the state military service. After he was established as a teacher in hygiene, in 1886, he was called as professor to Giessen and Greifswald in 1888. He decided on the latter university, where he worked until 1913, when he was called to succeed Gaffky as director of the Robert Koch Institute for Infectious Diseases in Berlin. In Greifswald, Löffler devoted himself chiefly to the infectious diseases of animals, and discovered various facts concerning methods of prevention of epidemics. He worked on the prevention of foot and mouth disease, and outlined a method of immunization, which was tested on some animals on a small island in Greifswald Bay, in order to prevent a wider dissemination of the disease. Up to the time of his death, Löffler worked to make his method less costly, as the high price of the immunizing serum prevented its general adoption. Löffler also discovered the causes of the red murrain of pigs and other hog diseases.

Löffler's name is one which is today known throughout the world for his scientific discoveries, of which those mentioned form but a small part.

Congress of Military Surgeons in Brussels

At the suggestion of the chiefs of the field hospitals, a congress of the German military surgeons was held at Brussels in place of the meeting of the German Surgical Society usually held in Berlin; about 1,200 surgeons assembled from all the battlefields, April 1, 1915. Papers were read by prominent surgeons, but for sundry reasons their discussion had to be omitted.

TREATMENT OF HEMORRHAGE

The first paper by Generalarzt Garré was on the handling of hemorrhage both at the front and later. The stopping of bleeding is one of the most important tasks of the field surgeon. When only the usual tampons and constrictors are used, there may still be enough bleeding from some vessels to result in death. Garré recommended as the most accurate method of controlling hemorrhage the clamping of bleeders with forceps that are left in place until the dressing is changed. He also spoke of the use of transfusion with physiologic salt solution in cases in which the loss of blood had been great, and stated that stimulus by camphor, caffeine, etc., was often more efficacious in impending cardiac failure. Early operation was also advised for skull injuries and for abdominal wounds in which there was danger of internal hemorrhage or injury to stomach or intestines. The earlier the operation in these cases, the better is the prognosis. The necessity for early relief under unfavorable conditions of wounds of the lower urinary apparatus makes the use of the methods used in time of peace impossible and resort to bladder puncture necessary. Every bullet wound is at first, in all probability, not infected, but every grenade wound is; 83 per cent. of all Garré's especially severe wound infections were due to grenades. This is natural when one considers that these bombs burst on the ground and so carry into the wound dirt as well as fragments of infected clothing. Garré believes that all such wounds should be thoroughly explored and cleaned out with the gloved hand in the field hospital (the advisability of this is questioned by other speakers). In wounds of the extremity, the speaker preferred conservative handling to early operation.

Generaloberarzt Friedrich of Königsberg spoke of his medical experiences and of the terrible condition of affairs that is arising on the Eastern Russian battle front. He also recommended the clamping of bleeders in preference to the use of constriction and tampons.

TREATMENT OF TETANUS AND GAS GANGRENE

The treatment of tetanus and gas bacillus infections was discussed by Generalarzt Kümmel of Hamburg. In the Crimean War, tetanus occurred in 1.5 per cent. of cases; in the American Civil War, in 2.5 per cent.; in the Franco-Prussian, in 3.5 per cent., and in the present war in 6.5 per cent. of cases. This shows how thoroughly the French soil is impreg-

nated with the organism causing this disease. The early recognition of this disease is of greatest importance as it is much more difficult to cure when it is fully developed. Here again, and for the reasons mentioned above, the grenade wounds are the most dangerous. The sooner after the injury the symptoms appear, the worse is the prognosis in spite of the tetanus antitoxin. A combination of antitoxin with salvarsan has been advised, but Kümmel believes that magnesium sulphate is of greater value; the use of narcotics and the continuous water bath must also be considered. The speaker and many other observers recommend the use of a prophylactic dose of antitoxin, especially as little as 20 units will almost certainly suffice to ward off the disease. A most serious infection for which there is a specific cause is the gas bacillus infection. Its rapid course makes early energetic treatment necessary. A patient who is suspected of having such an infection should be carefully examined every two hours, and as soon as the diagnosis is established, the part must be radically opened up; a small incision in the skin and superficial fascia does not suffice, free incision down into the muscles being necessary. According to the work of Professor Franz, toxins are present in the blood even when there is no bacteremia.

TREATMENT OF SKULL INJURIES

Generalarzt Tilmann of Cologne spoke on skull injuries. In scarcely any type of wound is so great a variety of symptoms found as in skull injuries. While penetrating wounds of the skull often result in an early death, glancing wounds are almost as dangerous because of the more extensive injury to the brain that may be present. In penetrating wounds, the damaged brain tissue, etc., comes out of the larger wound of exit of the bullet; how much the brain is damaged depends on whether a fragment of bone is driven into it and on whether any vital centers are injured. The paralyses, etc., that are often present at first may disappear in a few days. When the wounds are first examined in the field where facilities for aseptic operating are not present, conservative treatment is advised; here only the stopping of hemorrhage and the removal of splinters of bone must be considered. Piercing wounds are operated on only after the bullet has been located by means of roentgenography. In diagnosing a meningitis, which often shows itself on the first day, a spinal puncture is often of great assistance. A more frequent form of infection following skull wounds is encephalitis, only the serous form of which is curable. Brain abscess is a condition both difficult to diagnose and to treat.

TREATMENT OF CHEST WOUNDS

That chest wounds are not so dangerous as might be expected has been clearly shown in the countless cases in the present war. Many cases of bullet wounds of the lungs not complicated by injury to the ribs or the larger pulmonary vessels heal rapidly. Bleeding into the pleural cavity from small arteries is, as Oberstabsarzt Sauerbruch of Zurich pointed out, rather a rare occurrence, and little blood is generally lost in this way. Much the most serious wounds are those produced by grenades. In summing up these cases, delayed hemorrhage and the rise in temperature due to secondary infection must be considered. The germs that escape into the pleural cavity with the injury to the lung find in the clotted blood an excellent culture medium. Simple drainage of the pleural cavity is generally all that is necessary in these cases, though at times it is necessary to operate on the lung itself. Those wounded through the lungs must be kept absolutely quiet. Generaloberarzt Borchard of Posen pointed out that a prolonged compression of the lung may be dangerous, especially when it is accompanied by thickening; when this is feared, after a suitable interval he makes an incision to permit the escape of the fluid and so relieve the lung.

TREATMENT OF PENETRATING WOUNDS OF THE ABDOMEN

In his discussion on penetrating wounds of the abdomen, Generalarzt Körte of Berlin cited many cases. He demonstrated that in this line of work the methods used in times of peace were not practicable, because such wounds are encountered rarely in time of peace and because of the complications presenting themselves in time of war, and on account of the difficulty of transportation. The prognosis in those cases which come up for treatment more than twelve hours after being wounded is bad. When the battle line is in motion, this delay in getting the wounded to a place where they can be cared for is more apt to happen than when the troops are intrenched and have their regularly appointed field hospitals in which it is possible to perform complicated operations. In spite of the great penetrating power of the bullets, piercing of the abdomen without injury to the intestines

is rare, though it does occur. In a large series of penetrating wounds of the abdomen, Körte had a mortality of 60 per cent., which would have been even larger if the patients who did not live to get to the rear had been included. Internal hemorrhage and the almost certain injury to the viscera make early surgical treatment the safest method.

Oberstabsarzt Schmieden of Halle stated that the expectant treatment of these cases was all right in theory, but was not possible in time of war, as the necessary conditions such as absolute quiet could not be obtained in time of war. He took the stand that every patient with abdominal injury coming to the skilled surgeon less than twelve hours after being injured should be operated on at once; thus the exact nature of the damage may be ascertained, and if only the liver is injured, the hemorrhage may be stopped, or if the other viscera are injured, whatever is needed may be done. Also experience shows that while the percentage of cases of injury to the stomach or intestines is small, it is even smaller if operation is not performed early. Furthermore, the late complications of pregnancy, such as abscess, etc., which are often hard to diagnose, make the mortality even higher. He also stated the mortality was lower in those soldiers who, being in a dangerous place, were on short rations, had an empty gastro-intestinal canal and so were better prepared for intestinal wounds. Generaloberarzt Friedrich of Königsberg believed that wounds of the small intestine are more dangerous than those of the stomach, large intestine or liver. Generalarzt Rehn of Frankfort-on-the-Main made the same observation.

WOUNDS OF THE EXTREMITIES

Generalarzt Payr of Leipzig and Stabsarzt Goldammer treated the voluminous subject of wounds of the extremities. The great economic significance of this class of wounds makes it necessary to treat them with the greatest care. Here again grenade wounds are found to be the most severe, shrapnel next and bullet wounds least. With grenade wounds, free incision with complete removal of all dirt and pieces of clothing, splinters of bone, etc., is necessary. In spite of this, there is nearly always more or less infection which sometimes gives rise to a septicemia and sometimes to osteomyelitis. In all cases, a very firm dressing is contraindicated, and immobilization is of greatest importance, especially in joint wounds. This keeps the limb quiet and permits the best drainage of the wound. The speaker stated that plaster casts were of value, especially in cases that could not be under constant observation. The use of manufactured splints is possible only in hospitals, in which they are found very convenient, as Professors Rehn, von Eiselsberg and others said.

Marinegeneralarzt Bier of Berlin spoke on the surgery of blood vessels and aneurysms.

The establishment of numerous Roentgen-ray outfits was decided on at the meeting.

Personal

Prof. Carl Fraenkel has resigned his position as chief of the Institute of Hygiene at Halle, on account of his health. On the occasion of his baptism a few years ago (undoubtedly to favor the prospects of his son, an officer in the army), he changed his name to Fraenken. He had a cerebral hemorrhage ten years ago, although he was only 42 years old at the time. He recuperated completely from that attack, so that he was able to resume his teaching and research work. Fraenkel was one of Robert Koch's most gifted pupils, and has accomplished much in various fields of bacteriology and hygiene.

The seventieth birthday of Prof. Friedrich Merkel, director of the Institute of Anatomy at Göttingen, was celebrated April 5. He followed the anatomist Henle in this position in 1885. Among the manuals he has published, the best known are his revision of Henle's "Grundriss der Anatomie" and the "Handbuch der topographischen Anatomie."

The director of the Institute of Pharmacology at Halle, Professor Harnack, died April 24. Like his brother, the theologist of Berlin, he was born at Dorpat in Russia. He studied under Schmiedeberg, the Strassburg pharmacologist, and was called to Halle in 1889 as regular professor. He published a revision of Buchheim's manual of materia medica, the "Lehrbuch der Arzneimittellehre," and wrote for physicians a work embracing the principal facts of chemistry, "Haupttatsachen der Chemie," and has done research work in various fields of his specialty. He conducted a campaign against homeopathy, his articles appearing in the *Deutsche medizinische Wochenschrift*.

Professor Roentgen of Munich reached his seventieth milestone March 27, and to honor the occasion the kaiser pre-

sented him with the iron cross. The message of congratulations sent him by the kaiser at the same time said: "The German nation cannot be grateful enough to the discoverer of the rays for whom they are named. The many advantages from the use of the rays are being rendered apparent by the war more than ever before"—*Die segensreiche Verwendung der Strahlen lässt sie gerade jetzt im Kriege ausserordentlich schätzen.*

LONDON LETTER

LONDON, May 14, 1915.

Death of Sir William Gowers

Sir William Gowers, M.D., F.R.C.P., F.R.S., the neurologist, has died at his residence in London. He had a brilliant career as a student, and graduated with the degree of M.D. from the University of London, in 1870, with a gold medal. At an early period he interested himself in nervous diseases, and was appointed to the famous Hospital for the Paralyzed and Epileptic, Queen's Square, which may be considered the home of British neurology. He formed one of the brilliant galaxy which included Hughlings Jackson, Ferrier and Bastian, who were the founders of neurology in this country. In 1879 he delivered the Goulstonian Lectures and took for his subject epilepsy, to which his contribution was epoch making. He published a book on "The Diagnosis of Diseases of the Spinal Cord," which at once became a classic. For the first time he showed the intimate relation between the anatomy and the symptomatology of disease of the spinal cord. In 1885 appeared his "Diagnosis of Disease of the Brain." The clinical and pathologic observations of Hughlings Jackson and the experimental work of Fritsch, Hitzig and Ferrier had completely altered the conceptions of cerebral physiology and functions, and Gower's acute mind readily grasped the significance of their observations. He laid down principles and rules which at the present day are perhaps a little extended but scarcely in any way altered. Finally appeared his crowning work, the "Manual of Diseases of the Nervous System." His clinics were attended by physicians from all over the world interested in neurology, and he was considered easily the greatest diagnostician of the day in diseases of the nervous system.

Sickness Benefit Claims Under the Insurance Act

As pointed out in previous letters to THE JOURNAL, the insurance act has shown in the working several defects due to its socialistic nature. A committee appointed by the government has issued a report on the question whether the claims made on the funds, either of societies in general or of societies of particular types, are in excess of the claims which under a proper system of administration should have been made on and allowed by them. The committee finds little, if any, evidence of fraud on the part of insured persons, or of deliberate malingering, but considerable evidence of a tendency to take the utmost advantage of the benefits under the act. Taking women, as a whole, experience shows that sufficient provision has not been made for sickness benefit granted to them; that is, either the amount paid as premium is insufficient or the amount of the policy money is too great, and this applies both to single and to married women. In the case of both sexes great difficulty is caused by a doubt as to the meaning of the criterion of incapacity set up under the act, and the committee recommends that the conditions of sickness benefit should be more precisely defined. A new benefit is recommended to be paid to a pregnant woman, in respect to the last four weeks of pregnancy, whether she is incapacitated or not. It is also recommended that payment should be made to a pregnant woman who is incapacitated from following her occupation in the month previous to the last month, whether she is incapacitated by pregnancy alone or by pregnancy accompanied by some other condition.

The War

THE EVACUATION OF THE WOUNDED

An account of the exact method of dealing with the wounded may be of interest. The medical organization in the field consists at the front of two kinds of formations, those of "armies" and those of "divisions." The former are under a director of medical services who, while responsible for the working of all units and branches of the medical service within his army, has under his direct control the large clearing stations established within easy reach of the railway, the motor ambulance convoys, and all sanitary arrangements in the particular army area. The divisional formations are

under the assistant director of medical services of the division, who controls the field ambulances, dressing stations, aid posts and sanitary sections in the divisional area. Take the case of a man struck by a bullet while advancing, and left lying in the open under a hail of shrapnel bullets, which are striking the ground all round. From this hazardous position he is rescued by two stretcher bearers who, choosing their moment, rush across, pick him up and carry him back to the shelter of a trench. These bearers may either be from his own unit, sixteen men of which, in the case of an infantry battalion, have been trained in the first aid and stretcher drill, or they may be men of the Army Medical Corps belonging to a bearer subdivision of a field ambulance. They will take him to his "regimental aid post," probably situated in a dug-out, in a cellar, or in some sheltered spot giving cover from fire, where he will receive first aid from the army surgeon attached to the battalion. From this he will be conveyed either on a stretcher or, if circumstances permit and a road is handy, in a horsed ambulance wagon to the nearest dressing station.

As soon as he is placed in the ambulance wagon, he passes out of regimental care into the charge of one of the formations of a division known as "divisional field ambulances." Such an ambulance is composed of three sections, each consisting of a bearer subdivision and a tent subdivision. The former are organized for the purpose of collecting the wounded, while the latter form dressing stations. The advanced dressing stations are pushed forward as close as possible to the front, and are situated in houses alongside roads so as to facilitate conveyance to and fro. On the arrival of the patient at one of these, his wound is carefully attended to, and he is injected with antitetanic serum. He is then carried by a motor or horsed wagon belonging to a divisional field ambulance to one of the larger dressing stations, which has been opened possibly in a school, a convent or a church in some town or large village situated further to the rear, where he is given food. Here the wounded are sorted according to the nature of their injuries, and prepared for transport to the casualty clearing station on motor ambulance wagons. They thus pass out of the hands of the division into the formations under direct control of the army.

The casualty clearing stations are generally situated at the railheads, so that patients can be carried direct from them to the ambulance trains. They are not hospitals in the true sense of the word; but a proportion of serious cases, such as those of certain kinds of injury to the head or abdomen, which cannot be moved without danger, may be retained in them for a considerable time. Equipped and staffed to deal normally with 200 patients, they have a sufficiently elastic organization to be able if necessary to cope with much larger numbers during the progress of a battle, and special arrangements are made for temporarily augmenting the staff when severe pressure is expected. Here the patient will for the first time experience the luxury of being tended by nursing sisters and of lying on a bed. The length of his stay will depend on the railway facilities; but as a rule it will not be more than a few hours before he is placed on an ambulance train. Once on board the train, he leaves what is known as the "collecting zone," and enters the "evacuating zone," and at the same time passes out of the charge of the medical authorities of the army into that of the line of communications.

On arrival at a base, the wounded man is again carried in a motor ambulance wagon to a fully equipped permanent hospital. These hospitals are of two kinds, general and stationary, the difference being chiefly in the number of patients accommodated. A third category of hospitals found at the bases is composed of Red Cross or voluntary hospitals. The personnel and equipment of these are provided by the society or subscribers who organized the unit; but each is under the command of an officer of the Army Medical Corps. A great difficulty experienced is that of reconciling the need of seriously wounded men for complete rest with the necessity for avoiding the congestion which would be caused by retaining them at the casualty clearing stations during an action, a time when large numbers of wounded have to be dealt with. Not many can be retained, and yet any movement or jolting such as that caused by a train or motor journey might involve grave risk. A solution of this problem has been found to a limited extent in the use of water transport on the excellent system of canals with which Northern France is supplied. The serious cases of this nature are carried by barge from the clearing stations near the front to the most advanced hospitals on the lines of communication. The barges have been specially converted into hospital craft, having been fitted with operating tables and all the necessary accessories, and each can accommodate forty patients. They are towed by tugs.

Marriages

FRANCIS J. TOWNSEND, M.D., to Miss Anna Rayne, both of Ocean City, Md., at Snow Hill, Md., May 4.

HUGO OLIVER PETERSON, M.D., to Miss Marie Euphrosyne Dahlstrom, both of Worcester, Mass., May 19.

WILLIAM FRENCH SMITH, M.D., to Miss Margaret R. Dawson, both of Somerville, Mass., May 12.

LOUIS CHARLES DEANE, M.D., to Miss Mabel Short, both of San Francisco, at Los Angeles, May 9.

CLARENCE H. BRYAN, M.D., to Mrs. Ray N. Mathews, both of Chicago, May 15.

Deaths

Nathaniel Eugene Wordin, M.D. Jefferson Medical College, 1875; a member of the Connecticut State Medical Society, American Academy of Medicine and American Public Health Association; for seven years secretary, and in 1905 president of that organization; once president of the Fairfield County and Bridgeport Medical associations; a member of the State Board of Health, from 1890 to 1899; for many years physician to the Bridgeport Hospital and Bridgeport Protestant Orphan Asylum; a veteran of the Civil War; well known as an author and historian; died at his home in Bridgeport, May 10, from cerebral hemorrhage, aged 70.

George Ansley Wilcox, M.D. New York University, New York City, 1871; a Fellow of the American Medical Association and a member of the Southern Medical Association; professor of gynecology in the University of Georgia, Augusta, and formerly professor of materia medica and therapeutics and of obstetrics in the same institution; gynecologist to the Augusta (Ga.) City and Lamar hospitals; one of the most prominent and beloved practitioners of Augusta, and the first to be given the honorary degree of M.D. by the University of Georgia; died at his home in Augusta, May 5, aged 64.

George Cornelius Bailey, M.D. New York University, New York City, 1886; a member of the Connecticut State Medical Society; for many years a member of the board of directors, consulting physician, head of the gynecologic department and president of the staff of St. Francis' Hospital, Hartford, Conn.; a member of the board of school visitors since 1896; died at his home in Hartford, May 10, from pneumonia, aged 50.

James Jackson Purman, M.D. Howard University, Washington, D. C., 1880; a veteran of the Civil War, who was awarded the Congressional Medal of Honor for gallantry on the battlefield of Gettysburg; formerly an attorney of Green County, Pa.; medical director of the Department of the Potomac, G. A. R.; since 1881 a clerk in the pension office; died at his home in Washington, May 10, aged 73.

Samuel G. Kelly, M.D. Northwestern University Medical School, Chicago, 1903; a Fellow of the American Medical Association and American Academy of Ophthalmology and Oto-Laryngology; and eye, ear, nose and throat surgeon for the Missouri, Kansas and Texas Railroad; died at his home in Sedalia, Mo., April 24, from cerebral hemorrhage, aged 34.

Jessie Wheeler, M.D. Womans' Medical College of Pennsylvania, Philadelphia, 1902; formerly a Fellow of the American Medical Association; a member of the Kansas Medical Society; formerly of Sacramento, Cal., but for the last nine years a practitioner of Salina, Kan.; died in St. Barnabas' Hospital, Salina, from malignant disease, aged 40.

Thomas Joseph McLoughlin, M.D. College of Physicians and Surgeons in the City of New York, 1869; a Fellow of the American Medical Association; surgeon to the Jersey City Hospital, and medical director of St. Francis' Hospital, Jersey City; died at his home in Jersey City, May 12, from septic pneumonia, aged 70.

Niles Harrison Shearer, M.D. University of Maryland, Baltimore, 1866; a member of the Medical Society of the State of Pennsylvania and American Academy of Medicine; surgeon of volunteers during the Civil War; a druggist and financier of York, Pa.; died at his home in that city, May 5, aged 73.

John Lloyd Brown, M.D. University of Louisville, Ky., 1885; formerly president of the Menifee County (Ky.) Board of Health, county referee and local surgeon of the Chesapeake and Ohio Railway at Morehead, Ky.; died at his home in Rothwell, Ky., April 13, from cerebral hemorrhage, aged 51.

Edward Clinton Fish, M.D. University of Michigan, Ann Arbor, 1883; a member of the State Medical Society of Wisconsin; for thirty years a practitioner of Mosinee, Wis.; and for twenty-five years justice of the peace; died at his home in Mosinee, May 9, from tubercular meningitis, aged 56.

Nelson G. West, M.D. Jefferson Medical College, 1854; a member of the Medical Society of Virginia and president of the Loudoun County Medical Society; surgeon in the Confederate service during the Civil War; died at his home in Leesburg, Va., May 11, from senile debility, aged 83.

James R. Willis, M.D. Long Island College Hospital, Brooklyn, 1876; formerly secretary of the Vigo County Board of Health and twice coroner of Vigo County, Ind.; once president of the Vigo County Medical Society; died at his home in Terre Haute, Ind., May 4, aged 61.

Jacob R. Brown (license, Indiana, 1897), for more than sixty years a resident of St. Joseph County, Ind.; surgeon of the Twenty-Ninth Indiana Volunteer Infantry during the Civil War; died at the home of his nephew in Crumstown, Ind., May 1, from senile debility, aged 91.

George Nelson Perry, M.D. Howard University, Washington, D. C., 1884; professor of obstetrics and pediatrics in his alma mater; a member of the Medical Society of the District of Columbia; died at his home in Washington, May 10, from heart disease, aged 64.

Charles Edward Fraser, M.D. Bellevue Hospital Medical College, 1871; once superintendent of the State Custodial Asylum, Rome, N. Y., and for two years coroner of Oneida County; died at his home in Lacona, N. Y., May 10, from cerebral hemorrhage, aged 65.

Ollie L. Townsend, M.D. Hospital College of Medicine, Louisville, 1881; a member of the Kentucky State Medical Association and president of the Farmers' Bank of Glensboro, Ky.; died at his home in Lawrenceburg, May 11, from disease of the spleen, aged 55.

Josiah Thomas Scovell, M.D. Rush Medical College, 1867; for ten years professor of science in the Indiana State Normal School and later head of the science department of the Wiley High School, Terre Haute, Ind.; died at his home in that city, May 8, aged 73.

Albert Joseph Roberts, M.D. Harvard Medical School, 1902; a member of the Connecticut State Medical Society; a member of the staff of the Bridgeport (Conn.) Hospital; died in that institution, May 11, from cerebral hemorrhage, aged 40.

Samuel Mardis Hogan, M.D. University of Louisville, Ky., 1873; a member of the Medical Association of the State of Alabama, and the Southern Surgical and Gynecological Association; died at his home in Montgomery, Ala., May 7, aged 77.

William B. Denny, M.D. Meharry Medical College, Nashville, Tenn., 1880; a well-known colored practitioner of Nashville; pastor of the Salem A. M. E. Church; died at his home in Nashville, May 4, from cerebral hemorrhage, aged 63.

Hugh R. Rutledge, M.D. Medical College of the State of South Carolina, Charleston, 1846; a surgeon in the Mexican War; and said to have been the oldest practitioner in Mississippi; died at his home in Greenville, May 6, aged 91.

Henry B. Roberts, M.D. Atlanta (Ga.) Medical College, 1882; representative from Crisp County in the Georgia Legislature and chairman of the County Board of Education; died at his home in Cordele, May 8, from nephritis, aged 63.

Thomas Perkins Smith, M.D. Harvard Medical School, 1880; a Fellow of the American Medical Association; formerly physician of the city and township of Westbrook, Maine; died at his home in Westbrook, May 7, aged 62.

Maximilian Jacoby, M.D. Long Island College Hospital, Brooklyn, 1910; of Chrome, N. J.; died in the Elizabeth (N. J.) General Hospital, April 9, from septicemia, due to Roentgen-ray burns of the finger, aged 32.

John Henry Ulrich, M.D. Boston University, 1892; assistant in the department of diseases of the skin and later lecturer on diseases of the skin in his alma mater; died at his home in Boston, February 26, aged 53.

James R. Glover (license, years of practice, West Virginia, 1881), formerly of Pennsboro, W. Va.; but for the last year a resident of Cleveland; died at his home in the latter city, March 11, from pneumonia, aged 70.

Horace Morgan Fritz, M.D. Jefferson Medical College, 1879; a member of the Medical Society of the State of Pennsylvania; died at his home in Quincy, May 12, from cerebral hemorrhage, aged 60.

Robert Augustus Stewart, M.D. New York University, New York City, 1878; formerly a member of the town council of Phillipsburg, N. J.; died at his home in that city, May 14, from heart disease, aged 64.

Sherman Edwards, M.D. Rush Medical College, 1893; for fifteen years a practitioner of Oakfield, Wis.; died in his apartments in Milwaukee, Wis., May 2, from tuberculosis, aged 50.

William F. Goldin, M.D. Atlanta (Ga.) Medical College, 1877; formerly representative and state senator from Haralson County, Ga.; died at his home in Draketown, Ga., May 10, aged 65.

Frederick Ira Beard, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1861; one of the oldest practitioners of Clark County, Mo.; died at his home in Kahoka, May 4, aged 74.

Isaac Newton Houston, M.D. Jefferson Medical College, 1880; a member of the West Virginia State Medical Association; died at his home in Moundsville, W. Va., May 3, aged 64.

Franklin Ellis Kelly, M.D. Louisville Medical College, 1895; a member of the Illinois State Medical Society; also a druggist; died at his home in Green Valley, Ill., April 29, aged 59.

James J. Reilly, M.D. University of Minnesota, Minneapolis, 1886; of Milton, N. Dak.; died in the state penitentiary, Bismarck, N. Dak., May 9, from pneumonia, aged 49.

Albert Felix Fuchs, M.D. Rush Medical College, 1882; a physician and druggist of Loyal, Wis.; died at his home in that place, May 5, from disease of the kidney, aged 58.

Jasemin McAlpin, M.D. Woman's Medical College, Baltimore, 1887; of Warren, Pa.; died in the Bradford (Pa.) Hospital, May 11, from intestinal obstruction, aged 50.

John Alphonsus Lee, M.D. College of Physicians and Surgeons, Boston, 1914; of Boston; died in the Framingham (Mass.) Hospital, May 6, from heart disease, aged 28.

Tirey C. Dollens (licensed, Indiana, 1897), formerly a member of the Indiana State Medical Association; died at his home in Trinity Springs, Ind., May 5, aged 71.

William Becker (license Md.); a veteran of the Civil War; and a practitioner since 1869; died at his home in Baltimore, April 25, from pneumonia, aged 70.

James B. Maple, M.D. Missouri Medical College, St. Louis, 1878; a veteran of the Civil War; died at his home in Custar, S. Dak., recently, aged 79.

Charles Neil Shellenberger, M.D. Pulte Medical College, Cincinnati, 1878; died in Colorado Springs, Colo., his home, April 29, from heart disease, aged 58.

John N. Frank, M.D. Washington University, St. Louis, 1869; twice coroner of St. Louis County, Mo.; died at his home in St. Louis, May 3, aged 66.

Thomas Stewart Blake, M.D. Medical College of the State of South Carolina, Charleston, 1849; died at his home in Ninety-Six, S. C., May 4, aged 88.

Samuel Thomas Cabbage, M.D. Jefferson Medical College, 1895; died at his home in Felton, Del., April 1, from pernicious anemia, aged 50.

John Fenton Kinney, M.D. Indiana Eclectic Medical College, Indianapolis, 1882; died at his home in Idaho, O., April 27, aged 63.

Silas W. Darrow, M.D. Homeopathic Hospital College, Cleveland, 1877; died at his home in Brockport, N.Y., May 5, aged 68.

Frederick W. Montgomery, M.D. Druidic University of Maine, Lewiston, 1882; died at his home in Wichita, Kan., May 4, aged 58.

Florestano Bruno, M.D. Chicago College of Medicine and Surgery, 1913; died at his home in Lawrence, Mass., May 1, aged 33.

E. L. Jacobs (license, Ark., 1903); died at the home of his daughter in Harrisburg, Ark., May 2, aged 82.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

AND STILL THEY COME

Another Daily Paper Rejects All Patent Medicine Advertisements

And now it is the Canton (Ohio) *Daily News*! In its issue of May 15, 1915, this paper announced that it would "no longer accept any patent medicine advertising or other medical advertising" for its pages. It gives among its reasons for taking this step, first, that it seeks to be a newspaper of character and strives for high ideals; second, that it recognizes a growing sentiment that newspapers must be judged as a whole by the standard of their advertising columns as well as by the standard of their news and editorial columns, and third, that it realizes that "advertisements are known by the company they keep" and the *Daily News* wishes its advertisements to be favorably known. Its editorial attitude toward the "patent medicine" business is thus expressed:

"The *Daily News* believes that patent medicines, taken in the bulk, are an evil. Therefore they should not exist. The *News* has never heard any one argue to the contrary and it does not believe there are any arguments to the contrary. It has already received many endorsements of its stand, and no criticism.

"Some patent medicines are the most vicious products of our time. They promise cures for incurable diseases. They cost lives by standing in the way of proper treatment of diseases which are curable by such treatment. They act as substitutes for liquor where liquor is barred. They create drug fiends.

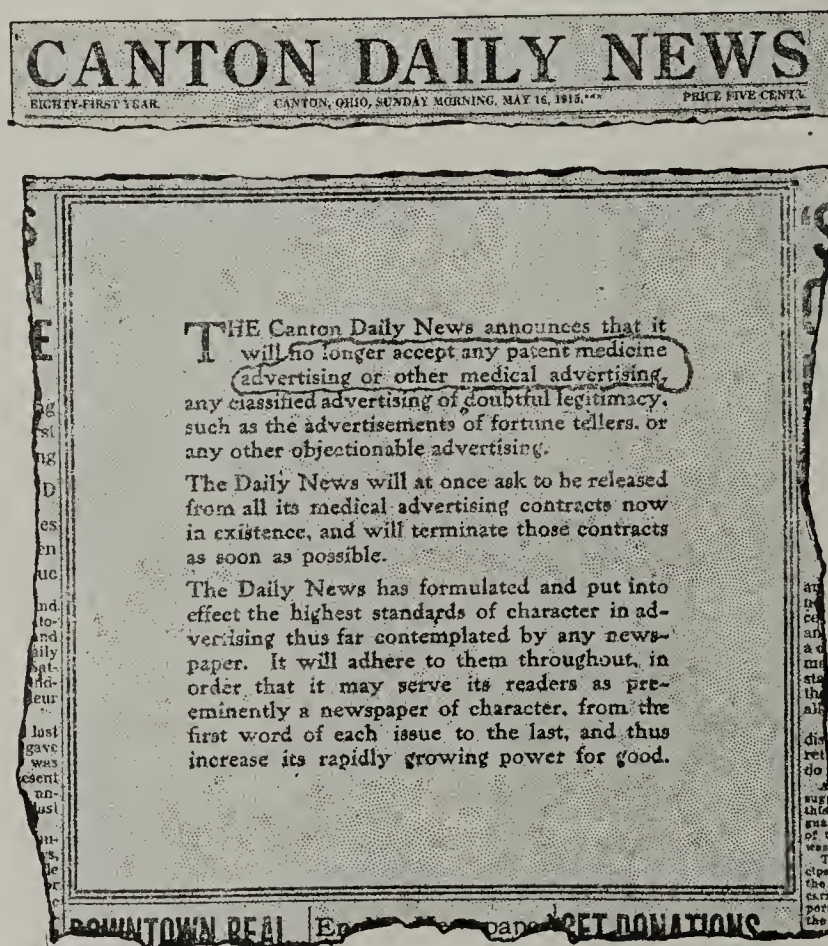
"Such patent medicines as these are vipers that ought to be crushed, must be crushed and WILL be crushed. They prosper largely because they are advertised in newspapers, magazines and other mediums. They are advertised because these mediums make money by advertising them. This is a source of revenue which the *News* is only too glad to forego. The day will come when all newspapers, whether they want to or not, will be compelled to do without this blood money."

The *Daily News* explains that it has, in the past, attempted to censor "patent medicine" advertising because it recognized the evils of many "patent medicines." It was not, however, satisfied with the way such censorship worked.

"It is hard to know where to draw the line. More, it is IMPOSSIBLE to know where to draw the line. The *News* has reached the conclusion that the only remedy for the patent medicine evil is not regulation but prohibition—the prohibition of ALL patent medicine advertising. Therefore it takes this step."

Again, we of the medical profession should turn our attention to those publications for which we as a profession are directly responsible—the medical journals. Publishers of medical journals were for years in the same position with

respect to proprietary medicine advertisements that the publishers of newspapers are today in respect to "patent medicine" advertisements. They were unable to separate the meritorious from the worthless, the useful from the fraudulent. The medical profession, through its own organization, the American Medical Association, created a body of experts—the Council on Pharmacy and Chemistry—which investigates and reports on the proprietary products that are submitted to the medical profession. The medical journal publisher of today, therefore, is in a position intelligently, fairly and scientifically to censor his advertisements of proprietary products. That in many instances he still refuses to do so is more than a reflection on the good faith of the individual publisher, it is a reproach on the good judgment of the profession which fails to lift its voice in demanding that such censorship be exercised. Once more it must be said, that, to the discredit of the medical profession, the general standard of medical journal advertising is below the standard of advertising in decent newspapers and immeasurably below the standard of advertising in the average high-class lay magazine.



CAUSE FOR OPTIMISM

A Clean Medical Journal —the South Texas Medical Record

The preceding article comparing the advertising standards of lay publications with those of medical journals may seem pessimistic. Fortunately, there are forces at work in the medical profession that make for optimism. An editorial in the last issue—April, 1915—of the *South Texas Medical Record*, the official organ of the South Texas District Medical Association, is especially significant. While not a large journal, the *South Texas Medical Record* could well stand as an example to medical publications of a much more pretentious character. Its advertising pages are above reproach and the journal is a credit alike to its editors and to those members of the profession whose support make its existence

possible. In the editorial referred to, entitled, "Honest Advertising—Let us Cleanse Our Own Linen First," the editor-in-chief, Dr. W. Burton Thorning, says:

"A recent editorial, entitled 'Honest Advertising,' in a daily newspaper, furnished the occasion for an editorial comment in the January number of the *Southwestern Hospital Reporter*. The latter, while taking the ground that the newspaper was inconsistent in uttering high editorial sentiments and in adjoining columns printing patent medicine advertisements, implied that newspaper men should be allowed some latitude in the matter of accepting advertising, on the plea of being laymen and therefore not expected to possess the same amount of information concerning patent 'dope' that medical men have.

"It would appear to be a fair assumption that a layman, even though a highly educated and able editor of a great newspaper, does not know, and cannot be expected to know, the depth of depravity to which the consumption cure faker and the cancer quack can descend.

"Granting that the newspaper man accepts the advertisements through ignorance of the facts concerning their possibilities for evil, what can be offered in defense of the medical editor who accepts advertising matter equally pernicious in its influence?"

"Indeed, it is not so many years since many of the so-called ethical medical journals carried the ads of some of the most notorious quacks this country has ever known.

"Doubtless there are few, if any, who do so at the present time, but, on the other hand, there are only a few who do not advertise unethical institutions, and questionable proprietary medicines. As a matter of fact some of the most widely advertised patent medicines of today were formerly advertised as ethical proprietaries in medical periodicals, the great majority of which are still serving as a sort of preparatory school for advertisements that will presently appear in the lay press.

"What shall be offered in defense of the medical publication which continues to publish the advertising matter of hundreds of proprietaries which the Council on Pharmacy and Chemistry of the American Medical Association has shown to be either generally worthless or an out and out fake?

"Can the medical editor plead ignorance? Hardly. To do so would be to admit utter incapacity. There is only one inference to be drawn; the publication needs the money and is not over particular regarding its source.

"There is a remedy, however, a remedy absolutely certain in its results. If every physician in the United States for a period of three months would positively refuse to receive at his desk a medical journal containing questionable advertising, this blotch on medical journalism could be erased.

"It is true that many of them would sink, never to rise again, but the profession would be better off without those whose existence depends upon 'phony' advertising. There are, unfortunately, several American journals whose reading pages are well and carefully edited and a credit to medical literature, whose advertising pages carry such undesirable matter that the educated physician can only feel a sense of disgust.

"Such journals could very well succeed on the quality of their reading matter and undoubtedly would increase their circulation enough to more than offset the loss in advertising."

Correspondence

The Defervescence in Typhus Fever

To the Editor:—May I add my experience in corroboration of your statement in a recent Current Comment, on this subject (THE JOURNAL, May 15, 1915, p. 1664) that the fever of typhus terminates in a great proportion of cases by lysis and not by crisis? The three typhus epidemics which I observed in Russia have given me sufficient material to support that statement. As a rule, the fever terminates on the twelfth, fourteenth or seventeenth day, the drop in temperature occupying from twelve to seventy-two hours. Even in the rare cases in which the fever ends abruptly, the temperature curve is seldom like the typical curve of lobar pneumonia. It may be worth mentioning that in children in whom the disease is nearly always mild, critical defervescence hardly ever occurs.

G. A. FRIEDMAN, M.D., New York.

Effect on Membership of Removal from State

To the Editor:—I enclose a copy of a resolution which was adopted by the Medical Society of the District of Columbia at a recent meeting, with the request that it be published in THE JOURNAL of the American Medical Association.

A. L. HUNT, M.D., Corresponding Secretary,
Washington, D. C.

Moved, that the Executive Committee recommends to the Medical Society of the District of Columbia the adoption of the following resolutions, with instructions that copies thereof be sent to the delegates, presidents and secretaries of the various state medical associations; that it be printed in the *Washington Medical Annals*; and that a copy be sent to THE JOURNAL of the American Medical Association with request for its publication therein.

WHEREAS, Section 3, Chapter VIII, of the By-Laws of the American Medical Association provides as follows:

Effect on Membership of Removal to Another State: A member who changes the location at which he practices medicine from the state through whose constituent association he holds membership in the American Medical Association to another state in which there is a

constituent association is eligible to membership in the component society of his new location upon the presentation of a transfer card and an official statement that his dues have been paid in full in the society in which he holds membership. He shall forfeit his membership in the American Medical Association one year after such change of location, unless he becomes a member of the constituent association of the state to which he has moved. Provided, however, that if the component society into whose territory such member has moved shall refuse him membership, the member shall be privileged to appeal to the Judicial Council of this Association to determine whether or not he be guilty of any act that warrants the enforcement of the provisions of this section. Pending the decision of such appeal, he shall retain his membership in the American Medical Association through his original state association. And provided, further, that the term "the practice of medicine" throughout these by-laws shall be held to mean the offering of service or counsel for the relief of those suffering from abnormal physical or mental conditions. Provided, that nothing in this section shall be construed as exempting any member of the American Medical Association from compliance with the requirements of the civil laws of the state or district into which he may have been removed.

Be it Resolved, That the Medical Society of the District of Columbia is opposed to the foregoing section, for the following reasons:

The section is loosely and clumsily worded, and contains provisions of questionable relevancy or practicability. The proviso relating to appeal to the Judicial Council seems meaningless, as it does not appear what "the provisions of this section" are that are to be enforced, or how they are to be enforced. According to the apparent intent, the operation of the section, if enforceable, could have the effect of compelling local and constituent associations against their will to admit members by transfer from other jurisdictions. This method of admitting members by transfer is not contemplated by the procedure prescribed in the constitution of this society, or doubtless in the constitutions of many other state associations; hence the virtual effect of this section is automatically to override and nullify in this respect these constitutions without the consent of the local associations, and even without consulting them. The adherence to the general plan of organization of the American Medical Association required of the constituent associations cannot be construed as granting unlimited control over local affairs. Absolute, complete and unrestricted control over admission to its own membership is a fundamental right vital to the autonomy of any organization. That three outsiders, however excellent, members of the Judicial Council, should have the appellate power to dictate to the hundreds of members of a constituent association as to the admission of new members is totally repugnant to the approved American principle of local self government. Their familiarity with local conditions and local spirit makes the members of a local association far better qualified to act in their own way on applicants for membership than any outside tribunal; their decision should be final, and it is not likely that material injustice will be done. Furthermore, if the right of the American Medical Association to encroach on local prerogatives and override local constitutions in one matter is conceded, there is not a limit to the autocratic interference with personal and local independence and privileges to which it or its managers might not attempt to lay claim. For the foregoing reasons the Medical Society of the District of Columbia is not disposed to recognize any authority, jurisdiction or power of interference whether on the part of the American Medical Association or its Judicial Council with respect to the admission of members or any other purely local matter. Therefore, be it

Resolved, That the delegate of this society to the American Medical Association is instructed to offer and promote the adoption of some such substitute as the following for the foregoing Section 3, Chapter VIII of the By-Laws, which should amply meet the requirements of the case.

REMOVAL OF MEMBERS.—A member of a constituent association removing from the jurisdiction thereof may remain eligible for membership in the American Medical Association for a period of eighteen months following such removal, after which such eligibility shall cease, unless or until it is reestablished by his becoming a member of the constituent association of the jurisdiction in which he is located.

Strychnin Symptoms After Large Doses of Morphin

To the Editor:—That large doses of morphin may produce symptoms resembling those caused by strychnin can be seen not only from the recent experimental work of Hugh McGuigan and E. L. Ross (THE JOURNAL, May 1, 1915, p. 1494) but also from the following observations. In the *Philadelphia Medical Journal*, March 21, 1903, I published the following record under the title, "Spinal Symptoms Caused by Acute Morphine Poisoning":

A middle-aged man in one of his usual attacks of rheumatic pain from which he had been a sufferer for several years went to a nearby pharmacy for relief. A mixture containing 3 grains of morphin sulphate was given him. He drank over a half of it at once. Half an hour later he suddenly became pale and fell in a semicomatose state. Some clonic contractions in the upper extremities and trismus made their appearance which, however, did not last long. A vomitive was given him before my arrival. I found him pale, covered with perspiration and unable to walk. When forced to take a few steps, spastic paralysis

was evident. The knee-jerks were markedly increased; ankle-clonus and Babinski toe phenomenon were present. Seventeen hours later all symptoms of motor irritability disappeared.

In the *Philadelphia Medical Journal*, March 28, 1903, W. W. Keen, commenting on my communication, reports his own experience with morphin. In 1866, he says, he had a severe attack of insomnia. In desperation one night he took one-quarter grain of morphin and repeated the dose in an hour. He not only did not sleep, but an hour or two later he walked with a spastic gait. When he accidentally struck his knee against an article of furniture in the room in the dark, instantly a spasm closely resembling a strychnia spasm was produced.

ALFRED GORDON, M.D., Philadelphia.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SERUMS AND VACCINES IN ERYSIPELAS

To the Editor:—What is the consensus of opinion of the medical profession as to the serum treatment of erysipelas. What is the dosage and how often given? Have any bad results occurred? Please sign initials only.

E. R. S.

ANSWER.—Antistreptococcus serum has been used in erysipelas with apparently good results in some cases. But as Kolmer says (*Infection, Immunity and Specific Therapy*), "with very indifferent results." Erdmann (*Reference Handbook of the Medical Sciences*, iv, 89) states: "Marmorek's and other antistreptococcus serums have failed. Autogenous and stock vaccines made from erysipelas streptococci demonstrated no efficiency in a series of ninety-five of my cases so treated." The general opinion seems to be that the evidence as to the usefulness of these serums is not convincing. However, Ashurst (*Principles and Practice of Surgery*) says: "Antistreptococcic serum is harmless and, if possible, should be administered in all severe cases." The treatment by vaccines was inefficient in the hands of Erdmann, but some authors have thought it useful. Maynard Smith (*System of Treatment*, edited by Latham and English) says: "Its results have been very promising and it is likely to form the most reliable means at our disposal. In severe cases an initial dose of 10 millions of the dead organisms is given. On the following day another dose of 10 millions is administered if there is improvement in clinical manifestation; if not, a smaller dose of 5 millions is given."

The treatment with vaccines must be regarded as still on trial.

LITERATURE ON SCOPOLAMIN

To the Editor:—Please give me information as to the physiologic action and therapeutic indications of scopolamin, and some literature on the subject.

MORRIS SCHOTT, M.D., Cleveland.

ANSWER.—The following is a list of articles dealing with scopolamin:

- Hatcher, Robert A.: Scopolamin and Morphin in Narcosis and in Childbirth, *THE JOURNAL*, Feb. 5, 1910, p. 446; Feb. 12, 1910, p. 516.
Morphin and Hyoscin (Scopolamin) in Labor, *Queries and Minor Notes*, *THE JOURNAL*, June 7, 1913, p. 1814.
Scopolamin in Obstetrics, *Queries and Minor Notes*, *THE JOURNAL*, Aug. 31, 1912, p. 758.
Frank: Case of Addiction to Scopomorphin, *München. med. Wchnschr.*, April 2, 1912.
Scopolamin (Hyoscin) and Morphin as an Anesthetic, *Therapeutics*, *THE JOURNAL*, Dec. 16, 1911, p. 1995.
Langer, H.: Scopolamin Solutions Do Not Keep Well and Should Be Made Fresh, *Therap. Monatsh.*, February, 1912.
Brunner, F.: Be Cautious with Scopolamin, *München. med. Wchnschr.*, Jan. 16, 1912; abstr., *THE JOURNAL*, Feb. 24, 1912, p. 598.
Morphin and Scopolamin, *Practical Pharmacology*, *THE JOURNAL*, Feb. 13, 1915, p. 588.
Mueller, F. H.: Disadvantages of Use of Scopolamin in Treatment of Morphin Addiction, *Berl. klin. Wchnschr.*, April 21, 1913; abstr., *THE JOURNAL*, May 31, 1913, p. 1748.
Brustlein: Be Cautious with Scopolamin, *Cor.-Bl. f. schweiz. Aerzte*, April 1, 1912.
Zimmermann, R.: Case of Scopolamin Poisoning, *München. med. Wchnschr.*, Feb. 20, 1912.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

- ALABAMA: Montgomery, July 6. Chairman, Dr. W. H. Sanders, Montgomery.
ALASKA: Juneau, July 6. Sec., Dr. Harry C. DeVighe, Juneau.
ARIZONA: Phoenix, July 6-7. Sec., Dr. John Wix Thomas, Phoenix.
CALIFORNIA: San Francisco, June 15-18. Sec., Dr. Charles B. Pinkham, 727 Butler Bldg., San Francisco.
DELAWARE: Dover and Wilmington, June 15-17. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.
FLORIDA: Jacksonville, June 15-16. Sec., Dr. E. W. Warren, 102 Front St., Palatka.
GEORGIA: Atlanta and Augusta, June 2-4. Sec., Dr. C. T. Nolan, Marietta.
ILLINOIS: Chicago, June 24-26. Sec., Dr. C. St. Clair Drake, Springfield.
IOWA: Iowa City, June 10-12. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.
KANSAS: Kansas City, June 8-10. Sec., Dr. H. A. Dykes, Lebanon.
KENTUCKY: Louisville, June 8-10. Sec., Dr. A. T. McCormack, Bowling Green.
LOUISIANA: New Orleans, June 3-5. Sec., Dr. E. L. Leckert, 716 Machea Bldg., New Orleans.
MAINE: Augusta, July 6-7. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.
MARYLAND: Baltimore, June 21. Sec., Dr. J. McP. Scott, Hagerstown.
MARYLAND: Homeopathic, Baltimore, June 15-16. Sec., Dr. O. N. Duvall, 1817 N. Fulton Av., Baltimore.
MICHIGAN: Ann Arbor, June 8-10. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.
MINNESOTA: Minneapolis, June 1-4. Sec., Dr. Thomas McDavitt, Lowry Bldg., St. Paul.
MISSISSIPPI: Jackson, June 15-16. Sec., Dr. E. H. Galloway, Jackson.
MISSOURI: St. Louis, June 21-23. Sec., Dr. J. A. B. Adcock, State House, Jefferson City.
NEBRASKA: Lincoln, June 10-11. Sec., Dr. H. B. Cummins, Seward.
NEW HAMPSHIRE: Concord, July 6-7. Regent, Mr. H. C. Morrison, Concord.
NEW JERSEY: Trenton, June 22-23. Sec., Dr. H. G. Norton, 429 E. State St., Trenton.
NEW YORK: Albany, Buffalo, New York and Syracuse, June 29-July 2. Mr. Harlan H. Horner, Chief, Examination Division, State Education Bldg., Albany.
NORTH CAROLINA: Greensboro, June 8. Sec., Dr. H. A. Royster, Raleigh.
NORTH DAKOTA: Grand Forks, July 6-9. Sec., Dr. G. M. Williamson, Grand Forks.
OHIO: Columbus, June 8-11. Sec., Dr. George H. Matson, Columbus.
OREGON: Portland, July 5. Sec., Dr. L. H. Hamilton, Medical Bldg., Portland.
PENNSYLVANIA: Philadelphia and Pittsburgh, June 1-3. Sec., Dr. Nathan C. Schaeffer, Harrisburg.
RHODE ISLAND: Providence, July 1. Sec., Dr. Gardner T. Swarts, State House, Providence.
SOUTH CAROLINA: Columbia, June 8. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.
TENNESSEE: Memphis and Nashville, June 25, 26. Sec., Dr. A. B. De Loach, 426 Scimitar Bldg., Memphis.
TEXAS: Austin, June 22-24. Sec., Dr. M. P. McElhannon, Belton.
UTAH: Salt Lake City, July 5. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.
VERMONT: Burlington, July 1-3. Sec., Dr. W. Scott Nay, Underhill.
VIRGINIA: Richmond, June 22-25. Sec., Dr. J. N. Barney, Fredericksburg.
WASHINGTON: Seattle, July 6. Sec., Dr. G. N. Suttner, Baker Bldg., Walla Walla.
WISCONSIN: Milwaukee, June 29-30—July 1. Sec., Dr. J. M. Bffel, 3200 Clybourn St., Milwaukee.

Maine March Report

Dr. Frank W. Searle, secretary of the Maine State Board of Registration of Medicine, reports the written examination held at Portland, March 9-10, 1915. The total number of subjects examined in was 10; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 16, of whom 13 passed and 3 failed. One candidate was licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Medical School of Maine.....	(1913)		81
College of Physicians and Surgeons, Baltimore.....	(1911)		76
Maryland Medical College.....	(1909)		81
College of Physicians and Surgeons, Boston.....	(1913)		88
Harvard University.....	(1912) 91; (1913) 80; (1915)		84
Tufts College Medical School.....	(1911) 79; (1913)		80
New York Homeo. Med. Coll. and Flower Hospital....	(1914)		85
University and Bellevue Hospital Medical College....	(1906)		77
University of Tennessee.....	(1912)		91
University of West Tennessee.....	(1913)		78

FAILED			
Eastern University*.....	(1913)	65	
College of Phys. and Surg., Boston.....	(1909) 77†; (1912)	69	
* This college is officially reported as not recognized by the Maryland State Board of Medical Examiners.			
† Conditioned in one subject.			
LICENSED THROUGH RECIPROCITY			
College	Year Grad.	Reciprocity with	
Boston University.....	(1906)	Vermont	

Arizona April Report

Dr. John Wix Thomas, secretary of the Arizona Board of Medical Examiners, reports the written examination held at Phoenix, April 6-7, 1915. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 7, of whom 3 passed, including 1 osteopath, and 4 failed, including 1 osteopath. The following colleges were represented:

PASSED			
College	Year Grad.	Per Cent.	
Rush Medical College.....	(1914)	80.4	
University of Vienna, Austria.....	(1910)	77.8	
FAILED			
University of the South.....	(1897)	45.5	
Vanderbilt University	(1914)	73.4	
National School of Medicine, Mexico.....	(1910)	43.6	

Book Notices

THE TUBERCULOSIS NURSE. Her Function and Her Qualifications. A Handbook for Practical Workers in the Tuberculosis Campaign. By Ellen N. La Motte, R.N., Graduate of Johns Hopkins Hospital. Introduction by Louis Hamman, M.D., Physician in Charge Phipps Tuberculosis Dispensary, Johns Hopkins University. Cloth. Price, \$1.50. Pp. 292. New York: G. P. Putnam's Sons, 1915.

This book deals with the tuberculosis situation in Baltimore. It details the problems that have presented themselves in that city, how they have been solved, and how an effective nursing staff has been built up, first under private and later under municipal control. The situation in other cities and countries is not considered. This, however, in no way detracts from the value of the book. The author believes that only graduates of first-class general hospitals should be employed as visiting tuberculosis nurses, and advises strongly against employing women who have apparently recovered from the disease. In Baltimore the applicant for a position in this service is required to submit to examination by a specialist; a certificate of health from her family physician is not accepted. The hardships and difficulties in the work are considered and the necessity for education of patients and their families. The social and economic aspects of tuberculosis relief work are considered at some length. The author believes that the social service worker has an important place in this work, but calls attention to the fact that some social workers try to do their own and every one else's work as well. "All social workers should learn where to stop—where to transfer the case to some one else better fitted to deal with another phase of it."

TRANSACTIONS OF THE FOURTH INTERNATIONAL CONGRESS ON SCHOOL HYGIENE. Five Volumes. Paper. 1913.

The Fourth International Congress on School Hygiene held at Buffalo, Aug. 25 to 30, 1913, was admittedly one of the most successful of international conferences on this subject. The Transactions fill five large volumes and contain a large amount of valuable material that will be utilized by all those interested in any aspect of the school hygiene field. Specific mention of the many valuable papers presented is impossible on account of their great number. The five volumes form a mine of valuable material that will justify the careful study of all those interested in school hygiene. The program includes practically every phase of school hygiene, so that the teacher, the physician, the school inspector, the local health officer and the school superintendent

can all find much material of interest. Paradoxical as it may seem, perhaps the most pertinent criticism that can be made on the Transactions is that they are too complete. Their very bulk is appalling and prevents one from finding many things that would doubtless be of value. While custom has sanctioned the habit of including in transactions of these congresses practically everything that has any connection with the case, there are some of these customs which would be far more honored in the breach than in the observance. For instance, it is difficult to understand why volumes of transactions should contain many pages of names of committees, delegates, exhibitors, etc., why space should be given to such purely conventional utterances as the perfunctory addresses of welcome delivered by mayors and governors and to equally perfunctory responses thereto. What object is there in printing in transactions, issued months after the congress, such transient matters as reports of entertainment, reception and transportation committees, lists of hotels with rates, etc.? The editorial blue pencil, if liberally used, would have reduced the five volumes of Transactions to one or two and would greatly have increased the value of the surviving material. These international congresses are undoubtedly of great value, and the material presented is in the main thoroughly worthy of preservation; but there would be less likelihood of such Transactions reposing undisturbed on library shelves if the enthusiasm of those responsible for the preparation of these Transactions were somewhat tempered by discrimination.

URINARY ANALYSIS AND DIAGNOSIS BY MICROSCOPICAL AND CHEMICAL EXAMINATION. By Louis Heitzmann, M.D. Third Edition. Cloth. Price, \$3 net. Pp. 345, with 131 illustrations. New York: William Wood & Co., 1915.

In the present revision, "the aim has again been to increase and improve the first part on chemical examination and to incorporate in it all the simpler methods and tests which have proven of value." With few exceptions the more complicated tests have been omitted. As in the former editions, special emphasis is laid on the microscopic examination and its importance in diagnosis. While there is no question that a careful study of the urinary epithelia may often lead to presumptive, and occasionally to an absolute differential diagnosis, it seems likely that Heitzmann has taken too radical a position regarding the importance of the epithelia in diagnosis. The sections dealing with these points are especially complete and worthy of careful attention by the reader. This well-known book, while not so complete as could be desired with reference to the chemical examination of the urine, is, nevertheless, adequate for all who do not wish to undertake the more detailed special examinations. Its chief value lies in its thorough presentation, both in the text and in the excellent original illustrations, of the microscopic characteristics of the urine and, especially, of the value of such examinations in differential diagnosis.

DIE FÄZES DES MENSCHEN IM NORMALEN UND KRANKHAFTEN ZUSTANDE MIT BESONDERER BERÜCKSICHTIGUNG DER KLINISCHEN UNTERSUCHUNGSMETHODEN. Von Prof. Dr. Ad. Schmidt, Geh. Medizinalrat, and Prof. Dr. J. Strasburger, Ordentl. Professor der Inneren Medizin. Fourth Edition. Paper. Price, 22 marks. Pp. 444, with 31 illustrations. Berlin: August Hirschwald, 1915.

Since the appearance of the former edition of this authoritative work, investigation of the feces has become more complex. For this reason the additions to the text and bibliography have been numerous. Especial attention should be directed to the section on the micro-organisms of the feces, as herein may be found a clear discussion of the occurrence and differentiation of the various types of bacteria which are observed in the intestinal tract both in health and disease. The section dealing with the chemical analysis of the feces is also particularly complete, and should lead the worker to a much more complete technic than is usually employed. This work may be recommended to the laboratory worker who has occasion to examine and study the feces, and to the general practitioner who may desire to obtain a better understanding of methods of study, as well as of the proper interpretation of the analytic findings in this much neglected field.

Medicolegal

Making a Public Nuisance of Milk Pasteurization—Criminal Intent

(*People vs. Borden's Condensed Milk Co. (N. Y.), 151 N. Y. Supp. 547*)

The Supreme Court of New York, Appellate Division, Second Department, affirms a judgment holding the defendant guilty of having committed the crime of maintaining a public nuisance in its method of pasteurizing milk. The court says that the defendant claimed that all the acts or omissions charged against it were merely incidental to the process of "pasteurization," and that therefore its acts or omissions had statutory sanction and could not be considered as constituting a public nuisance in a legal sense. It may be granted at once that the ordinance of the board of health had the force of a statute, for the Greater New York Charter so provides. But this ordinance did not purport to prescribe nor to authorize any detail in the act of "pasteurization," such as was charged against the defendant in this proceeding. It did require "pasteurization" generally, but it is very far-fetched to think that this requirement authorized, much less directed, the making of unnecessary noises in the very early hours of morning, either within or without the defendant's plant, and to the great annoyance of the residents of the neighborhood. The defendant urged further that the judgment was reached by ignoring the necessity of proving a criminal intent on the part of the defendant, and that therefore it was based on a substantial error of law. What is meant by the phrase "criminal intent," within the scope of the definition of the crime of maintaining a public nuisance? It does not mean that one who is charged with the commission of that offense should be shown to have consciously and positively intended to interfere with the comfort and repose of "any considerable number of persons." His criminality is independent of any positive purpose of annoyance. It can arise as well from his very failure to think of anybody but himself, and, generally, public nuisances, whenever and wherever they exist, arise from just such self-concentration. The acts involved here were so continuous and persistent as to indicate on the part of the defendant's employees a complete indifference to the rights of others and, as to the crime now under consideration, to establish a "criminal intent" within the meaning of the law.

Injury to Previously Injured Person—Distinction Between Hypothetical and Other Questions

(*Blake vs. City of Bedford (Ia.), 151 N. W. R. 74*)

The Supreme Court of Iowa affirms a judgment for \$2,750 in favor of the plaintiff, a man about 60 years old, who was injured on a defective sidewalk more than nine months after he had been injured by a fall from a ladder. The court says that the fact that the plaintiff had sustained a prior injury was of course material, but it constituted no defense to this action, if he succeeded in showing to the jury, that, by reason of the defendant's negligence with respect to its sidewalk, he was made to fall, without fault on his part, and thereby received other or additional or increased injury. A physician who was shown to have personally examined and treated the plaintiff for his injuries was asked for his opinion whether a union, bony or fibrous, of the broken bone had taken place prior to the plaintiff's fall on the sidewalk. In this question the witness was asked, among other things, to speak from his examination and observation of the patient. It was urged that the witness should not have been allowed to answer until he had first detailed to the jury all that he had learned or discovered in his examination and treatment of the patient. But such is not the rule. If a witness is testifying purely as an expert, pronouncing an opinion solely on a hypothetical state of facts, then of course it is the right of the opposing party to insist that the question shall disclose all the facts on which the opinion is to be pronounced. But, if the witness be a physician who professes to speak from his personal observation, examination, and treatment, he may properly express an opinion based thereon,

it being, of course, the privilege of counsel on the other side, by cross-examination, to test its accuracy and reasonableness.

Information Not Obtained for Purpose of Treatment Is Not Privileged

(*Cherpeski vs. Great Northern Railway Co. (Minn.), 150 N. W. R. 1091*)

The Supreme Court of Minnesota, in reversing a judgment obtained by the plaintiff for personal injuries, holds that it was error to exclude the testimony of two physicians called as witnesses by the defendant. One of them was a physician and surgeon of the Northwestern Road. The defendant proposed showing that the plaintiff went to him and was examined for the purpose of ascertaining whether he could enter the service of the road. The other physician was the general surgeon of the defendant. The plaintiff, according to the offered proof, went to him to ascertain whether he was physically able to remain in the service of the company. In neither case was curative treatment contemplated. In neither case did the physician obtain information to enable him to prescribe or act for the plaintiff. Objections to the proposed testimony were sustained on the ground that the information sought was privileged. But from the showing made or offered to be made the court thinks it affirmatively appeared that the information obtained by the two physicians was not privileged. At common law communications between physician and patient or information obtained by the physician in treating his patient were not privileged. The privilege comes from the statute.

Injury from Negligently Cutting Through Bandage—Care Required in Public Dispensary

(*Volckell vs. Wolf (N. Y.), 151 N. Y. Supp. 918*)

The Supreme Court of New York, Appellate Term, First Department, which affirms a judgment in favor of the plaintiff, amount not stated, says that the defendant, a surgeon, operating in a dispensary, inflicted an injury on this infant plaintiff while cutting through a bandage in which the child's broken arm was wrapped. The defendant claimed that, if the bandage had been adjusted properly and in the usual fashion, the patient's hand would have been fastened tightly to the body and in no danger of being cut. He admitted that before cutting he made no examination to ascertain where the hand was, or what was concealed under the point where he applied the shears, claiming that "he had a right to assume that it (the bandage) was properly put on; also that, "I think the whole hand was exposed, but I did not see it; I had the impression that the bandage was outside of the upper part;" also that it was merely good fortune that the infant's hand was not cut off. The hurry of work in a public dispensary does not excuse the lack of ordinary care. The defendant could not assume that the hand was in a safe position, and rely on that, when the fact could be readily ascertained by himself before applying the shears. The finding of negligence was warranted by the evidence.

What Constitutes Removal of Hand at Wrist

(*Moore vs. Aetna Life Insurance Co. (Ore.), 146 Pac. R. 151*)

The Supreme Court of Oregon affirms a judgment for the plaintiff, where the question was disputed as to whether his hand had been removed at the wrist. The court says that the question was one of extreme nicety, and there is a dearth of decisions covering the exact point, there being no case cited by counsel or discovered by the court involving the construction of a policy exactly identical in its terms with the one on which this action was predicated. This was an action to recover on an accident insurance policy, which provided that the plaintiff should be entitled to recover \$1,000 if he should suffer accidental injuries resulting in the "loss of a hand by removal at or above the wrist." The plaintiff was accidentally shot in the hand, necessitating the removal of all the bones of the hand at the wrist except the metacarpal bone of the thumb. From the medical testimony, which was meager, and photographs taken about the time of the trial, it appears that the amputation began at the inner side of

the left wrist, removing probably a small portion of the unciform bone, and including in the operation all the metacarpal bones of the four fingers at their articulation with the unciform, os magnum, and trapezoid, respectively. The os magnum, trapezoid, and trapezium were clearly left intact, and the bones of the thumb, while possibly injured by the shot, retained their continuity. The thumb itself was not removed, although the ball of that member was partially destroyed and the ligaments so injured that it was stiff and entirely useless. The medical witness stated that in his opinion it would have been better to have removed what remained of the thumb, so that the plaintiff could have had an artificial hand. There was enough of the flesh of the hand to cover the bones of the wrist, forming what the medical witness termed "a bunch of hardened callus" at the end of the wrist, probably no more than good surgery would require for the protection of the bones of the wrist. The court is of the opinion that the plaintiff was within the true meaning and spirit of the policy. He had a good hand against losing the use of which he desired to insure. If he had been told the intent and meaning of the policy was such that if in case of a necessary amputation the surgeon should leave some useless shred of his hand to be a source of annoyance and inconvenience, and thereby his policy would be practically worthless, does any sane person believe for a moment he would have taken out the policy? The substance of what he sought was insurance against the possible loss of his hand as a useful member of his body. Substantially he lost his hand by removal at the wrist.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, SAN FRANCISCO, JUNE 21-25.

American Academy of Medicine, San Francisco, June 25-28.
American Climatological and Clin. Association, San Francisco, June 18-19.
American Laryngological Association, Niagara Falls, June 1-3.
American Laryn., Rhin. and Otol. Society, Chicago, June 15-16.
American Ophthalmological Society, New London, Conn., July 6-7.
American Otological Society, Niagara Falls, June 3-4.
American Society of Tropical Medicine, San Francisco, June 14-16.
American Surgical Association, Rochester, Minn., June 9-11.
Arizona Medical Association, Prescott, June 17-18.
Maine Medical Association, Poland Springs, June 9-10.
Massachusetts Medical Society, Boston, June 8-9.
Montana State Medical Association, Bozeman, July 14-15.
Nat'l Assn. for the Study and Prev. of Tuberculosis, Seattle, June 14-16.
Nevada State Medical Association, Reno, June 17-19.
New Jersey Medical Society, Spring Lake, June 22-24.
North Carolina State Medical Society, Greensboro, June 16.
Rhode Island Medical Society, Providence, June 3.
Washington State Medical Association, Tacoma, July 20-22.

AMERICAN GASTRO-ENTEROLOGICAL ASSOCIATION

Eighteenth Annual Meeting, held at Baltimore, May 10, 1915

The President, DR. JOSEPH C. BLOODGOOD, in the Chair
Benign Growths of the Stomach

DR. SEYMOUR BASCH, New York: Only the genuine new growths are considered. They include mucous polypi, adenomas, lymphadenomas, myomas, fibromas, lipomas, myxomas, osteomas and cysts. When the mucous membrane is not involved and there is no obstruction from the growth, normal conditions of the gastric secretion should prevail.

DISCUSSION

DR. JACOB KAUFMANN, New York: A patient whom I had occasion to see several times with her physician, a girl, suffered from her fourteenth to her nineteenth year with repeated gastric hemorrhages of very severe type, occurring shortly before menstruation. Roentgenograms made on two occasions showed the characteristic picture of penetrating ulcer of the duodenum. At operation, the duodenum and pyloric part of the stomach were found normal, but fibroma was discovered at its cardiac end. The mucous membrane

around it was quite congested, and when the tumor was handled, a profuse hemorrhage was produced. I think we have every reason to pronounce this a true case of menstrual bleeding from the stomach.

DR. HENRY W. BETTMANN, Cincinnati: A man, now about 50 years of age, has suffered for fifteen years with pain and hyperacidity of the stomach. Nine years ago, an operation was done, and the whole mucous membrane was found covered with small polyadenomas. We did nothing but sew up the stomach again. He will probably go on for the rest of his life suffering from the same symptoms. The supposed rarity of these cases may be due to the fact that we have failed to put isolated cases of this character on record.

DR. JOHN A. LICHTY, Pittsburgh: I should like to ask Dr. Basch whether he relies largely on the Roentgen ray in making the diagnosis. The slides he has exhibited seem to show a rather large shadow. In cases of small polypi, however, I can hardly see how the Roentgen ray would help.

DR. SEYMOUR BASCH, New York: The Roentgen ray is a distinct advance in the diagnosis of borderline cases. Roentgenograms show not only a distinct shadow defect caused by the penetration of the tumor into the bismuth, but also a notched appearance.

The Cause of the Variations in the Gastric Hunger Contractions with Age

DR. T. L. PATTERSON, Baltimore: By starving young and old animals, it is possible to show that in very young dogs the contractions of the empty stomach are practically continuous, while in old animals there is a decrease in the gastric hunger activity proportional to the advance in age. Gastric hunger variations appear in the gastric tonus, in the strength and rapidity of the hunger contractions, and especially in the duration of the hunger and quiescence periods of the stomach, the cause of which is produced by two differentiated factors, namely, age and rate of metabolism. The gastroneuromuscular apparatus is independent of the central nervous system. In prolonged starvation, the hunger sensation may be lost, while the hunger contractions persist.

DISCUSSION

DR. LUDWIG W. KAST, New York: Is there any relation between the hunger contractions and the gastric secretion?

DR. JOSEPH C. BLOODGOOD, Baltimore: In these experiments, did Dr. Patterson differentiate between the different groups by restricting all food and liquid in one group, and restricting food alone in the other? If so, I should like to know whether there was any difference in the contractions when the animals had all the water they wanted.

DR. T. L. PATTERSON, Baltimore: Regarding the relation between the gastric hunger contractions and the gastric secretion, anything that comes in contact with the gastric mucosa will inhibit the gastric hunger contractions at once whether it be water or food. The hunger contractions do not seem to have much effect on the gastric secretion. All the animals had free access to water, but had no food.

The Effect of Certain Gastric Conditions on the Salivary Secretion

DR. T. R. BROWN, Baltimore: Our studies show that the chewing of bland substances produces a considerable flow of saliva, which is quite rich in diastatic ferment. A comparison of normal cases with cases in which there was increased, diminished or absent hydrochloric acid showed that there were no variations from the normal in respect to quantity, alkalinity or diastatic ferment content of the saliva sufficiently great to make us feel that there is any definite relationship between the character of the gastric juice and that of the saliva. It does not appear probable that quantitative or ferment changes in the saliva play any considerable part in the development of the glossitis, gingivitis or stomatitis, so frequently met in a case of achylia gastrica.

DR. E. B. FREEMAN, Baltimore: In one of our cases of achylia due to carcinoma of the stomach, the diastase test was positive, and also in a case of hyperacidity, there being a large amount of diastase present in both cases.

DISCUSSION

DR. G. C. MIZELL, Atlanta, Ga.: It has seemed to me that during the last five years there has been a marked increase in the number of cases of hyperchlorhydria and achylia gastrica in patients in the South presenting themselves for treatment of gastro-intestinal disturbance. I have not found any relationship between the gastric and the salivary secretion. I have tested for the ferments, and have not found them absent in any of the cases.

DR. MAX EINHORN, New York: I think that achylia gastrica is more frequent in patients coming from the South than in Northerners, but cannot say whether it is on the increase. In fact, it would not be easy to tell, because formerly we did not know much about achylia.

DR. JOHN A. LICHTY, Pittsburgh: I have always been accustomed to attribute the dryness of the mouth and the glossitis that we usually find in cases of achylia gastrica to that condition. I have found that patients with malignant disease of the stomach complain frequently of an increase of saliva. I have recently come to the conclusion that this occurs only in those cases of carcinoma in which the growth is near the esophageal opening.

DR. JACOB KAUFMANN, New York: The difficulty I have found is in examining the saliva, which is a very complicated secretion. It is composed of secretions of different glands. It is a question whether, in examining the saliva, it is sufficient to examine for alkalinity and different ferments.

DR. LUDWIG W. KAST, New York: There are two points that interested me particularly. One is the fact that mechanical stimulation of the salivation brings about secretion from the parotids. The other point is the relationship between the nutritive or inflammatory changes in the tongue and the mucous membrane of the mouth and conditions of the stomach. Achylia gastrica may be secondary to disturbances in the mouth.

DR. CHARLES D. AARON, Detroit: In cases of pernicious anemia in which there is achylia gastrica, we usually find a glossitis. The subsidence of glossitis with the giving of hydrochloric acid leads one to believe that there is some connection between the stomach and the trouble in the mouth.

DR. JOSEPH C. BLOODGOOD, Baltimore: During the last year I have been especially interested in a group of cases in which the tongue showed a peculiar lesion that I was at first afraid might be cancer. Of 100 cases of cancer of the tongue, however, only three were in women; but this lesion seems to be just as frequent in women as in men. It is often associated with achylia. It occurs in the middle of the tongue, from base to tip; but I have never seen cancer, except at the tip.

DR. E. B. FREEMAN, Baltimore: In both cases, the carcinoma was along the lesser curvature, and probably primary.

DR. T. R. BROWN, Baltimore: We had the patient chew a piece of rubber tubing of definite size for twenty minutes, and this brought about secretion. I am quite sure that glossitis and gingivitis are more prevalent in benign than in malignant achylia. The hyperacidities and the achylia showed about the same degree of secretion. I do not believe that there is much relation between gastric and salivary secretion, but it is probable that there is a relation between the salivary and the pancreatic.

Recent Studies in Pancreatic Secretion

DR. MAX EINHORN, New York: I have examined a number of normal persons by means of the agar-tube method, in order to find the standard content of amylase, steapsin and trypsin in the pancreatic juice. Boiled milk and unboiled milk were used in examining both the gastric and the pancreatic secretions. Each ferment should be examined separately, because if one ferment is found high, the others are not always high in proportion. By the amount of change found in the tube after twenty hours, one can estimate approximately the amount of the ferment examined that is present.

DISCUSSION

DR. T. R. BROWN, Baltimore: An interesting point is the variation in the amount of the different ferments according to the pabulum given.

DR. FRANKLIN W. WHITE, Boston: It seems to me that some of the variation in the amount of the three ferments may be due to the technic of the ferment test, which is certainly not simple or altogether satisfactory. I think the proteolytic ferment, the trypsin, is more valuable for diagnostic purposes than either the amylase or the lipase.

DR. JACOB KAUFMANN, New York: Usually these examinations are made with the patient in a fasting condition. It is a question whether, if the tube is introduced into the duodenum before the meal is given, it gives one an opportunity to tell how the pancreas secretes.

DR. CLEMENT R. JONES, Pittsburgh: In a case in which the feces contained large fermented curds, this seemed to me to demonstrate a lack of balance between the pancreatic and other intestinal secretions. The condition was controlled by administering sodium citrate in the milk, thus splitting up the curds.

DR. MAX EINHORN, New York: The tubes spoil after being kept more than two or three months; but if kept on ice, they last very well for five or six weeks. I have made the examinations with the patients in a fasting condition or after taking tea and sugar. If solid food is given, the tube will block up; but any liquid food may be given. The results obtained in a fasting condition were the same as those after taking tea and sugar.

Surgical Physiology of the Colon

DR. WILLIAM DRAPER, New York: The influence of heredity and environment on the functional abnormalities of the human colon is great, and these fundamental biologic factors are worthy of further consideration. To attribute pathologic conditions of the colon to any single factor is a grave error, as isolated deficiencies may be compensated for. Many complicated factors go to maintain the balance. No matter how severe the derangement within the bowel, so long as balance is maintained, the body is protected. When the defensive power is weakened, the symptoms immediately arise.

DISCUSSION

DR. TREBY LYON, New York: From personal experience, I can say that after solidification of the feces, which occurs in six weeks, there is so little discomfort after ileostomy compared with the relief afforded by the cessation of the symptoms that I should unhesitatingly advise its employment in severe cases of inflammation of the colon.

DR. J. M. LYNCH, New York: Dr. Lyon came under my care three years ago, suffering from diarrhea alternating with constipation, loss of weight, and the passage of blood and mucus. The methods of treatment previously tried by him had proved of little use, and I suggested treating the polyposis, which is usually associated with inflammation of the colon, by putting the colon at rest by means of complete ileostomy, which was done. In seven other cases as well the patients had free movements after a short time. There is perhaps a little more discomfort from an ileostomy than from a colostomy, but very little; and all the patients had gained in weight. Dr. Lyon practices his profession, and very few people in his town know that he has an opening in his side. There are no tumors remaining now, so far as we can see.

DR. J. C. BLOODGOOD, Baltimore: I think we have had a pretty good demonstration that side-tracking of the colon with an artificial anus near the cecum is by no means an unbearable condition.

DR. SEYMOUR BASCH, New York: Was the inflammation in Dr. Lynch's cases primary, and the polyposis secondary, or was it an infectious process?

DR. WILLY MEYER, New York: Was the colon side-tracked for the purpose of avoiding the irritation from the feces or for the sake of irrigation of the colon? It is important for physicians and surgeons to find out whether this radical treatment is always necessary.

DR. JOSEPH C. BLOODGOOD, Baltimore: When we side-track the colon by bringing out the ileum, there will be a difference in the irritative character of the effect of the fecal flow on

the surrounding skin in relation to the condition of the colon before the operation. If it has been diseased to such an extent that the ileum has taken up the function of the colon, we may find no irritation and normal stools, as in this case. When, however, the ileum is functioning normally, we may have trouble, as in my last case.

DR. J. M. LYNCH, New York: I have never performed an ileostomy on a person with a practically healthy colon, so I cannot say how its contents would flow from the ileum in these circumstances. I do not know that we ever have polyposis with a simple or catarrhal inflammation. I believe that the polyposis is secondary to the inflammation.

Study of Carbohydrate Cures in Diabetes Mellitus

DR. JOHN C. HEMMETER, Baltimore: Diabetes mellitus is a disease the pathogenesis of which has involved every organ of the body except the heart and lungs, and the chief cause of which is an affection of the islands of Langerhans in the pancreas. My personal observations were made under quantitative controls of the blood, stools and urine. The method for determining the amount of sugar in the blood is one within the reach of every general practitioner. It is the Ivar Bangs method of quantitative estimation. We must differentiate between the disappearance of sugar from the urine and increased carbohydrate tolerance. A human being cannot live without sugar, so we cannot entirely withhold it; but we can give a kind that is not converted into glycogen, but goes into the circulation direct, such as the oatmeal inosit and hediosit sugar.

DISCUSSION

DR. JOHN A. LICHTY, Pittsburgh: So far as the method of Bangs is concerned, I do not believe that it will help us clinically until there has been further study. There must be more sugar at some times during the day than at others, according to the times of taking food and taking exercise. I did not see much difference in the patients to whom I fed hediosit. I have recently tried Allen's method of treatment in nine cases with very good results.

DR. MAX EINHORN, New York: In some cases, which I have studied, the ferments may be normal; in some, there is hypersecretion of the pancreas; and in others, there is too little secretion. The external secretion may be changed in different ways.

DR. CHARLES O. STOCKTON, Buffalo: There is no doubt that in the majority of severe cases, the patients may be made sugar-free, and even free from the presence of acetone bodies in the urine, by this method; and that we may establish a higher and higher carbohydrate balance; but occasionally we find a patient in whom we cannot raise the carbohydrate tolerance above about 30 gm., and who may easily lose even that. These unsuitable cases will do better on certain forms of carbohydrate than on others.

DR. LUDWIG W. KAST, New York: What the general practitioner wants to know is how much of all these studies in regard to these different forms of carbohydrate lends itself to direct practical application.

DR. JOHN C. HEMMETER, Baltimore: You must try to increase the weight of the patient, without trying to get him sugar-free. A little sugar does not matter, if his carbohydrate tolerance is increasing. After this treatment, which has an effect on the islands of Langerhans, the patient can stand bread and starch better.

The Value of Rectal Alimentation

DR. HARRY ADLER, Baltimore: The usual method of rectal feeding is unsatisfactory. The drop (Murphy) method, with peptonized milk and sugar solution, is markedly less annoying. In our experiments, the largest amount of nitrogen that we were able to supply daily was 8.9 gm., of which 8.06 gm. was returned with the stools. According to the observations of Dr. Muller, the stools of individuals taking absolutely no nourishment contain 0.2 gm. per diem. With this deducted from our estimations of the returned nitrogen, we have in no case observed an absorption of more than 50 per cent. of the protein supplied; and it has fallen to as low as 30 per cent. The average amount of nitrogen absorbed in these cases was

1.14 gm. per diem. When we compare the amount of nitrogen lost by these cases with the amount that it was possible for them to absorb by colonic feeding, we realize how little we can accomplish. The difference between nutritional enteroclysis and normal salt enteroclysis is little over one-tenth of the tissue albumin loss per diem; over the periods of time that rectal feeding is usually carried out, it is, from a practical standpoint, an almost negligible quantity.

DISCUSSION

DR. JACOB KAUFMANN, New York: Some of the nitrogen found in the stools is derived from the secretions, and this constitutes a possible source of error in making the estimations. I do not think that there is absolute proof of the uselessness of nutrient enemas.

DR. MAX EINHORN, New York: We should try to give glucose by rectum, as it is the best material.

DR. FRANKLIN W. WHITE, Boston: I think it is valuable to contrast with this piece of work done by Dr. Adler the fact that nitrogenous equilibrium can be maintained by duodenal feeding. You can get it all in by the duodenum, but not by the rectum.

DR. LOUIS M. GOMPertz, New Haven, Conn.: In some experiments that we conducted, a few years ago, it was found that the rectum is capable of salt absorption to about the same degree as the stomach. Experiments were also made with various other solutions. While I believe rectal feeding to be a pure makeshift, half a loaf is better than none. The use of salt solutions, water and dextrose solutions will tide the patients over the critical period required for rectal feeding.

DR. JOHN C. HEMMETER, Baltimore: I should like to know whether the calculation that you can supply only one-tenth of the nitrogen required by colonic feeding was based on the metabolism experiments made during rest or during activity. During rest, the food taken is entirely used in keeping up the heat of the body, which can be done without food, by artificial means.

DR. HARRY ADLER, Baltimore: The patients were absolutely at rest, in bed, or they could not have been fed by the drop method. We could supply only one-tenth of the amount needed when at rest. It is impossible to estimate accurately the absorption of sugar. We cannot give large amounts of milk by the drop method, because the rectum soon becomes irritated. We gave 8 ounces at a feeding, and gave three feedings a day.

Duodenal Ulcer with Especial Reference to Its Roentgen-Ray Diagnosis

DR. R. WALTER MILLS, St. Louis: The object of the paper is to review certain clinical findings in duodenal ulcer in their relation to clinical teaching and experience. The observations are founded on a series of thirty operatively confirmed cases of duodenal ulcer and eighty cases so diagnosed and treated medically, in which both clinical and Roentgen-ray findings were characteristic of duodenal ulcer, including six with a history of hemorrhage. We may conclude that the greater efficiency of controlling alkalies in duodenal ulcer as compared with gastric ulcer is due to the small amount of stomach and duodenal contents present at the time; that pylorospasm has nothing to do with causing the pain of duodenal ulcer; that the pain must originate in the cap; that all indications are unfavorable to the idea that the pain of duodenal ulcer is due to hypertension, the so-called adequate stimulus of visceral pain, but is in favor of the idea that the nerve-endings in the ulcer floor become abnormally sensitive to an excess of hydrochloric acid.

The Roentgen Ray in Gastro-Intestinal Affections

DR. CHARLES D. AARON, Detroit: I wish to make a plea for a standard Roentgen-ray test meal. I am of the opinion that the adoption of the following suggestions will increase the value of the Roentgen ray as a diagnostic aid in gastro-enterology: The roentgenologist should be a trained and experienced anatomist and pathologist. There should be standardization of methods and technic. The physician should acquire the ability to make a probable estimation of

the diagnostic value of a Roentgen-ray report. The patient should not be subjected to operation without a confirmation of the original findings by a second Roentgen examination, made after an interval of two or three days. The clinician must not attach too much significance to the Roentgen-ray findings, unless they are absolutely decisive. The lesion discovered by the Roentgen ray must be a constant finding, regardless of position or slight variations in technic. Great care must be exercised to differentiate physiologic and spastic conditions from those that are essentially pathologic. The Roentgen-ray report should be considered on the same basis as any laboratory report. The physician must carefully correlate the Roentgen-ray findings with the anamnesis and the clinical and laboratory findings.

DISCUSSION

DR. F. H. BAETJER, Baltimore: With different meals, the motility and emptying time of the stomach are different; so that it is impossible to reconcile the findings of one roentgenologist with another. Every stomach is different, so you must determine the motility from the standpoint of that individual stomach. For instance, the stomach of a fat man occupies a horizontal position, and tends to empty more quickly than the fish-hook stomach found in a thinner person. Moreover, chronic irritative lesions elsewhere in the digestive tract will produce changes in the gastric condition.

DR. ARTHUR F. CHASE, New York: In making a diagnosis, it is important to realize that the patients are laboring under a peculiar nervous condition with this enormous amount of bismuth in the stomach. Prolonged examinations, therefore, will produce abnormal pictures. I believe the pain in duodenal ulcer to be due to spasm produced by substances passing over irritated nerves.

DR. GEORGE R. LOCKWOOD, New York: While Roentgen-ray diagnosis has been one of the most valuable things in internal medicine brought into use within the last few years, it has its limitations. When it agrees with clinical and laboratory findings, we are quite correct in thinking we have done a good thing in making Roentgen-ray examination; but when the Roentgen-ray diagnosis is not corroborated or is antagonized by other clinical laboratory methods, we are decidedly puzzled.

DR. CLEMENT R. JONES, Pittsburgh: I wish to enter a protest against the use of buttermilk as a vehicle for the bismuth. The varying degrees of acidity of commercial buttermilk may account for some of the variations in the results at different times.

DR. FRED B. LUND, Boston: I have seen several cases lately in which the diagnosis of duodenal ulcer was made on the basis of deformities in the duodenal cap, but in which operation showed adhesions of the great omentum to the pylorus or to scars on the abdominal wall, producing an S-shape to the duodenum, and even the appearance of a little cap. The long, narrow line that Dr. Mills says is indicative of cancer may prove a valuable aid in early diagnosis. It was seen in two cases of growth of the pylorus which I had recently. I had supposed it occurred only in cases of extensive cancer, but both these growths were simply on the side of the pylorus and the first portion of the duodenum.

DR. WILLY MEYER, New York: It is wrong to let cases go to the Roentgen-ray man without giving him their clinical history, and then ask him to make a report on which to base a diagnosis, as is done in most hospitals.

DR. DUDLEY D. ROBERTS, Brooklyn: Perforating gastric ulcers are rather uncommon. I have seen only two perfect pictures of this condition among my own cases, one with, and the other without an air-bubble. Both refused operation, were treated medically, and made an entire symptomatic recovery.

Duodenal Feeding in Atony, Dilatation and Ptosis of the Stomach

DR. CLEMENT R. JONES, Pittsburgh: The duodenal tube as used by Dr. Einhorn has been of exceptional service in selected cases. It is the ideal method of rest for the stomach,

at the same time supplying the body with nutritious food at a point in the intestinal tract where it can be digested. Certain points in the modification of the treatment suggested by Dr. Morgan have served to place the treatment on a very practical basis: (1) the longer tube, which allows the food to enter the intestines at a point where it can exert no direct pressure on a duodenal ulcer; (2) the discontinuation of the use of sugar of milk in some cases; (3) the drop by drop method, by which it is possible to keep up a continuous flow of the nutrient fluid. In addition, various slight changes in the technic must be made from time to time by those prescribing this treatment.

DISCUSSION

DR. JULIUS FRIEDENWALD, Baltimore: I have used the duodenal tube a great deal in the feeding of cases of ulcer that have resisted the usual method of feeding, and in cases of persistent vomiting, and am quite convinced that I have saved lives by this means.

DR. FRANKLIN W. WHITE, Boston: I have been impressed with the results of the use of this method in my practice, even when the tube had to be sent out to the country to be used by a doctor there. It deserves more thorough trial than it is getting at present.

DR. WILLY MEYER, New York: My experience with the tube is limited to cases of ulcer. I am opposed to its use in atony.

DR. MAX EINHORN, New York: I have never had any case of perforation from the use of the tube. It usually goes down to a point 8 cm. from the teeth, but it can go as far as 92. The pylorus is 56 cm. from the teeth. I have seen some cases of atony and ptosis in which, after two weeks of this treatment, there was a change in the shape and position of the stomach.

DR. THOMAS CHARLES MARTIN, Washington, D. C.: The distance from the incisors to the cardia in a given case is the same as the distance from the eye to the elbow; and that from the cardia to the duodenum is equal to the longest diameter of the splash sound area when the patient is in an angle of 15 degrees.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

May, LXXI, No. 5, pp. 721-880

- 1 Study of Scopolamin and Morphin Amnesia as Employed at Long Island College Hospital. J. O. Polak, New York.
- 2 Twilight Sleep; Report of One Thousand Cases. R. M. Beach, Brooklyn.
- 3 *Use and Abuse of Pituitrin in Obstetrics. R. C. Norris, Philadelphia.
- 4 *An Improved Method of Closing Abdominal Incision. A. Heineberg, Philadelphia.
- 5 *An Improved Method of Suturing Flaps in Amputation of Cervix. A. Heineberg, Philadelphia.
- 6 Transfusion by Syringe Method. G. M. Dorrance, Philadelphia.
- 7 Acute Traumatic Displacement of Uterus. E. D. Barringer, New York.
- 8 Clinical Significance of Amenorrhea in Diagnosis of Tubal Pregnancy. M. Rabinovitz, New York.
- 9 Rapid Method of Determining Expected Date of Confinement. F. L. Adair, Minneapolis.
- 10 Problems of Foundling Home. J. Zahorsky, St. Louis.
- 11 Best Artificial Food Mixtures for Hospital Babies. H. Lowenburg, Philadelphia.
- 12 Prevention of Infantile Atrophy in Hospitals. E. W. Mitchell, Cincinnati.

3. Use and Abuse of Pituitary Extract in Obstetrics.—Norris would never use this without exhausting his abilities in obstetric diagnosis. He considers that healthy multiparas with relaxed birth canals offer the widest and safest fields. For inertia in the early stage of labor, the sleep of morphin, chloral or scopolamin is preferred; in the advanced stages of labor, pituitary extract, he says, often will wisely

keep forceps innocuous. The uterus, after the tumultuous visitation of pituitary extract, usually needs the steadying hand of ergot. Half doses are more often to be employed than full doses.

4. **Method of Closing Abdominal Incision.**—With the method used by Heineberg, cutting of the skin and the introduction of infection from the cutaneous surface by the silkworm-gut sutures is avoided. It is performed as follows: The peritoneum is closed with a continuous suture of plain catgut. Silkworm-gut sutures are then introduced about 1 inch apart at the edge of the incision just beneath the skin surface and include all of the layers of the abdominal wall except the peritoneum. The point of emergence of the suture on one side of the incision must be exactly opposite the point of entrance on the other. Each end of the suture is temporarily held in a hemostatic forceps. The deep fascia or aponeurosis is closed with a chromic-catgut suture, continuous or interrupted. The edges may be made to overlap if desired. The skin edges are apposed by a subcuticular stitch of plain catgut. The ends of the silkworm-gut sutures are then crossed and tied over a strip of iodoform gauze.

5. **Suturing in Amputation of Cervix.**—The following method of suture has been devised and employed by Heineberg with gratifying results. He says it is particularly applied to the single flap and circular amputations and the operation of tracheloplasty described by Bonney, but may also be employed in the double flap amputation. The advantages claimed for it are the accurate approximation of the edges of the flaps with a minimum degree of tension on the sutures. In suturing the flaps after a single flap amputation or tracheloplasty proceed as follows: A chromic catgut suture, the traction suture, is armed at each end with a well curved needle. Each needle is passed through the flap about $\frac{1}{4}$ inch from its edge; the points of introduction are on the raw surface of the flap $\frac{1}{8}$ inch on each side of the median line and the points of emergence are on the vaginal or outer surface of the flap. Both needles are then introduced through the base of the flap at the junction of the raw surface and the mucous membrane of the cervical canal. They are passed through the entire thickness of the lip of the cervix and made to emerge on the vaginal surface about $\frac{3}{4}$ inch above the edge of the flap and $\frac{1}{4}$ inch apart. After sufficient traction has been applied to the ends of the suture to invert the flap and bring its edge and base into accurate apposition (avoiding unnecessary tension) the ends of the suture are tied to each other. The other lip is sutured in the same way. The two lips of the cervix which have been separated by the amputation, are drawn together by a mattress suture placed in each side of the cervix about $\frac{1}{4}$ inch external to the canal. This suture begins in the vaginal surface of the anterior lip about $\frac{1}{2}$ inch above the edge of the flap and emerges on the raw surface of the flap near its base; it is then passed through the lower lip from the raw to the vaginal surface. In a like manner it is passed back through both lips on a line $\frac{1}{4}$ inch external to the first one. When the two ends of this suture are tied to each other the tension should be sufficient to insure hemostasis and approximation of the edges of the lips. These edges are then held in accurate apposition by interrupted sutures which should be superficially placed and firmly, but not tightly tied.

American Journal of Public Health, Boston

April, V, No. 4, pp. 281-386

- 13 Science and Public Health. L. K. Frankel, New York.
- 14 Control of Venereal Diseases by Health Departments. F. H. Baker, Worcester.
- 15 Reporting and Control of Venereal Diseases. L. Chargin, New York.
- 16 Evening Clinics for Syphilis and Gonorrhea. M. M. Davis, Jr., Boston.
- 17 Curse of Narcotism in America. J. Marks, South Hadley.
- 18 Enforcement of Tennessee Antinarcotics Law. L. P. Brown.
- 19 Independent Attitude of "Dope User"—What Are We Going To Do About It. D. McCaskey, Lancaster, Pa.
- 20 Puerperal Septicemia. W. H. Guilfooy, New York.
- 21 Prevention of Odors at City Refuse Disposal Works. R. Hering, New York.
- 22 Educational Work in Sanitary Food Values in New York City. D. B. Armstrong, New York.

- 23 Practical Application of "Saltpeter Method" for Determining Strength of Sewages. A. Lederer, Chicago.

American Journal of Tropical Diseases and Preventive Medicine, New Orleans

April, II, No. 10, pp. 613-676

- 24 Pathology of Verruga Peruviana. R. P. Strong and E. E. Tyzzer, Boston.
- 25 Trichomoniasis of Vagina and Mouth. K. M. Lynch, Charleston, S. C.
- 26 Climate of Eastern Nicaragua and Honduras, Notes on Health, Death Rates and Character of Country. J. F. LeBaron.
- 27 *Failure of Emetin Hydrochlorid, but Apparent Success of Salvarsan in Case of Balantidiosis. B. H. Dutcher, San Juan, P. R.

27. **Failure of Emetin, but Success with Salvarsan in Case of Balantidiosis.**—Emetin apparently having failed in this case, on May 5, 1914, 0.6 gm. salvarsan was administered intravenously by Dutcher. Since that date up to the present writing, July 10, 1914, the stools have been examined carefully on twenty days without finding balantidia on a single occasion. So far as could be observed the patient was in good general health all the time that he carried the infection.

Archives of Pediatrics, New York

April, XXXII, No. 4, pp. 241-320

- 28 Early Congenital Bone Lues. J. R. Kuth, Duluth, Minn.
- 29 Opportunity for Cooperation of Medical Profession in Baby Health Conference Movement. L. A. DeVilbiss, New York.
- 30 Management of Children Between 1 and 2 Years of Age. R. D. Freeman, South Orange, N. J.
- 31 Case of Ameba Colitis in Child 5 Years of Age. G. J. Greil, Montgomery, Ala.
- 32 Case of Congenital Deformity of Both Hands and Both Feet. W. N. Bradley, Philadelphia.
- 33 Case of Congenital Idiopathic Dilatation of Colon (Hirschsprung's Disease). J. I. Linde and S. E. Kleiner, New Haven, Conn.

Arizona Medical Journal, Phoenix

April, III, No. 4, pp. 6-16

- 34 Epidemic Cerebrospinal Meningitis. R. N. Looney, Prescott.
- 35 Place of Laboratory Diagnosis in Medical Practice. W. W. Watkins, Phoenix.

Boston Medical and Surgical Journal

May 13, CLXXII, No. 19, pp. 693-730

- 36 Care and Treatment of Wounded in European War. R. Derby, New York.
- 37 *Allen Treatment of Diabetes. L. W. Hill and J. L. Sherrick, Boston.
- 38 Labyrinthitis Following Operation for Atresia. G. Berry, Worcester.
- 39 Diagnosis and Treatment of Some Rare Fractures. W. P. Coues, Boston.

37. **Allen Treatment of Diabetes.**—Eight patients were treated by Hill and Sherrick on the Allen starvation plan. In every case the patient has become sugar-free and has stayed so, on a reasonable diet which enabled him to hold his weight. Some of these were severe cases of diabetes, young people treated before by the old method and who could not be made sugar-free. When the patient is discharged from the ward he is given written diet slips with two or three menus which he can use on different days, figured out carefully to correspond with his tolerance. The two most important things to remember in this treatment are the following: First, do not raise the diet too quickly after starvation, and pay just as much attention to the protein intake as to the carbohydrate. Second, do not worry if the patient loses weight; it will not hurt him.

There has been no sign of coma in the eight cases treated. The ammonia has always been low, only in one case reading as high as 2.5 gm. per day, which is not at all a high ammonia. In most of the cases it has been very low, usually under a gram a day. This very possibly is due to the low protein intake. There was nothing constant in the appearance or disappearance of the acetone and diacetic acid while on starvation. In one case both disappeared, in others they increased slightly and in others stayed practically the same. No patient has lost more than 5 pounds during his treatment and no patient has gained more than 7 pounds. In most of the cases the weight at discharge was practically the same as at entrance.

Bulletin of Johns Hopkins Hospital, Baltimore*May, XXVI, No. 291, pp. 125-210*

- 40 *Medical Treatment of Peptic Ulcer with Especial Reference to Lenhart's Treatment. G. Blumer, New Haven, Conn.
- 41 Studies in Pneumonia. R. Cole, New York.
- 42 Nervous Patient. C. P. Emerson, Indianapolis.
- 43 *Diagnosis of Mediastinitis. C. P. Howard, Iowa City, Ia.
- 44 Tertiary Syphilis of Liver. T. McCrae, Philadelphia.
- 45 *Influence of Dieting on Course of Cancer. P. Rous, New York.
- 46 Recent Developments in Relation to Study of Tropical Medicine in United States. R. P. Strong, Boston.
- 47 *Causes of Indigestion; Study of One Thousand Cases. D. Vanderhoof, Richmond, Va.
- 48 Significance of Distribution of Urea in Body. D. M. Davis, Baltimore.
- 49 Renal Functional Tests. J. T. Geraghty, Baltimore.
- 50 Preparatory Treatment of Urologic Operations. F. Hinman, Baltimore.
- 51 Experimental Hydronephrosis. N. M. Keith, New York.
- 52 James Buchanan Brady Urologic Institute. H. H. Young, Baltimore.
- 53 Extramural Psychiatry in Baltimore. W. B. Cornell, Baltimore.
- 54 Study of Benign Psychoses. A. Hoch, New York.
- 55 Ethical Aspects of Psycho-Analysis. J. T. MacCurdy, Ward's Island, N. Y.
- 56 Observations on Embryo Guinea-Pigs. S. Paton, Princeton, N. J.
- 57 Onset of General Paralysis. C. Ricksher, Kankakee, Ill.
- 58 Diphtheroid Infections. C. H. Bunting, Madison, Wis.
- 59 Microbic Cause and Manner of Infection of Poliomyelitis. S. Flexner, New York.
- 60 Chondrodystrophia Fetalis. W. G. MacCallum, New York.
- 61 Origin, Growth and Future of Medical Illustration at Johns Hopkins Hospital and Medical School. M. Brödel, Baltimore.
- 62 Brief Outline of Status of Radium Therapeutics. C. F. Burnam, Baltimore.
- 63 Hospital Social Service. M. S. Brogden, Baltimore.
- 64 Visiting Nurses of Baltimore. M. E. Lent, Baltimore.
- 65 Nursing in Henry Phipps Psychiatric Clinic. E. J. Taylor.

40. **Treatment of Peptic Ulcer.**—A critical study of the literature of the medical treatment of peptic ulcer, particularly the rest and diet cures, Blumer says, suggests certain conclusions. It seems safe to assume that certain types of peptic ulcer show a strong natural tendency to heal if given a fair chance. Ulcers near the pylorus tend to heal badly, while bleeding ulcers, for reasons not entirely clear, seem to heal unusually well. Many ulcers would doubtless heal on the all-important complete rest, plus any of the dietary regimens that have been discussed. Others would equally certainly fail to heal under any form of medical treatment. Originators of diets are apt to adhere too closely to those diets, and tend to become prejudiced against different, but equally efficacious ones. The practitioner, whose sole purpose is to cure his patients, and who need not be distracted from this by attempts to glorify the products of his own cortical cells, should realize that there are good points in all of the diets presented. Each has its advantages and each its drawbacks, and the wise physician is he who will use them as frameworks to be clothed with a dietary structure suitable to the needs of each individual patient.

43. **Diagnosis of Mediastinitis.**—Tuberculosis, Howard found, plays a very important rôle in the etiology of chronic mediastinitis. One or more of the pressure phenomena of mediastinal tumor and aortic aneurysm may be present in this condition. Perez' mediastinal friction was present in two of Howard's cases, and he suggests that it may prove of diagnostic value.

45. **Influence of Dieting on Course of Cancer.**—In the underfed host, as shown by special experiments, Rous found that proliferative processes take place slowly. Wounds require a long time to heal and an inert foreign body, such as agar-agar, is only tardily organized. It is easy to see why the development of tumors dependent on a supporting stroma would be slower in such animals.

47. **Causes of Indigestion.**—In order to determine the proportionate frequency of the various causes of indigestion, Vanderhoof tabulated the clinical diagnosis in a series of 1,000 patients examined by Hutcheson and himself. Appendicitis and cholecystitis were responsible for approximately 35 per cent. of the cases of chronic or recurring indigestion; peptic ulcer and neuroses, each 10 per cent., and carcinoma involving the stomach or bowels, 5 per cent. Ten per cent. of the cases fall into a group including chronic gastritis, visceroptosis, peritoneal adhesions, enterospasm and enterog-

enous toxemia; while 25 per cent. are included in a group in which the indigestion is a reflex disturbance from affections of the kidneys, lungs, heart, eyes, blood and ductless glands, ears, central nervous system, female pelvic organs, and migraine and chronic infectious diseases. The remaining 5 per cent. classified as miscellaneous, include such conditions as pellagra (eight cases), amebic dysentery (six cases), malaria (five cases), diseased tonsils and cyclic vomiting (in children, respectively, six and five cases), intestinal parasites (four cases), together with instances of diverticulitis, peritoneal tuberculosis, cancer of the pancreas and esophagus, retroperitoneal sarcoma, etc. In those patients in whom more than one lesion existed as a possible reflex cause of indigestion, Vanderhoof tabulated, according to his discretion, the one most likely to be responsible.

Vanderhoof has the operative notes of 145 of the 246 cases of appendicitis, and of 60 of the 117 cases of cholecystitis. Of a total of 363 cases of appendicitis and cholecystitis, 205 were operated on; replies were received from 134. From these letters it is learned that 61 per cent. are well, 28 per cent. are much improved, and 11 per cent. are not improved. Only one patient in the series died as the result of the operation. This was a case of gallstones in a morphin habitué who also had chronic nephritis, and death occurred forty-eight hours after operation, due to suppression of the urine.

Cleveland Medical Journal*April, XIV, No. 4, pp. 253-332*

- 66 Teeth of Primitive Man. T. W. Todd, Cleveland.
- 67 *Presence in Guinea-Pig's Blood of Natural Antisheep Hemolysin. H. N. Cole, Cleveland.
- 68 Ohio Public Health Federation. W. M. Bowman, Toledo.
- 69 Vagotonic Neurosis. B. L. Spitzig, Cleveland.
- 70 Keratitis Parenchymatosa Relative to Old and New Antisiphilitic Therapy. J. Stotter, Cleveland.
- 71 Scopolamin in Throat and Nose Operations. M. Metzenbaum, Cleveland.

67. **Presence of Antisheep Hemolysin in Guinea-Pig's Blood.**—Cole found that the blood of the guinea-pig occasionally contains a normal antisheep amboceptor which can be detected by control tubes A and B containing saline, 5 per cent. sheep's red blood cells and 10 per cent. guinea-pig's serum, to be tested, in suitable amounts. If after incubation for thirty minutes at 37.5 C., these tubes show any hemolysis then a certain amount of this immune body is present and unless removed will cause practically all of the serum to be tested to be returned negative to the Wassermann test. As complement is thermolabile and inactive at low temperatures, while amboceptor is thermostabile and active at 0 C. it is possible to get rid of the antisheep hemolysin, present in the guinea-pig serum, by mixing it with washed sheep's red blood cells and allowing them to stand one hour at 0 C. After centrifuging the complement is then ready to be used for the reaction. As a means of lessening the action of this troublesome antibody, Cole advises the use of pooled serum for several pigs.

Journal of Biological Chemistry, Baltimore*April, XX, No. 4, pp. 463-727*

- 72 Organic Phosphoric Acid Compound of Wheat Bran. Occurrence of Inositol Triphosphate in Wheat Bran. R. J. Anderson, New York.
- 73 Hydrolysis of Phytin by Enzyme Phytase Contained in Wheat Bran. R. J. Anderson, New York.
- 74 Hydrolysis of Organic Phosphorus Compound of Wheat Bran by Enzyme Phytase. R. J. Anderson, New York.
- 75 Phytin in Wheat Bran. R. J. Anderson, New York.
- 76 *Method for Decomposition of Proteins of Thyroid, with Description of Certain Constituents. E. C. Kendall, Rochester, Minn.
- 77 Urea Content of Human Spinal Fluid and Blood. G. E. Cullen and A. W. M. Ellis, New York.
- 78 Mercury Derivatives of Aromatic Amines. Contribution to Structure of Primary and Secondary *p*-Aminophenylmercuric Compounds. W. A. Jacobs and M. Heidelberger, New York.
- 79 Preparation and Melting Points of Higher Aliphatic Hydrocarbons. P. A. Levene, C. J. West and J. Van der Scheer, New York.
- 80 Animal Calorimetry. Influence of Meat Ingestion on Amino-Acid Content of Blood and Muscle. M. B. Wishart, New York.
- 81 Id. Rate at Which Ingested Glycocoll and Alanin are Metabolized. F. A. Csonka, New York.
- 82 Id. Investigation into Causes of Specific Dynamic Action of Foodstuffs. G. Lusk, New York.

- 83 *Colorimetric Estimation of Uric Acid in Urine. S. R. Benedict and E. H. Hitchcock, New York.
- 84 *Colorimetric Determination of Uric Acid in Blood. S. R. Benedict, New York.
- 85 Studies in Uric Acid Metabolism. On Uric Acid in Ox and in Chicken Blood. S. R. Benedict, New York.
- 86 Nutrition with Purified Food Substances. E. V. McCollum and M. Davis, Madison, Wis.
- 87 Quaternary Salts of Hexamethylen Tetramin. Substituted Benzyl Halides and Hexamethylen Tetraminium Salts Derived Therefrom. W. A. Jacobs and M. Heidelberger, New York.
- 88 Id. Monohalogenacetylbenzylamins and Their Hexamethylenetetraminium Salts. W. A. Jacobs and M. Heidelberger, New York.
- 89 *Presence of Iodin in Human Fetal Thyroid. F. Fenger, Chicago.
- 90 Alfalfa Laccase. H. H. Bunzel, Washington, D. C.
- 91 *Human Milk. A. W. Bosworth, Boston.
- 92 Estimation of Fat. H. Rosenthal and P. F. Trowbridge, Columbia, Mo.

76. Decomposition of Proteins of Thyroid.—The details of the method devised by Kendall for alkaline hydrolysis of proteins of the thyroid are as follows: The preparation of finely powdered desiccated thyroid, as fat-free as possible, is added to 90 per cent. ethyl alcohol containing 1 per cent. of sodium hydroxid, in the proportions of 2.5 gm. of thyroid per 100 c.c. of alcohol. The powder is insoluble and settles to the bottom of the container. The alcohol is boiled for forty-eight hours under a reflux condenser. During the heating, ammonia is given off which amounts to about 8 per cent. of the total nitrogen. At the end of this time the alcohol has dissolved the greater part of the powder and has a dark brown color. The hot alcoholic solution is now filtered with suction. There is a sticky, tarry residue in the bottom of the flask which contains about 9 per cent. of the total nitrogen, 80 per cent. of the total phosphorus, and 7 per cent. of the total iodine.

The alcohol solution is diluted with water until there is about 75 per cent. of alcohol present, and the sodium hydroxid is neutralized with carbon dioxid or sulphuric acid. If sulphuric acid is used, the alcohol is cooled until the sodium sulphate crystallizes out. This is filtered off and the alcohol is then distilled, leaving a water solution of the split products. If carbon dioxid is used the alcohol is distilled immediately, as the sodium carbonate will not separate satisfactorily. The last traces of alcohol are removed by heating in an evaporating dish on the water bath. The water solution on cooling will solidify to a gelatinous mass if there is much fatty acid present.

The solution is diluted to about 100 c.c. for each 20 to 25 gm. of original thyroid used, and is acidified with 20 per cent. sulphuric acid. This produces a precipitate. The acidification is continued until the addition of more acid ceases to cause a precipitate. The solution is allowed to stand in the cold for several hours, generally over night. The precipitate is filtered without suction and is washed with a little water. This now is the first preparation of *A*. It is allowed to dry on absorbent paper and then is completely desiccated *in vacuo* over sulphuric acid. The filtrate is *B*. It is neutralized with sodium carbonate evaporated to small volume, alcohol is added, and the sodium sulphate crystallized out. The alcohol is distilled off and the resulting solution either desiccated or sterilized for therapeutic use. Fifteen or 20 per cent. alcohol may be used as a preservative.

The dry *A* is extracted with petroleum ether, dissolved in dilute sodium hydroxid, and reprecipitated with sulphuric acid. By warming the solution, after addition of the acid, to about 60 degrees and then cooling to about 10 degrees, the precipitate changes to a sandy, finely divided form easily filtered. *A* in this form is fat-free, and amounts to about 5 per cent. of the total weight of thyroid taken. Its percentage of iodine is about ten times as much as that of the starting material, and for normal glands is equal to about 50 per cent. of the total iodine. The distribution of nitrogen is as follows: *B* contains 74 per cent. of the total nitrogen. *A* contains 9 per cent. of the total nitrogen. Alcohol residue contains 9 per cent. of the total nitrogen. Liberated ammonia contains 8 per cent. of the total nitrogen.

83. Colorimetric Estimation of Uric Acid in Urine.—The modified technic which Benedict and Hitchcock recommend for the determination of uric acid in urine is as follows:

Such a volume of urine as will contain from 0.7 to 1.3 mg. of uric acid (2 to 4 c.c. is usually the right amount) is measured into a centrifuge tube, diluted to about 5 c.c. with water, and treated with 15 to 20 drops of an ammoniacal silver magnesium solution. The contents of the tube are now mixed with a small stirring rod and the tube is centrifuged for one or two minutes. The supernatant solution is then poured off as completely as possible, the tube being inverted, and the inside of the lip touched with a towel or piece of filter paper. The residue in the tube is then treated with two drops of 5 per cent. potassium cyanid solution and the mixture thoroughly stirred with a narrow stirring rod for half a minute. A few drops (0.5 to 0.1 c.c.) of water are added and the solution is again stirred. Two c.c. of the uric acid reagent are then added and the mixture stirred, after which 10 c.c. of 20 per cent. sodium carbonate solution are added, the mixture is washed quantitatively into a 50 c.c. flask at the end of about one-half minute, and diluted to the mark. This solution is compared in a colorimeter with a simultaneously prepared colored solution obtained by treating 5 c.c. of the standard uric acid solution (described earlier in this paper) contained in a 50 c.c. flask with two drops of the potassium cyanid solution, 2 c.c. of the uric acid reagent, 10 c.c. of 20 per cent. sodium carbonate solution, and diluting to the mark at the end of about one-half minute. The standard solution is best set at a height of 15 m.m. in the colorimeter.

This procedure yields quantitative results for pure uric acid solutions and for uric acid added to urine. The figures obtained for uric acid in various samples for urine agree within a small percentage with those obtained by the Folin-Shaffer method. The authors are inclined to regard the new procedure as perhaps more accurate than the titration method of Folin and Shaffer.

84. Colorimetric Determination of Uric Acid in Blood.—The proposed modified procedure for the estimation of uric acid in the blood by Benedict is as follows: Twenty c.c. of blood are added to 100 c.c. of boiling 0.01 *N* acetic acid in a casserole and the mixture is heated to boiling for a moment. The casserole is then removed from the flame and 200 c.c. of boiling distilled water are added. The mixture is then poured on a folded filter, and the residue washed with 50 c.c. of boiling water (heated in the same casserole in which the original coagulation took place). The total filtrate is now transferred to a casserole and boiled rapidly down to a volume of about 25 c.c. This solution is poured into a small flask roughly marked to indicate a volume of 50 c.c. The contents of the casserole are washed quantitatively into the flask with the help of two or three portions of water, heating the water to vigorous boiling, and rubbing the sides of the casserole with a rubber-tipped stirring rod each time. The total volume in the flask should not exceed 50 c.c. after addition of the washings. The turbid solution in the flask is now thoroughly cooled under running water and 2 c.c. of colloidal iron solution are added while the flask is gently rotated. The mixture is then filtered through a small folded filter into a 100 c.c. Jena Florence flask, the residue on the filter being twice washed with distilled water. The filtrate obtained here should be as clear and colorless as distilled water. The solution is now boiled down to a volume of 1 to 2 c.c. (care being taken during the early stage of the process to avoid bumping), then carefully poured into a small centrifuge tube, and the flask washed out with three portions of water (1 to 2 c.c. each), heating each to boiling in the flask and shaking thoroughly prior to transferring it to the centrifuge tube.

The contents of the tube (which should have a volume of from 5 to 10 c.c.) are now cooled and treated with twenty drops of the ammoniacal silver magnesium solution described in the preceding paper. The contents of the tube are mixed thoroughly with the help of a narrow stirring rod, and the tube is then centrifuged for one or two minutes. The supernatant fluid is then poured off as completely as possible, and to the residue in the tube are added one or two drops of 5 per cent. potassium cyanid solution, and the mixture is thoroughly stirred for a moment. A few drops of water are then added and the mixture is again stirred. One or 2 c.c.

of the uric acid reagent of Folin and Denis are then added (1 c.c. if the bulk of the original precipitate was very small, otherwise 2 c.c.), and, correspondingly, 5 or 10 c.c. of 20 per cent. sodium carbonate solution are then added, and the colored solution is washed quantitatively into a 25 or 50 c.c. flask and diluted to the mark with water. This solution is then compared in a colorimeter with the colored solution obtained by treating either 0.5 of 1 mg. of uric acid with 2 c.c. of the uric acid reagent, or 10 c.c. of 20 per cent. sodium carbonate solution and diluting to 50 c.c. at the end of about one-half minute. In conclusion it may be stated that this method appears to give the "free" uric acid in blood. The results obtained for the most part closely parallel those obtained by the Folin-Denis method.

89. Iodin in Human Fetal Thyroid.—It is claimed by Fenger that both enlarged and normal sized human fetal thyroids contain iodine at least during the last three months of intra-uterine life. Normal sized fetal glands contain relatively more iodine and less phosphorus than enlarged fetal glands.

91. Human Milk.—As a result of his studies of human milk the following arrangement is offered by Bosworth as representing the probable condition in which the constituents are present in human milk of average composition. Fat, 3.30 per cent.; milk sugar, 6.50 per cent.; proteins combined with calcium, 1.50 per cent.; calcium chlorid, 0.059 per cent.; monopotassium phosphate (KH_2PO_4), 0.069 per cent.; sodium citrate ($\text{Na}_3\text{C}_6\text{H}_5\text{O}_7$), 0.055 per cent.; potassium citrate ($\text{K}_3\text{C}_6\text{H}_5\text{O}_7$), 0.103 per cent. and monomagnesium phosphate ($\text{MgH}_4\text{P}_2\text{O}_8$), 0.027 per cent.

Journal of Nervous and Mental Disease, Lancaster, Pa.

April, XLII, No. 4, pp. 193-256

- 93 Seven Cases of Brain Tumor. S. P. Goodhart and H. Climenko, New York.
- 94 Combined Psychoses (Analysis of Forty-One Recorded Cases). J. E. Lind, Washington, D. C.

Journal-Lancet, Minneapolis

May 1, XXXV, No. 9, pp. 223-248

- 95 *Clinical and Roentgenologic Findings in Pulmonary Tuberculosis. H. Z. Giffin and W. D. Sheldon, Rochester, Minn.
- 96 Pellagra; Report of Cases. G. S. Adams and F. V. Willhite, Yankton, S. Dak.
- 97 *Some of Rarer Forms of Joint Disease. J. E. Moore, Minneapolis.
- 98 Vaccine Therapy. H. L. Ulrich, Minneapolis.
- 99 Mastoid Abscesses; Some Indications for Operation. F. C. Todd, Minneapolis.
- 100 Case of Foreign Body (Thermometer) in the Bladder. B. A. Bobb, Mitchell, S. Dak.

95. Clinical and Roentgenologic Findings in Tuberculosis.—A careful study of 373 cases by Giffin and Sheldon showed that practically every case of pulmonary tuberculosis with tubercle bacilli in the sputum can be diagnosed independently by the roentgenologist. In almost all of those cases in which a Roentgen diagnosis was positive when the sputum was negative, a review of the histories has corroborated the Roentgen findings. In a considerable number of patients a diagnosis seems entirely impossible by clinical methods although the roentgenologist reports positive findings. These include so-called early cases, healed cases and diffuse tuberculosis. It would seem that a careful study of stereoscopic plates of the chest will show evidences of tuberculosis as early as the author can at present be positive of its existence by any other method. A keener sense of perception is developed through the visualization of lesions and roentgenology has been a stimulus to physicians in perfecting their skill in physical diagnosis. The information obtained from the negative report of a skilful roentgenologist may be of very great assistance in general medical and surgical diagnosis. Finally, the authors emphasize that trustworthy conclusions can be drawn only by one who has had a considerable experience in the reading of stereoscopic plates. The roentgenologist, not the roentgenogram, makes the diagnosis.

97. Some of Rarer Forms of Joint Disease.—Moore discusses caries sicca, hydrops articuli, Charcot's disease, or spinal arthropathy and hemophilic joint.

Medical Record, New York

May 15, LXXXVII, No. 20, pp. 799-840

- 101 Medical Aspects of Cancer. L. D. Bulkley, New York.
- 102 Speech Elementary Sounds. A. L. Benedict, Buffalo.
- 103 Early Diagnosis of Streptococcal Sore Throat, and Effect of Vaccines in Its Treatment. R. R. Mellon, Ann Arbor, Mich.
- 104 Two Cases of Depressed Nasal Deformity Resulting from Submucous Operation. W. W. Carter, New York.
- 105 Case of Panophthalmia Occurring During Pneumonia. R. L. Pitfield, Philadelphia.
- 106 New Measuring Board for Infants. R. D. Moffett, New York.
- 107 Urethral Clamp for Postoperative Urinary Incontinence, Devised and Made by Patient for His Personal Use. A. L. Wolbarst, New York.

Michigan State Medical Society Journal, Grand Rapids

May, XIV, No. 5, pp. 251-308

- 108 *Septic Factor in Three Plagues. W. J. Mayo, Rochester, Minn.
- 109 Backward Child. F. Allport, Chicago.
- 110 Some Phases of Sympathetic Ophthalmia. G. M. Waldeck, Detroit.
- 111 *Intestinal Toxemia. E. L. Eggleston, Battle Creek.
- 112 Differential Diagnosis Between Functional and Organic Heart Murmurs with Especial Reference to Life Insurance. C. H. Johnston, Grand Rapids.
- 113 Extent of Insanity and Feeble-mindedness and Their Causes in Michigan. A. M. Barrett, Ann Arbor.
- 114 Case of Mediastinal Tumor (Hodgkin's Disease). J. G. Van Zwaluwenburg, Ann Arbor.
- 115 Case of Cardiospasm with Dilatation. G. Van Rhee, Ann Arbor.
- 116 Case of Cystadenoma of Kidney Mistaken for an Ovarian Cyst. W. F. Seeley, Ann Arbor.
- 117 An Epidemic of Weil's Disease. H. H. Cummings, Ann Arbor.

108. Septic Factor in Three Plagues.—That the important rôle of associated septic organisms in the three most widespread plagues of mankind—syphilis, tuberculosis and cancer—is not generally appreciated, is the keynote of Mayo's paper. He says that much of our conception of the primary lesions of syphilis is based on appearances due not to the spirochete alone but to associated septic organisms. Because of the lack of hardness in the base, a hardness due to sepsis, not to syphilis, the diagnosis of chancre of nonvenereal origin is apt to be missed in these days of cleanliness and anti-sepsis. The diagnosis should rest on microscopic evidence, the finding of the spirochete in the chancre and later by serologic evidence rather than on the gross appearance of the secondaries, the accentuation of which is due to sepsis and therefore in clean people may not be a prominent feature. The importance of a correct early diagnosis in the prevention of systemic infection cannot be overestimated. If this great opportunity is missed, early diagnosis will at least enable careful curative treatment.

Most patients afflicted with tuberculosis do not die from the disease but from the associated sepsis. The surgeon must use great care in operations on pure tuberculous lesions to prevent secondary infections with other organisms and not drain on account of the danger of subsequent infection, unless mixed infection is present. Much of the cachexia of cancer is due to associated sepsis and much of the pain comes from septic infection. Cleanliness and antisepsis give great relief. The high mortality following radical operations for cancer of the large bowel and rectum is mainly due to sepsis and may be reduced one-half by two-stage operations. As much may be said in advanced cancer of the cervix when the preliminary cauterization with the actual cautery, especially the Percy method, followed by a complete hysterectomy, give greater promise of cure with a smaller mortality. Cancers of the surface of the body covered with a sloughing material and surrounded by an extensive inflammatory zone should be destroyed with the actual cautery, and when the induration has disappeared the entire area may be removed with plastic repair of the defect.

111. Intestinal Toxemia.—In the treatment of this condition Eggleston states that their efforts must be directed chiefly toward limiting the putrefactive processes of the intestinal tract. This can be accomplished in five different ways: 1. The selection and ingestion of food that is freed from contamination with putrefactive bacteria. 2. The proper preparation of the food for prompt digestion. 3. The selection of a menu that will not furnish an excess of protein material. 4. By preventing abnormal stasis of the intestinal contents.

5. By controlling the intestinal flora so that the putrefactive bacteria are reduced.

New Orleans Medical and Surgical Journal

May, LXVII, No. 11, pp. 895-982

- 118 Enlarged Thyroid; Report of Successful Case of Thyroidectomy. L. Sexton, New Orleans.
- 119 *Case of Pellagra Treated Successfully with Trisodium Citrate. A. E. Fossier, New Orleans.
- 120 Technic in Closure of Abdominal Incision. E. D. Martin, New Orleans.
- 121 Removal of Gasserian Ganglion; II. Ulcer of Stomach; III. Probable Perineal Fistula; IV. Ruptured Bladder. C. W. Allen, New Orleans.
- 122 Reclaiming Stepchild of Ophthalmology. R. C. Lynch, New Orleans.
- 123 Use and Abuse of Forceps; Report of Cases. W. D. Phillips, New Orleans.
- 124 Postural or Attitudinal Disturbances. J. T. O'Ferrall, New Orleans.

119. **Pellagra Treated Successfully with Trisodium Citrate.**—Fossier's patient was given 2 decigrams of cacodylate of soda for twenty-five consecutive days, also daily injections of 1 c.c. of a 10 per cent. solution of trisodium citrate by hypodermic injections. Fever ranged from normal to 102 degrees during the first twenty days of treatment, after which it gradually subsided. The bowels became regular and the skin gradually improved. The mental condition cleared up. At the end of the month the patient was wonderfully improved both physically and mentally and was walking about. When he was discharged at the end of another month all visible evidences of pellagra, the skin lesions, the mental conditions and the gastro-intestinal disorders had disappeared.

New York Medical Journal

May 15, CI, No. 20, pp. 981-1032

- 125 Treatment for Inoperable Cancer. S. P. Beebe, New York.
- 126 Relation of Arteriosclerosis to Ophthalmology, Neurology and Surgery. L. F. Bishop, New York.
- 127 Arteriosclerosis as Seen by Ophthalmologist. W. B. Marple, New York.
- 128 Field of Surgery in Arteriosclerosis. J. B. Bissell, New York.
- 129 Epistaxis in Arteriosclerosis. C. E. Perkins, New York.
- 130 Arteriosclerosis and Control of Uterine Hemorrhage. W. P. Healy, New York.
- 131 Arteriosclerosis with Relation to Prostatic Operations. T. M. Townsend and J. J. Valentinc, New York.
- 132 Arteriosclerosis in Its Relation to Life Insurance. J. D. Quackenbos, New York.
- 133 *Emergency Medicine for Soldier. H. H. Seelye, Atlantic Beach, Fla.
- 134 Relation of Diseases of Nose and Throat to General Practice of Medicine. H. Parrish, Philadelphia.
- 135 Life Insurance and Laboratory Examination. J. Diner, New York.

133. **Emergency Medicine for Soldier.**—The formula suggested by Seelye for a rapidly efficient anodyne, as one of the items of his first-aid packet, in the form of a tablet or lozenge that could be readily swallowed with a drink of water, or even chewed up and consumed in a dry state, consists of acetanilid 6 grains, morphin $\frac{1}{6}$ grain, oil of winter-green $\frac{1}{8}$ grain, and saccharin $\frac{1}{8}$ grain.

Pennsylvania Medical Journal, Athens

April, XVIII, No. 17, pp. 501-598

- 136 Arthritic Neuritis. J. H. W. Rhein, Philadelphia.
- 137 *Form of Diabetic Coma, Not Due to "Acetone Bodies." J. Rosenbloom, Pittsburgh.
- 138 Roentgen Ray Examination of Accessory Sinuses. W. F. Manges, Philadelphia.
- 139 Significance of Pain in Lower Back and Legs from Orthopedic Standpoint. D. Silver, Pittsburgh.
- 140 Two Cases of Traumatic Rupture of Intestines. W. Lathrop, Hazelton.
- 141 Constipation from Standpoint of Proctologist. C. F. Martin, Philadelphia.
- 142 Constipation as Factor in Nervous and Allied Disorders. A. C. Buckley, Philadelphia.
- 143 Constipation in Women. F. C. Hammond, Philadelphia.
- 144 United States Pharmacopeia and National Formulary. E. O. Francke, Athens.

137. **Diabetic Coma Not Due to "Acetone Bodies."**—The three cases of diabetic coma studied by Rosenbloom, which differed so completely from the modern idea of acidosis as the cause of coma, were all of the severe type, with no tolerance for carbohydrate, and with a restricted protein

intake there was no lessening of the glucose output. They were studied for a period which varied from one week to two months. During this time the urine contained a normal amount of ammonia-nitrogen and showed no trace of acetone, diacetic acid or beta-oxybutyric acid. There was no evidence of any kidney pathology. The urine contained excessive amounts of colloidal nitrogen, neutral sulphur and amino-acids. Death occurred in typical diabetic coma.

In the last case studied 200 c.c. of blood were taken shortly before death. Only faint traces of acetone, diacetic acid and beta-oxybutyric acid were found. The nonprotein nitrogen of the blood serum was normal in amount. This case is especially interesting on account of the fact that about fifty hours before death, showers of granular casts were present in the urine. The urine was cloudy, due to the presence of such an enormous number of casts. The frequent inadequacy of the alkaline therapy, Rosenbloom believes, can be explained on the basis of the fact that the acetone bodies are not always the important factors in the causation of the symptoms in cases of diabetic coma, but that considerable attention must be paid to the study of the excretion of amino-acids, polypeptides, and certain unknown substances in this disease.

West Virginia Medical Journal, Wheeling

May, IX, No. 11, pp. 363-396

- 145 Antecedents of High Blood Pressure and Nervousness. T. A. Williams, Washington, D. C.
- 146 Rights and Duties of Physician in Court. H. C. Hervey, Wheeling.
- 147 Insanity More Preventable than Curable. L. V. Guthrie, Huntington.
- 148 Diagnosis of Mediastinal Tumors. J. Schwinn, Wheeling.
- 149 Laboratory and General Practitioner. S. L. Cherry, Clarksburg.
- 150 Eclampsia; Report of Cases. C. R. Foutche, Berkeley Springs.
- 151 County Medical Society. J. E. McDonald, Logan.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Bristol Medico-Chirurgical Journal, London

March, XXXIII, No. 127, pp. 1-72

- 1 Intestinal Stasis. W. A. Lane.
- 2 Toxic Polyneuritis of Motor Type. J. M. Clarke.
- 3 Pernasal Operation for Frontal Sinus Suppuration. P. Watson-Williams.
- 4 Outbreak of Institutional Dysentery Due to *Y. Bacillus*. R. H. Norgate and I. W. Hall.

British Medical Journal, London

April 24, I, No. 2834, pp. 705-748

- 5 *Method of Treating Compound Fractures of Femur Due to Projectiles. A. H. Tubby.
- 6 Pathology of Ulcer of Stomach, with Indications for Treatment. C. Bolton.
- 7 *Gastric Analysis. T. Heaton.
- 8 Comparison Between Some Physiologic and Pathologic Conditions. J. Barcroft.
- 9 Epidemic Cerebrospinal Fever: Place of Meningococcus in Its Etiology. E. C. Hort, C. E. Lakin and T. H. C. Benians.
- 10 Clinical Laboratory Methods in Metabolic Diseases. A. De T. Mouillot.
- 11 Wound Infections; Methods of Various Factors in Treatment. A. E. Wright.

5. **Treatment of Fractures of Femur Due to Projectiles.**—The method used by Tubby is a combination of plaster of Paris and strips of soft iron. The plaster of Paris bandages are rolled on either over flannel bandages or a stockinet garment, and strips of malleable iron. The apparatus is applied under pulley extension and full anesthesia.

7. **Gastric Analysis.**—Heaton maintains that gastric analysis by the ordinary method is not the analysis of the gastric juice, but is rather the analysis of a mixture of this with the remains of the test meal. He points out that if it were known how much of the mixture was meal and how much was gastric juice, both difficulties would disappear, for it would become possible to calculate the actual composition of the gastric secretion. These results he has attained by adding to the test meal some substance at a known concentration, and then estimating the concentration of the substance subsequently in the fluid obtained for analysis. For

this work the substance used has been urea. To an ordinary test breakfast, consisting of toast and a pint of tea, 5.72 gm. of urea are added, making a 1 per cent. solution. The concentration of the urea in the fluid subsequently obtained indicates the degree of dilution by gastric juice which the fluid of the meal has undergone. The conditions in which this refinement of gastric analysis is of value are: In cases in which there is abnormally rapid or abnormally slow emptying of the stomach through the pylorus; and in cases in which an increased or decreased secretion simulates or is indistinguishable from an increased or decreased acidity.

Journal of Royal Naval Medical Service, London

April, I, No. 2, pp. 103-226

- 12 *Best Method of Treating Wounds Sustained in Action, Especially During Early Period after Their Infliction. W. W. Cheyne, P. W. Bassett-Smith and A. Edmunds.
- 13 Casualties in Action Between "Pegasus" and "Königsberg." A. J. Hewitt.
- 14 North Sea Action of January 24. J. R. Muir.
- 15 Some Experiences in Hospital Carrier. K. H. Hole.
- 16 Recent Research Relating to Undulant or Mediterranean Fever. P. W. Bassett-Smith.

12. Method of Treating Wounds.—Of the substances which the authors tested, boric and salicylic acids, cresol and phenol seem to be the most useful. Cresol and phenol have very considerable activity at a distance both as inhibitory and as destructive agents, and when combined in a wax and lanolin base, go on diffusing for a considerable time. The result is that they prevent the growth of bacteria over a considerable area, and are able also to destroy the ordinary pyogenic nonspore-bearing bacteria over the greater part of that area. The mixture of boric and salicylic acids is more potent in both directions, and, apparently, as evidenced by experiments on guinea-pigs, can prevent the action of spore-bearing organisms also. In some ways, however, this mixture of boric and salicylic acids is not so suitable as the others, especially in that it is not stored up in the same way, but the combination with cresol or phenol pastes seems very efficacious in animals.

Boric and salicylic acids have not acted so well in the form of pastes as in powder. In a paste with lanolin and wax it does not diffuse at all well, and in the experiments on animals the paste with gum tragacanth, which diffuses very well in agar, did not act so well as the powder. The authors, therefore, propose that salicylic and boric acids in equal parts should be used as a powder and thickly dusted over the wounds so far as possible, and that its action should be reinforced by the injection of cresol paste (20 per cent. in lanolin and wax base) into the interior of the wound in various directions.

Journal of Tropical Medicine and Hygiene, London

April 15, XVIII, No. 8, pp. 85-96

- 17 *Vibrio (Vibrio Kegallensis Cast., 1913) Isolated from Cases of Paracholera. A. Castellani.
- 18 Spinal Analgesia in Native Practice. A. Y. Massey.
- 19 An Attempt to Colonize "Millions" in Malay Peninsula, for Antimalarial Purposes. C. Strickland.

17. Vibrio Isolated from Cases of Paracholera.—From two cases of clinically cholera-like disease, and from the water of a well near which several cases had occurred, a vibrio was isolated by Castellani which is biologically different from the true *V. cholera*. In a preliminary note, published some time ago, referring to the first case alone, he named it *V. kegallensis cast.*, 1913. Though its pathogenicity has not been completely proved the probabilities are, in his opinion, that it is the cause of certain cases of cholera-like disease, or "paracholera."

Lancet, London

April 24, I, No. 4782, pp. 843-896

- 20 Wound Infections. (To be continued.) A. E. Wright.
- 21 Scotoma of Migraine. F. W. Edridge-Green.
- 22 Some Physical Defects Met with in Raising of an Army. T. Oliver.
- 23 *Treatment of Gunshot and Shell Wounds (Liquid Glucose and Phenol). H. B. Whitehouse.
- 24 Brain Abscess in Case of Paratyphoid. R. L. Scott and W. H. Johnston.

- 25 Case of Hystercatalepsy. L. A. Weatherly.
- 26 Roentgen Ray Theater in War Hospitals. J. R. Caldwell.
- 27 Reinvestigation on Nature of Cellular Elements Present in Milk. R. T. Hewlett and C. Revis.
- 28 Urinary Calculus in Pelvic Portion of Ureter. J. E. Adams.
- 29 Treatment of Bacterial Infections of Projectile Wounds. F. F. Burghard and Others.

23. Treatment of Gunshot and Shell Wounds.—Adopting Wright's recommendations, Whitehouse treated a series of shell and gunshot wounds of varying degrees of severity by the application of hypertonic saline solution. The results obtained were sufficiently convincing to prove the correctness of Wright's views. At the same time, the degree of lymph lavage produced by a saline solution was not great, and although sepsis diminished and wounds healed the important factor of time was not sensibly diminished. It appeared to Whitehouse, therefore, that even better results were possible by employing a solution of greater osmotic power. He therefore had a solution of liquid glucose containing sufficient phenol to have a strength of 1:80. This solution was applied directly to the wound surfaces and by means of plugs was carried into the recesses of the same. The results quite exceeded his most sanguine expectations. In a few hours sufficient lymph was exuded in each case to saturate the whole of the wool and bandage covering the part. Coincidentally the purulent character of the discharge changed, and in a day or two a healthy granulating surface remained. The cases treated by phenolized glucose dressings include severe compound fractures and large lacerated wounds of the extremities, some involving the elbow joint and necessitating excision of the joint. One case of shell wound of the cranium exposing the dura mater and injuring the superior longitudinal sinus was also so treated. All the cases made a rapid recovery and were ready for transfer at the end of seven days.

The routine which Whitehouse now adopts in the treatment of all septic wounds may broadly be expressed as follows: (1) Removal of foreign bodies after location by Roentgen rays and if anatomically possible; (2) application of efficient drainage by enlargement of the wounds of entry and exit, or by fresh incisions into the tissues if required; (3) removal of as much necrotic and contused tissue and blood clot as possible; (4) application of warm hydrogen peroxid (20 volts) to the recesses of the wound if anaerobic infection is suspected; and (5) establishment of profuse lymph lavage by the application of a solution of phenolized glucose on white gauze dressing or gauze plugs.

Quarterly Journal of Medicine, London

April, VIII, No. 31, pp. 191-276

- 30 *Two Cases of Patency of Ductus Arteriosus. T. W. Griffith.
- 31 Alterations in Arterial Structure and Their Relation to Syphilis. H. M. Turnbull.
- 32 Mumps. A. Feiling.

30. Patency of Ductus Arteriosus.—The two examples of patency of the ductus arteriosus reported by Griffith to have occurred in patients in whom the affection was recognized during life. One of these succumbed to infective endocarditis and the diagnosis was verified on the post-mortem table. In the other the condition was associated with some further anomaly of the great vessels and with a development error which had given rise to cyanosis, for this is a symptom which is not often met with in uncomplicated cases of patency of the arterial duct.

In the fatal case there was found considerable enlargement of the heart, which weighed about 14½ ounces. There was marked hypertrophy without notable dilatation of the right ventricle. There was recent pericarditis, and before the heart was removed there was found on the anterior and left aspect of the pulmonary artery, which was generally dilated, a large bilobed aneurysmal swelling. There was old standing disease of the mitral valve with moderate stenosis of the orifice and both this valve and the aortic segments presented large fungating masses of vegetations. Evidence of recent endocarditis was found at the junction of the two posterior segments of the pulmonary valve. The lumen of the pulmonary artery was almost occluded by a large mass of blood-

stained vegetations, which was gently adherent to the walls of the vessel at two situations. One of these was at the anterior and left aspect of the artery, in which there was a double concavity corresponding to the convexity seen from the outside; the other was around the opening of the ductus arteriosus, and into this there projected a conical mass of vegetations so as completely to occlude the aperture. When the ductus was cleared of this it permitted the passage of a No. 9 catheter. The space left for the passage of the blood between the mass of vegetations and the wall of the vessel was probably much greater during life than one might expect from an inspection in the postmortem room, in which the dilating influence of the blood pressure would be absent.

Sei-I-Kwai Medical Journal, Tokyo

April, XXXIV, No. 4, pp. 21-26

- 33 Causes of Acute Appendicitis; Difficulties Experienced in Diagnosis and Importance of Pulse Examination. Y. Takaki.

Bulletin de l'Académie de Médecine, Paris

April 13, LXXIII, No. 15, pp. 441-456

- 34 *Meningococcus Suppurative Arthritis. A. Netter and H. Durand.
35 Normal and Pathologic Elimination of Glucuronic Acid. (La glycuronurie; ses variations dans la cirrhose et le diabète.) H. Roger and M. Chiray.
36 Sterilization with Formaldehyd Fumes from Evaporation of Trioxymethylene. (Stérilisation par les vapeurs de formol en chirurgie de guerre.) G. Gross.
37 *Wounds of the Eyes in War. (Blessures oculaires de guerre.) A. Darier.

34. **Meningococcus Arthritis.**—Netter and Durand have found a suppurative joint trouble a comparatively frequent complication of cerebrospinal meningitis, second in frequency only to otitis media, but it has always terminated favorably. The joint regained its normal functioning in every case but recovery seemed to be hastened by injection of antimeningococcus serum directly into the joint. In the last seven years this suppurative arthritis was encountered in 11 of their 200 cases of cerebrospinal meningitis. Various joints were affected and sometimes several at one time. In 5 cases no microbes could be cultivated from the joint or revealed by the microscope. In this group the arthritis developed later than in the others. In one infant of 10 months meningococci were found in the feet processes while the meningitis was at its height. As this subsided under intraspinal serotherapy, the toe processes subsided also, but then pus accumulated in one ankle. No meningococci could be cultivated from it however, and the suppurative process promptly disappeared at a single injection of antimeningococcus serum. In one child 1 year old there were eleven separate suppurative processes. In four infants the suppurative processes were in fingers and toes; in 2 of these purpura was the first sign of anything wrong. The ages of the patients ranged from 10 months to 30 years. The meningitis terminated fatally in 4 cases. In addition to the above 11 cases they report the death of a 3 months' babe from a primary meningococcus arthritis in the shoulder; the meninges were apparently normal.

This meningococcus arthritis resembles very much the primary or secondary arthritis set up by pneumococci. They both are more benign than joint trouble of other origin, but the meningococcus affection has the advantage of a specific medication, namely, direct local injection of antimeningococcus serum.

37. **Wounds of the Eyes in War.**—Darier comments on the great increase in the number of cases in which the eyes have been wounded since the close fighting in trenches. The head being most exposed is more often hit than the rest of the body and he has already encountered a hundred cases of injury of the eyes, many of them requiring extensive plastic operations on the lids or to provide a support for an artificial eye. He urges a special colored tag for a soldier whose eye has been injured so that he can be rushed with the minimum of delay to an eye specialist. First aid should be with a soft bandage, an injection of morphin if the pain is severe and, if there is much destruction of tissue, two or three doses of antitetanus serum.

Presse Médicale, Paris

April 22, XXIII, No. 17, pp. 129-136

- 38 Electric Devices to Aid in Treatment of the Wounded. (Quelques conseils sur le réglage, la distribution et l'application du courant électrique dans le traitement des blessés.) T. Nogier.
39 Peripheral and Radicular Innervation of the Integument. (Quatre schémas destinés à servir de guide pour l'étude des lésions des nerfs périphériques; de la moelle épinière et de ses racines.) M. and Mme. Dejerine.

Correspondenz-Blatt für Schweizer Aerzte, Basel

April 10, XLV, No. 15, pp. 449-480

- 40 *Impressions in the German Military Hospitals. (Eindrücke aus deutschen Kriegslazaretten.) T. Kocher.

40. **Impressions in German Field Hospitals.**—Kocher remarks that "against the dark background of the war, there stands out in bright relief the care of the wounded, wonders of aid and Christian sympathy on a scale beyond anything ever experienced or anticipated." In these thirty pages Kocher sketches the whole organization and working of the care of the wounded and sick in Germany as he has made his rounds of investigation, and he urges the authorities in his own country, Switzerland, to make it possible for young physicians and surgeons to study in the arena of war. The unprecedented opportunity now afforded is a university course in up-to-date war surgery. The principles of surgery, he adds, are the same under all circumstances, but the primary healing of wounds in peace scarcely prepares a surgeon for work in war. He comments in particular on the way in which the chief of the German army medical service has always kept in close touch with the leading surgeons and clinicians throughout the country, attending all their national annual meetings and keeping posted as to their work and achievements. He called them in at once as consultants in this war, and their advice, as *Generalärzte*, has had the greatest influence on the whole organization of the medical service. The wounded and sick, friends and foes alike, wherever Kocher went (Freiburg, Strassburg and Frankfurt) he remarks in conclusion, have such confidence that everything possible is being done for them that this is proving an important factor in the cure.

Deutsche medizinische Wochenschrift, Berlin

April 22, XLI, No. 17, pp. 485-516

- 41 Rosenbach's Tuberculin in Surgical Tuberculosis. Hackenbruch.
42 *Roentgen-Ray Treatment of Chronic and Subacute Eczema. F. M. Meyer.
43 War Wounds of the Nose and Sinuses, Throat and Larynx. (Schussverletzungen der oberen Luftwege.) R. Kafemann.
44 *Stereoscopic Roentgenography for Localization of Foreign Bodies. Brauneck.
45 *Acute Osteomyelitis of Vertebrae after Wound in War. (Wirbelosteomyelitis nach Schussverletzung.) A. Wolff.
46 Mineral Waters of Foreign Source and the German Practitioner. (Der deutsche Arzt und die Heilquellen des feindlichen Auslandes.) H. Kionka.
47 *When a Country is at War, Can a Minor Operation, To Remove Physical Disability for Military Service, Be Imposed on a Man without His Consent? (Das Recht und die Pflicht zu operativen Eingriffen an Heerespflichtigen in Kriegszeiten.) F. R. Brewitt and Ebermayer.

42. **Roentgenotherapy of Chronic Eczema.**—Meyer has been much impressed with the complete cure of chronic or subacute eczema of long standing in thirty-eight cases treated with hard Roentgen rays filtered through 1 mm. aluminum. The rays are of the 10 or 11 Wehnelt standard of hardness and the filter is applied close to the tube, thus avoiding the secondary rays generated when the filter is close to the focus. The distance of the field from the tube was always 20 cm. Some of the patients had more than one patch of eczema. None proved refractory and the cure was sometimes realized with a few exposures, others requiring a course of weekly exposures until a total dosage of 2.5 full doses had been given.

In three cases the eczema was of ten years' standing, in the others from seven weeks to five years. The chief advantages of roentgenotherapy for this purpose are the short time required; four weeks are ample, the regularity of the effects attained and the fact that this treatment scarcely interferes at all with the patient's occupation. He warns that a syphilitic skin affection is liable to be mistaken for eczema. This occurred in two cases brought to him for Roentgen treatment

after failure of other measures. He applied the Wassermann test which elicited a vigorous reaction, and the "eczema" healed up completely in a week under two injections of a mercurial salt after having resisted all other measures for five years. In a second case the supposed "eczema" of the palm yielded to the Roentgen exposures after proving refractory to salves and other measures for four years. There was a violent reaction, however, to the final dose. The "eczema" recurred after a brief interval, and this time became aggravated under roentgenotherapy. The Wassermann test then applied gave positive findings and specific treatment was at once instituted. He is convinced that the hard rays are biologically more active than the soft rays. In conclusion he warns against any attempt at roentgenotherapy during the acute phase of eczema.

44. Stereoscopic Roentgenography.—Brauneck deplores that so few practitioners have mastered the comparatively simple technic for stereoscope roentgenography. It is especially instructive in localization of metal foreign bodies and for all kinds of topographic investigation, especially with fracture of the pelvis and of the bones in the hand and foot. The stereoscopic Roentgen picture is alive, he remarks, in comparison to the dead, flat picture.

45. Osteomyelitis of the Spine after a Wound in War.—Wolff quotes Henle's compilation of five cases of acute osteomyelitis with a traumatic origin, and Grisel's compilation in 1903 of fifty-six cases of acute infectious spondylitis. He then describes a rapidly fatal case in a soldier, the first symptoms of the osteomyelitis not developing until six weeks after a scrap from a shell had been driven into his neck. The bleeding was arrested at once by ligation of the artery injured, the surgeon being close at hand, and three weeks later the scrap of metal was extracted through the esophagus. Three weeks after this signs of spinal meningitis developed and the man died within a month. Necropsy showed that the third cervical vertebra had been injured by the scrap of shell and osteomyelitis had developed with local meningitis. The case teaches that foreign bodies should never be removed through the esophagus wall, opening up a portal for infection. It also emphasizes the necessity for treating every case in which there is a suspicion that a vertebra has been injured with extension or a plaster cast. If the scrap of shell had been removed in this case from an opening in the rear, provision for drainage, etc., would have been realized and the infectious process might have been warded off.

47. Right to Perform Operations to Remove Physical Disability.—Brewitt relates a number of instances of wounded soldiers who are developing into helpless cripples because they refuse to permit the minor operations that would give them a useful limb instead of the present contracted member doomed to atrophy. The men are unable to estimate the fate they are preparing for themselves and he thinks that in such cases, as also for men who have been exempted from military service on account of some physical defect easily remedied by a minor operation, the military authorities should be able to interfere. He refers in particular to hernias, benign tumors, excrescences, etc. If any mishap should occur the family would be entitled to a pension just as if the man had fallen on the field. He calculates that from 30,000 to 40,000 men might thus be added to the ranks who are otherwise eminently fitted for military service. Ebermayer discusses the question from the legal standpoint, regarding it as extremely doubtful whether the authorities have any right to interfere in this way with a man's right to his own person, even during the exigencies of war.

Medizinische Klinik, Berlin

April 18, XI, No. 16, pp. 443-468

48 *Cardiovascular Disturbances in Soldiers and Constitutional Inferiority. (Herzbeschwerden bei Kriegsteilnehmern und konstitutionelle Gesichtspunkte bei der Beurteilung derselben.) R. Schmidt.

49 Improved Arrangements for Sterilization of Clothing, etc., in the Field. (Improvisation von Dampfdesinfektionsapparaten und Entlausungsanstalten im Felde.) P. Uhlenhuth and Olbrich. (Entfernung von Kleiderläusen durch Schwefeldämpfe. E. Kuhn.

50 *Typhus. (Kriegstyphus.) H. Boral. Concluded in No. 17.

51 Trauma and Infectious Complications. (Trauma und Wundinfektionskrankheiten.) E. Scheepelmann.

52 *Treatment of Open Wounds. (Zur Wundbehandlung.) Wilcke.

53 *Diabetes Following Trauma. Rings.

48. Heart Disturbances with Constitutional Physical Inferiority.—Schmidt discusses this subject as it bears on military efficiency, reviewing the signs which permit recognition of heart disturbances resulting from physical inferiority. In testing the heart functioning in dubious cases, it is very instructive to have a control person of about the same build, with normally functioning circulatory apparatus, go through the exercises with the one being tested. The pulse before and after the exercises, the count, the quality, the blood pressure, the respiration rate, the apex beat, the complexion, perspiration, etc., are all useful in estimating the functional capacity of the cardiovascular apparatus. The interval before the previous status returns is especially instructive.

50. Typhus.—Boral has had 760 cases of typhus in his charge in the eastern seat of war. In 24 cases actual psychoses developed; in 15 they were of the megalomania-paranoia type, in 3 kleptomania. Deafness is an important symptom in typhus, he remarks, as in no other disease does deafness come on so regularly with the high temperature. The slow pulse was in striking contrast to the fever in nearly every case. The mortality was 9 per cent. exclusive of the moribund cases. A number of patients developed pyemic processes during convalescence and they often took the form of cold abscesses. Those in the abdominal walls simulated lipomas; sometimes the abscesses ran a symptomless course. Acute otitis media developed in 31, parotitis in 15, orchitis in 10, pneumonia in 39, and in 36 there was intestinal hemorrhage, and a relapse in 24 cases.

52. Treatment of Open Wounds.—Wilcke has found it of great advantage to pour into jagged wounds liquid paraffin in which iodine has been incorporated in the proportion of 1 to 300 parts. When the wounds are cleansed he uses a salve with 1 part each of iodine and potassium iodide to 100 parts of petrolatum.

53. Diabetes Following Trauma.—In the case reported severe neurasthenia developed a few months after the man had fractured the sixth, seventh and eighth thoracic vertebrae. The neurasthenia was accompanied by symptoms of diabetes. They continued a progressive course and when the man died, thirteen years after his fall, the courts accented the traumatic origin of the diabetes and awarded an indemnity to the heirs.

Wiener klinische Wochenschrift, Vienna

April 15, XXVIII, No. 15, pp. 387-410

54 Injuries of the Eyes in War. (Kriegsverletzungen des Auges.) R. Possek.

55 Vaccine Therapy of Typhoid. J. Sladek and S. Kotlowski.

56 *Charcoal in Cholera. F. Groak.

57 Report of Field Prosector. (Bericht über die Tätigkeit der Prosektur des Schles. Krankenhauses in Troppau während des ersten Kriegshalbjahres mit bes. Berücksichtigung der Infektionskrankheiten.) A. Materna and R. Penecke.

58 New Orthopedic Department of Innsbruck Surgical Clinic. H. v. Haberer.

56. Charcoal in Treatment of Cholera.—Groak gave each cholera patient 5 gm. of animal charcoal (a heaping table-spoonful) four times a day. The suspension, with a little brandy, was sipped slowly. The charcoal treatment was supplemented with subcutaneous infusion of from 1 to 2.5 liters a day of a 1.5 per 1,000 salt solution. The mortality dropped to 12 per cent. under this treatment.

Gazzetta degli Ospedali e delle Cliniche, Milan

April 11, XXXVI, No. 29, pp. 449-464

59 *Gastric Psychoneuroses. G. Calligaris.

April 15, No. 30, pp. 465-480

60 *Helminths in Bile Ducts. (Ascaridi nei dotti biliari.) A. Dalla Valle.

April 22, No. 32, pp. 497-512

61 *Alcohol in Surgery. A. Pellegrini.

59. Gastric Psychoneuroses.—Calligaris thinks that clinicians are too apt to regard the majority of stomach affections too exclusively as symptomatic, while the neurologists regard

them exclusively as purely functional and of psychic origin. The treatment of these two extremes is exactly opposite, and woe betide the nervous dyspeptic who falls into the hands of a clinician who disregards the nervous element or, vice versa, the patient with organic trouble whose precious time is wasted on psychotherapy alone. Calligaris classifies gastric neuroses in two types: the false, symptomatic or secondary, and the true, the essential or primary neurosis of the stomach. The history of this latter type is scarcely fifty years old. The symptomatology is rich indeed. The kaleidoscopic picture is the chief point in differentiation. Generally there are both sensory and motor symptoms. Vomiting may occur in this type but the possibility of hematemesis of purely nervous origin is generally denied. Calligaris is convinced that this denial should not be too absolute, but he does not believe in the possibility of an exclusively gastric neurasthenia.

The examination of the stomach should be done with extreme caution and tact to refrain from suggestion that may add new features to the clinical picture. Organic trouble should be suggested more readily if the patient is near or past 50. A purely functional stomach trouble may lead to an organic affection, thus setting up a grave vicious circle. There is no doubt that certain patients with true gastric neuroses have recovered under courses of dieting and medicines, but there is also no question of doubt that hosts of others have had their gastric neurosis bred into a chronic and possibly an incurable phase by such measures.

He has had opportunity to study fifty individuals with true gastric neuroses. It was easy to trace the relation between cause and effect, between emotions, phobias, autosuggestion and suggestion from others, and the development of the neurosis, to follow day by day and hour by hour the course of the symptoms from the stomach as they paralleled the fluctuations in the moods and emotions, and to note the regular transient aggravation of the neurosis after certain happenings and the rapid and progressive improvement under psychotherapy. Disturbances in secretion, motor functioning and sensation, in patients growing more and more debilitated, disappeared surprisingly fast under appropriate psychotherapy, and the downward trend toward mental anorexia was thus arrested. Some of these patients had long complained of loss of appetite with inability to eat, and had lost from 20 to 33 pounds, but under eight or ten weeks of isolation and psychotherapy, they regained strength and almost their former weight. The outcome confirmed the correctness of the diagnosis and treatment; if treatment had been on the basis of an assumed organic trouble, the old disturbances would have been kept alight or fanned into a flame. It is in these cases that "local treatment kills; general treatment saves." Both Dubois and Dejerine believe that fully four-fifths of dyspeptic disturbances are of purely nervous origin. Even reducing this figure by one-half, leaves a large number of which this is certainly true. They owe their origin to some emotional stress or to suggestion from within or without, and mostly to suggestion from some medical treatment which fixes the gastric neurosis still more firmly in the patient's mind, by the questions asked, repeated examination, restrictions in the diet, and polypharmacy. "There are stomachs for the chemists and the radiologists and also for the psychologists, the psychiatrists and the neurologists," he adds, "Nature presents her phenomena with a thousand aspects but man is liable to see only the one aspect which his eyes have been specially trained to see."

60. **Helminths in the Bile Ducts.**—Dalla Valle gives an illustration of five adult ascarides found plugging three of the bile ducts at necropsy of a man of 26 who had gradually become insane after the age of 18. Others were found in the intestines. The only complication noted had been the stasis of bile. There was no tendency to cholelithiasis.

61. **Alcohol for Surgical Use.**—Pellegrini extols the advantages of alcohol for sterilization of the hands, etc., especially the denatured alcohol now supplied the hospitals in Italy. The denaturing is done with benzol and picric acid, and the product thus obtained has several points of superiority over alcohol denatured by other methods.

Pediatria, Naples

April, XXIII, No. 4, pp. 241-320

- 62 *Treatment of Kala-Azar. A. Castellani.
63 *Is Epinephrin Present in the Blood at Birth? (Sulla presenza di adrenalina nel sangue del neonato.) S. Cannata.
64 Protective Principles in the Milk of Two Cows Immunized against Tuberculosis. (Sulla presenza di principi difensivi nel latte di animali immunizzati contro la tubercolosi.) L. Sivori.
65 Total Symphysis of Extremely Enlarged Heart in Child. (Condizione cardiaca non comune.) M. Penticaccia.
66 Secondary Infections in Tuberculous Children and Their Extreme Gravity for the Prognosis. G. Repaci.

62. **Tartar Emetic in Kala-Azar.**—Castellani reports remarkable benefit, amounting to a practical cure, in a coolie from India with advanced kala-azar, treated with a mixture of tartar emetic, potassium iodid, and sodium salicylate and bicarbonate. He was also given about every tenth day an intravenous injection of the tartar emetic, alone or with Fowler's solution, but Castellani is convinced that the tartar emetic was predominantly responsible for the benefit derived.

63. **No Epinephrin in the Blood of the Newly Born.**—Cannata obtained constantly negative results in thirty-one healthy babes whose serum was tested for epinephrin by various technics.

Policlinico, Rome

April, XXII, Medical Section, No. 4, pp. 145-192

- 67 *Salvarsan in Treatment of Syphilis Associated with Internal Disease. (Controindicazioni ed indicazioni all'uso dell'arsenobenzolo nelle malattie mediche da sifilide.) T. Pontano. To be continued.
68 Clinical Experiences with Atophan. P. Biffis.
69 *Action of Animal Charcoal on Peptic Digestion. M. Divella.
April, Surgical Section, No. 4, pp. 157-208
70 *Prognosis and Treatment of Tuberculosis of the Tongue. L. Stropeni.
71 Forking Ureter with Movable Kidney. G. Beccherle.
72 *Injection of Alcohol into the Spinal Ganglia. A. Chiasserini. Commenced in No. 1.

67. **Contraindications for Salvarsan.**—Pontano affirms on the basis of considerable personal experience and study of the literature, that, if the heart and kidneys are sound, salvarsan is very slightly toxic. This may be accepted also even if the heart and kidneys are not quite sound, but anything pathologic is perfectly compensated. Symptoms of toxic action have been noted in about 15 or 20 per cent. of the cases in which it has been systematically given. The symptoms are slight and transient and testify to a peculiar individual intolerance, not to any special nature of the disease or its localization. Syphilitics with internal disease, whatever its nature, can be given salvarsan without fear provided the heart and kidneys are sound. Insufficiency on the part of either of these organs is an absolute contraindication, and insufficiency of the liver, a relative contraindication.

69. **Influence of Animal Charcoal on Peptic Digestion.**—Divella experimented with bone charcoal mixed with the mucosa taken fresh from the stomach of a pig or dog, and ground in a mortar. He found that the digestion was materially accelerated by the charcoal admixture in a proportion of 22.05 per cent. Larger or smaller proportions were far less effectual. In the presence of a poisonous substance, strychnin, arsenic, etc., digestion proceeded much more effectually with the charcoal than without. He ascribes its favorable influence to adsorption of the poisons and of ferments, etc., that tend to inhibit digestion. The conclusion seems evident, he adds, that animal charcoal will prove beneficial in all cases of gastric dyspepsia, abnormal fermentations or bad breath, in short, whenever digestion in the stomach is deranged from any cause.

70. **Tuberculosis of the Tongue.**—Stropeni comments on the remarkable rarity of tuberculous lesions in the tongue. It seems to indicate unusual resisting power on the part of the tongue tissues. Hence the prognosis is bad when a secondary process develops in the tongue as this is a sign that the general resisting power is at a low ebb. In twenty-nine cases on record the tuberculous lesion in the tongue was mistakenly assumed to be cancer, and extensive mutilating operations were done. Rapid and fatal recurrence followed in most of the cases, and signs of tuberculosis in other organs showed that the tongue affection had been a secondary process, the

system already undermined. A primary tuberculous process in the tongue is a different matter, and a complete cure is the rule after thorough excision of the focus. Curetting and cauterization are inadequate; in advanced cases, roentgenotherapy may be preferable to excision. The focus should always be removed also with a secondary lesion unless the lungs are involved. When this is the case, roentgenotherapy is better. Stropeni gives references to recent literature on tuberculosis of the tongue, including fourteen Italian and fourteen German works and only three from English literature.

His attention was called to the subject by a case of apparently primary tuberculosis of the tongue in a robust man of 33. A hard, whitish bunch developed on the frenulum, where it joins the base of the tongue. It soon ulcerated and was very painful. After two months of household remedies, he entered the hospital where mercurial treatment was instituted, notwithstanding the negative Wassermann, and the lesion was repeatedly cauterized. Under three months of this the ulceration grew worse and worse, the neighboring glands became involved and suppurated, with fistulas. Then the tuberculin skin tests and inoculation of guinea-pigs with pus gave positive reactions but no tubercle bacilli could be detected in the sputum. Treatment was then changed to merely rinsing out the mouth with mild boric acid solution, and the angry lesions retrogressed to some extent, one fistula healing. The ulcerations on the tongue were then exposed to the Roentgen rays and benefit was apparent almost at once. Eight sittings were given in the course of a month, under which the tongue affection healed smoothly and completely. The patch of swollen glands in the neck was then excised as the suppuration kept up. The cure was then complete and there have been no signs of recurrence during the six months since and the man feels entirely well.

72. Injection of Alcohol into the Spinal Ganglia.—Chiasserini concludes his monograph with references to 159 articles, including several in *THE JOURNAL*. He has studied the technic on dogs and on cadavers, and declares that it is possible and practicable to interrupt, by injection of alcohol into the spinal ganglion, the reflex arc responsible for a number of morbid syndromes and, in particular, for the gastric and intestinal crises in tabes. The technic is simple and easy, he declares, and it promises to be entirely harmless. Even if the alcohol does not get inside the ganglion, and the injection is thus merely periganglionic, it probably will block the nerve to a certain extent. He gives illustrations of the surgical anatomy and the technic he found best adapted for the purpose.

Riforma Medica, Naples

April 17, XXXI, No. 16, pp. 421-448

73 *Serodiagnosis and Serotherapy of Disturbance from Loss of Balance in Ductless Gland System. (Sul valore dei sieri citotossici nelle malattie da alterato equilibrio endocrino.) G. Costantini and L. Sivori. Commenced in No. 15.

74 Cysts in the Pancreas. L. Eustachio.

75 *Oxygen and Carbon Dioxid in the Blood in Uremia. (L'ossigeno e l'anidride carbonica nel sangue degli uricemici.) L. Preti.

73. Cytotoxic Serums in Treatment of Exophthalmic Goiter, etc.—This experimental research was done at the Genoa university clinic in charge of Maragliano. It was based on the fact that in animals treated systematically with the extract of an organ their serum acquires in time a destructive action on the cells of the organ in question. Cytotoxic serums were thus obtained for the thyroid and suprarenals. It seems a plausible assumption that a serum endowed with a destructive action on the thyroid would aid in reducing symptoms caused by excessive functioning on the part of the thyroid. Test tube experiments in this line gave encouraging results: mixing with 1 c.c. of the patient's serum the amount of cytotoxic serum known to neutralize the minimal lethal dose of thyroid extract, then adding one drop of an alexin and incubating for an hour, then adding the minimal lethal dose of thyroid extract and one more drop of alexin and incubating for another hour. This mixture then injected into a rabbit's vein promptly kills the animal if the patient in question is suffering from hyperthyroidism, while it does

not harm the animal if there is hypothyroidism. The mechanism of this is explained and the method suggested as useful for differential diagnosis.

Also in treatment of hyperthyroidism, the cytotoxic serum would have the effect of binding the excess of thyroid principles in the blood. Its action would thus be analogous to that of the serum of thyroidectomized animals, now often used in treatment of exophthalmic goiter. The blood of these thyroidectomized animals contains all the principles which normally are neutralized by the thyroid gland. Cytotoxic rabbit serum in treatment of exophthalmic goiter was given a trial at the clinic in 1911 in one case, but the supply of the prepared serum ran out in two weeks, and the attempt had to be abandoned. All the evidence so far obtained speaks strongly in favor of the possible utilization of cytotoxic serums in exophthalmic goiter. The other ductless glands can scarcely be considered in this respect as they cannot be spared from the body like the thyroid.

75. Oxygen and Carbon Dioxid in the Blood in Uricacidemia.—Preti recalls that an aqueous extract of liver tissue has the power to destroy uric acid added to it in the presence of oxygen. The uric acid is reformed if the oxygen is replaced by carbon dioxid. Preti and other Italian workers have reproduced these phenomena with artificial circulation through the liver, first oxygenating the blood, to destroy the uric acid, and then reforming it with the aid of carbon dioxid. Preti's further research has shown that both the phenomena are the work of ferments in the blood. Animals breathing air with much carbon dioxid eliminate larger quantities of uric acid through the kidneys, and the uric-acid content of the blood is higher. Recent investigation of twelve persons with attacks of gout, tophi and high uric-acid content in the blood, showed from 5 to 18 per cent. oxygen in the blood, the majority approximating the lower figure. The carbon dioxid content was never found less than 50 per cent., the range being from 51 to 76 per cent. In the healthy controls, the oxygen range was from 16 to 23 per cent. and the carbon dioxid from 38 to 44 per cent. These findings throw light on the familiar experience that gout affects persons with defective oxidations owing to a sedentary life, muscular inanition, depression of the heart action, etc.

Ugeskrift for Læger, Copenhagen

April 15, LXXVII, No. 15, pp. 577-596

76 Extraction of Tack Two Years in Lung. (Et Tilfælde af Corp. alien. pulmon. c. abscessu mediastini.) K. Schäffer.

April 22, No. 16, pp. 597-636

77 *Continuous Extension in Treatment of Sciatica. I. Svindt.

77. Extension Treatment of Sciatica.—Svindt has applied extension, as for a fracture of the neck of the femur, in 26 of the 41 cases of sciatica in his service in the last five years. The youngest patient was 22, the oldest 74, and the extension relieved them of their pain and in most cases led to a permanent cure. The extension was kept up for about three weeks, and was followed by massage and hydrotherapeutic measures for another week or ten days, to complete the cure. The average stay in the hospital for the 41 patients was forty-four days, but extension was applied only in the severest cases. In one case since there was recurrence of the sciatica about six weeks afterward, but another course of extension treatment at home cured him and there has been no trouble since. Only one other patient reports recurrence of the sciatica; it has returned several times but always in such mild form that it has not interfered with his occupation. Svindt's experience on the whole has thus been very favorable with this extension method of treating sciatica. The technic is so simple that any practitioner can apply it. The relief from pain and the permanent benefit are probably due to the complete rest of the limb and the musculature. It is not probable that the extension applied is enough to really stretch the nerve. He begins with a weight of 4 kg., gradually increasing it to 7 or 8 kg. The last trace of pain generally subsides when a weight of 7 kg. is reached (15.4 lb.) He gives a sedative the first day or so if absolutely required, and follows with salicylates for a few days, with a fever diet and then a full diet.

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THE PHENOLSULPHONEPHTHALEIN TEST IN CHRONIC NEPHRITIS*

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CHICAGO

Ever since Schlayer and his co-workers elaborated their system of differential renal function testing, much attention has been given to the subject of kidney function tests in nephritis. Clinical requirements demand not only that such a procedure shall be simple and easily available for clinical employment, but that it shall be of demonstrated accuracy; otherwise it may lead to faulty deductions in prognosis and possibly to blunders in diagnosis. However attractive it may appear from the pathologic point of view, to estimate the degree to which the different anatomic elements of the kidney are involved, it would seem that the mixed type of nephritis encountered clinically practically disposes of the attempt to weave fine diagnostic distinctions about the reactions secured by differential function tests. With clinical nephritis of the simplest type, there is enough general structural involvement to make conclusions as to special function involvement hazardous.

Many considerations render the study of renal function in detail an extremely complex problem. To base conclusions on differential tests assumed to reveal glomerular, tubular or vascular impairment necessarily implies that we can test the individual functions of the kidney, and presupposes a much more definite knowledge of the physiology of that organ than we in fact possess. Moreover, it is only in acute fatal cases of nephritis that anything like pure system involvement—glomerular or tubular—exists. As the matter stands, the only methods available for clinical usage are such as furnish information regarding the total function of the kidneys—their general excretory capacity.

THE PHENOLSULPHONEPHTHALEIN TEST

Tests for estimating general renal efficiency have consisted mainly of the introduction of various dye substances, which are excreted more or less completely in the urine. General agreement accords first place among these tests to the phenolsulphonephthalein test of Rowntree and Geraghty,¹ introduced in 1910. It was at first employed most extensively in surgical cases, especially with reference to the question of

operations on the urinary organs. It is equally applicable to medical cases, but the results are considerably more difficult of interpretation, and it is only recently that sufficient observations have accumulated to give it a fixed status in this class of cases. The harmlessness and simplicity of the test render it an easily available clinical procedure. In its application to nephritis Rowntree and Geraghty have shown from careful clinical and pathologic studies that the amount of phenolsulphonephthalein excreted varies as a general rule in rough ratio with the extent of the renal damage. In fatal uremia only traces or none at all of the dye appear in the urine for the two-hour interval, while in mild and moderate grades of nephritis the amount recovered from the urine may be normal or nearly so. These authors assert further that in cardio-renal cases when the heart is failing and the kidneys become passively engorged, a low phenolsulphonephthalein output is observed at first, rapidly rising subsequently as the heart action improves and venous engorgement subsides. An increase in the phenolsulphonephthalein index in such a case may be the earliest sign of restoration of compensation and represents a favorable prognosis. *Per contra*, a low excretory capacity, persisting after clinical evidence of cardiac improvement, points to a severe nephritis and a less favorable prognosis.

The authors of the test emphasize the purely empiric character of the investigation, owing to our lack of sound information as to the physiology of urinary secretion, and while attaching a high degree of prognostic value to its findings when positive and clear cut, they warn against too general prognostic interpretation, inasmuch as the test yields information only so far as renal efficiency or inefficiency can be estimated, whereas death may occur in chronic nephritis from many other factors, cardiac and cerebral in particular, concerning which the test gives little if any information. This method in common with other function tests must in consequence be considered always in conjunction with general clinical study; otherwise prognosis is made dependent on laboratory technic, which is always a hazardous alternative.

Coincidentally with the investigation of the functional adequacy of the kidneys in nephritis, attention has been directed to the estimation of the incoagulable or nonprotein nitrogen of the blood as offering a valuable means for securing information of prognostic value. Studies of this nature are particularly to be desired in the investigation of nephritis, since urine analysis cannot reveal the stage of accumulation of waste products, an accumulation that may vary from almost normal figures to enormous increase in uremia.

* Read before the Chicago Society of Internal Medicine, March 22, 1915.

1. Rowntree, L. G., and Geraghty, J. T.: Jour. Pharmacol. and Exper. Therap., 1910, i, 579; *ibid.*, 1911, ii, 393; The Phthalein Test—an Experimental and Clinical Study of Phenolsulphonephthalein in Relation to Renal Function in Health and Disease, Arch. Int. Med., March, 1912, p. 284.

THE INTERPRETATION OF RESULTS

Although the technic for nonprotein nitrogen determination offers no difficulties to the well-equipped chemical laboratory, it is so technical and time-consuming as to be beyond the capabilities of the clinician for routine employment. Studies of renal efficiency by the phenolsulphonephthalein test consequently offer great advantage as to convenience and ease of application. The chief drawback attaching to this method of estimating kidney permeability lies in the interpretation of results, for it is quite conceivable that the rate of elimination of a foreign dye substance may bear no definite relationship to the efficiency of the kidneys in excreting metabolism products.

Cases have been reported (Foster,² Baetjer³) in which the phenolsulphonephthalein test gave practically normal figures, yet fatal uremia resulted shortly after the tests were made.

Rowntree, Fitz and Geraghty⁴ assert that phenolsulphonephthalein is excreted solely by the tubular epithelium, a contention supported by Potter and Bell⁵ from their studies of experimental tartrate nephritis and it is conceivable that these reported cases may have been nephritis of predominantly glomerular type.

Such excretory paradoxes emphasize the loopholes for error in any general interpretation, however firmly the rule may appear to be established by results. The same thing is true of nonprotein blood nitrogen estimations in nephritis, a number of instances being reported in the literature, of uremia developing in the face of normal waste nitrogen content. However obscure and against the rule such exceptions may be, they serve to establish a discount against too rigid interpretation of any routine investigation. They serve to accent our ignorance of the exact nature of uremia and leave open the question of whether so profound a disturbance of the entire metabolism as results from severe nephritis there may not be some other factor, in addition to the action of urinary retention bodies, which is as yet unappreciated.

As the nonprotein index in the blood is admittedly the most reliable criterion of renal efficiency, it is desirable to correlate the elimination of phenolsulphonephthalein with the actual retention of nitrogenous waste in the blood. This has been undertaken by Frothingham, Fitz, Folin and Denis⁶ in experimental uranium nephritis. The results of their investigation demonstrate that in general the tests parallel each other as indicators of renal function, varying from normal during the course of the nephritis and returning to normal as the nephritis heals, with this important difference, that, whereas the amount of phenolsulphonephthalein excreted shows the renal function at the time of the test, the amount of nonprotein nitrogen of the blood measures the accumulating difference between the production of waste nitrogen bodies in the metabolism and the quantity excreted.

The time element — the duration of the nephritis — becomes, therefore, an important factor in the result.

It has long been known that during the course of any nephritis there are certain periods when the urinary constituents are normal in amount as compared with the intake, and other periods when they may be increased or decreased. These functional eccentricities of the kidneys, imperfectly understood, may have a bearing on some of the inconsistencies of excretory tests. Frothingham and Smillie⁷ carried out a series of observations on the nonprotein nitrogen and the phenolsulphonephthalein excretion in seventy-seven cases of chronic nephritis. From their charts it appears that the phenolsulphonephthalein excretion steadily falls as the amount of nonprotein nitrogen of the blood increases, phenolsulphonephthalein practically ceasing to appear in the urine when the nonprotein nitrogen reaches 100 mg. (four to five times normal). In a moderate number of cases a surprisingly low phenolsulphonephthalein output was shown for which no cause could be found, either from clinical findings or laboratory tests. They consider it fair to state that a considerable individual variation above and below the expected average may occur with the phenolsulphonephthalein test for which no explanation can be found.

In the main, the relation between nonprotein values and clinical findings is fairly exact. No nonnephritic cases showed accumulation. All their cases with nonprotein nitrogen above 50 mg. per 100 c.c. of blood gave clinical evidence of severe nephritis. In some of these cases the phenolsulphonephthalein excretion was unexpectedly good. On the whole, however, the nonprotein nitrogen varied inversely with the excretion of phenolsulphonephthalein in the urine. The accumulation of waste nitrogen seemed to be much less influenced by cardiac and other complicating factors than was phenolsulphonephthalein excretion.

Agnew⁸ undertook studies to determine what relation, if any, existed between phenolsulphonephthalein output and nonprotein nitrogen of the blood. He concludes that, in general, cumulative phenomena occur only when the excretion of phenolsulphonephthalein falls below 40 per cent. in two hours. This is in keeping with the observations of Folin, Denis and Seymour.⁹ Tileston and Comfort¹⁰ found that cases of chronic nephritis without symptoms of uremia showed normal or only moderate cumulative signs, the uremic cases, on the contrary, yielding a great increase in the nonprotein blood nitrogen, the excretion of phenolsulphonephthalein being roughly proportionate to the degree of retention.

Rowntree, Fitz and Geraghty⁴ show that chronic passive congestion of the kidneys gives rise to reduced secretion of phenolsulphonephthalein in the urine, without marked increase in the incoagulable nitrogen of the blood, and Agnew⁸ has been able by this contrast to separate cardiac from chiefly renal involvement. Foster¹¹ points out that while this holds true

7. Frothingham, Jr., Channing, and Smillie, Wilson G.: The Relation Between the Phenolsulphonephthalein Excretion in the Urine and the Non-Protein Nitrogen Content of the Blood in Human Cases, *Arch. Int. Med.*, October, 1914, p. 541.

8. Agnew, J. Howard: Comparative Study of Phenolsulphonephthalein Elimination and Incoagulable Nitrogen of the Blood in Cardiorenal Diseases, *Arch. Int. Med.*, March, 1914, p. 485.

9. Folin, Otto; Denis, W., and Seymour, Malcolm: The Non-Protein Nitrogen Constituents of the Blood in Chronic Vascular Nephritis (Arteriosclerosis) as Influenced by the Level of Protein Metabolism, *Arch. Int. Med.*, February, 1914, p. 224.

10. Tileston, Wilder, and Comfort, C. W.: The Total Non-Protein Nitrogen and Urea of the Blood in Health and in Disease as Estimated by Folin's Methods, *Arch. Int. Med.*, November, 1914, p. 620.

11. Foster, Nellis B.: Uremia. The Non-Protein Nitrogen of the Blood, *Arch. Int. Med.*, March, 1915, p. 356.

2. Foster, Nellis B.: Functional Tests of the Kidney in Uremia, *Arch. Int. Med.*, October, 1913, p. 452.

3. Baetjer, William A.: Superpermeability in Nephritis, *Arch. Int. Med.*, June, 1913, p. 593.

4. Rowntree, L. G.; Fitz, R., and Geraghty, J. T.: The Effects of Experimental Passive Congestion on Renal Function, *Arch. Int. Med.*, February, 1913, p. 121.

5. Potter, A. C., and Bell, E. T.: *Am. Jour. Med. Sc.*, 1915, cxlix, 236.

6. Frothingham, Jr., C.; Fitz, R.; Folin, O., and Denis, W.: The Relation Between Non-Protein Nitrogen Retention and Phenolsulphonephthalein Excretion in Experimental Uranium Nephritis, *Arch. Int. Med.*, September, 1913, p. 245.

for lesser grades of circulatory embarrassment, it might not prove a reliable criterion in the severest types of purely circulatory disturbance in which nonprotein nitrogen accumulation is not infrequently observed.

Thayer and Snowden¹² make an important contribution from the clinical side. These authors attempt to throw some light on the clinical value of the phenolsulphonephthalein test in prognosis by comparing their findings with the test and the anatomic alterations revealed at necropsy in fifty-four cases of nephritis of different types. In no instance of grave nephritis did they fail to find a material reduction in phenolsulphonephthalein excretion. Their study reveals a progressive diminution in the output of the dye, which they consider so definite as to give the test a considerable prognostic value. They conclude that there occurs in severe chronic nephritis a uniformly low phenolsulphonephthalein excretion, which, as a rule, in those instances not interrupted by an acute terminal process, decreases steadily up to the onset of uremia and is nearly or wholly suppressed from a day or two to a month before death. Acute terminal uremic developments which may be unsuspected clinically are common, and here a sudden diminution in the elimination of phenolsulphonephthalein may come on in cases in which the percentage previously excreted is not so low as to appear alarming. In not a single instance, and, indeed, not once in all their studies for five years, have these authors met with a good phenolsulphonephthalein excretion in a case of severe chronic nephritis. Their observations with the test in twenty cases of chronic passive congestion conform with the findings of Rowntree and Fitz,¹³ and they consider it clear that chronic passive renal congestion alone can result in marked reduction of phenolsulphonephthalein excretion, which may return to normal as cardiac compensation is reestablished.

VALUE OF THE TEST

The foregoing discussion briefly reviews the main facts brought out by investigation that furnish our warrant for the employment of this test in clinical practice. Accumulating clinical observation and the fact that results with the phenolsulphonephthalein test in the main parallel the estimation of nonprotein nitrogen of the blood encourage the belief that the findings are, within certain limitations, reliable for prognostic purposes. In interpreting its findings it is to be remembered that the test shows the functional power of the kidneys at the time of observation and for the dye only. The influence of passive renal congestion from cardiac causes is to be borne in mind. If excretory values are low and cardiac insufficiency be not present as a complicating factor, we should not disregard the warning simply because clinical indications of uremia are absent, and, on the other hand, if symptoms indicate danger, their significance is not to be neglected merely because phenolsulphonephthalein excretion approaches normal. Some experience with this test as a routine clinical procedure covering a period of two years encourages me to believe that it constitutes a method of value in nephritis and high pressure states generally. In my observations I have found that excretory response to the test is on the

average higher in ambulatory cases tested in office practice than in hospital cases, and this irrespective of the clinical condition present. This is, perhaps, as might be expected, owing to the more general functional decline in patients confined to bed. A comparison of age with functional response would appear to confirm the observation of Miller and Cabot¹⁴ that the excretion of phenolsulphonephthalein grows progressively less with advancing years.

It is extremely doubtful whether the phenolsulphonephthalein test can be employed to any important extent in the diagnosis of nephritis. Routine observations with the method show an output well within normal requirements in the majority of cases classed as nephritis with good cardiac compensation. The latency of chronic nephritis is well known and the inadequacy of clinical observation alone accurately to gauge the degree of renal impairment is granted by all experienced observers. Any method that will assist the clinician in obscure cases to arrive at a more accurate knowledge of the organic inroads on kidney secreting structure will consequently be welcomed. It may happen that the renal efficiency test may occasionally prove of service in this direction. Rowntree¹⁵ cites the case of a boy who prior to the function test was looked on as having diabetes insipidus, but who, after one phenolsulphonephthalein test, was recognized as having advanced nephritis verging on uremia, a diagnosis substantiated at necropsy two weeks later.

Recently the test was instrumental in contributing to the better diagnosis of a case under my own observation.

The patient, a young man of robust habit and healthy appearance, complained of cardiac palpitation and vague precordial distress, with a sense of lassitude. Physical examination revealed a moderate degree of cardiac hypertrophy; blood pressure, systolic 160, diastolic 90. The urine was normal in all respects except for the presence of a very few hyaline casts. The best excretion index that could be secured with the phenolsulphonephthalein test was 30 per cent. in two hours. This was interpreted as giving a more serious aspect to his clinically latent nephritis than would have been indicated on clinical and urinary grounds alone.

Perhaps the most important service this test may render us in nephritis is in the diagnosis of obscure uremic conditions. During the course of any case of chronic nephritis there may arise gastro-intestinal, cerebral, visual or other functional disturbances, the uremic nature of which may be strongly suspected. Decisive action is necessary, although clinical grounds may be insufficient for a definite judgment regarding the uremic nature of the symptoms. Without loss of valuable time the phenolsulphonephthalein test will reveal promptly the degree of uremia present.

A type of case that often presents some difficulties in diagnosis is so-called cardiorenal disease. In this condition the blood pressure ranges high, cardiac sclerosis is a prominent factor, and urinary signs signify that the kidneys share in the general arterial involvement. It is not always an easy matter to estimate the relative importance of the cardiac and renal moieties and to decide whether to regard the case from one or the other angle. I have found the renal sufficiency test of assistance in elucidating this point.

12. Thayer and Snowden: *Am. Jour. Med. Sc.*, 1914, cxlviii, 781.

13. Rowntree, L. G., and Fitz, R.: *Studies of Renal Function in Renal Cardiorenal and Cardiac Disease*, *Arch. Int. Med.*, March, 1913, p. 258.

14. Miller, Richard H., and Cabot, Hugh: *The Effects of Anesthesia and Operation on the Kidney Function, as Shown by the Phenolsulphonephthalein Test*, *Arch. Int. Med.*, March, 1915, p. 369.

15. Rowntree, L. G.: *Am. Jour. Med. Sc.*, 1914, cxlvii, 352.

My experience with the test would lead me to believe that it may prove of service when employed at periodic intervals in keeping track of the progress of a case and as a more accurate means of watching the effect of treatment than we possess by other means. By applying the test at intervals, the rise and fall in function index forms an interesting and possibly significant chart. How far we can trust the indications gained by routine observation of this sort is difficult to state, but there appears no obvious reason why we should not place some dependence on them. Rowntree and Geraghty report that if surgical patients were given careful preoperative treatment when the elimination of the phenolsulphonephthalein was dangerously low, a marked improvement in elimination occurred. It has been my experience that a steady improvement in the kidney function index may be expected following treatment in cases of nephritis not too far advanced. Mere rest in bed, strict diet and regulation of elimination will ordinarily effect such a result. In advanced cases bordering on uremia, it is rare to observe an improvement following treatment.

A point of possible importance to bear in mind in the interpretation of defective function response in chronic nephritis is the occasional existence of subacute exacerbations. The progress of many cases of chronic nephritis is punctuated by the occurrence of acute inflammatory phases resulting from intercurrent infections or severe kidney irritation. During the existence of such a phase, the excretion of phenolsulphonephthalein may be temporarily reduced much below average figures for the case, and for the time being low values may be observed. A case coming under observation at such a time may appear more grave when viewed from the standpoint of function response than might be justified by the subsequent progress of the case.

General experience with the test has verified the observations of Rowntree and Geraghty regarding the influence of passive renal congestion in interfering with phenolsulphonephthalein excretion. As is well known, contracted kidney cases and cardiorenal diseases generally are, during the later stages, to a large degree cardiac cases, the element of cardiac failure entering to a very important degree into the disabilities of the terminal stage. Broken cardiac compensation as a rule interferes very considerably with the excretion of phenolsulphonephthalein, values well below the safety line appearing with fair constancy along with cardiac edema in chronic nephritis and high blood pressure states. Unless we accord to the cardiac factor its due importance in this regard, we may be led erroneously to anticipate the advent of uremia, and to address our measures of treatment to the kidneys instead of to the heart as they should be.

In view of the clinical vagaries of chronic nephritis, which are notorious, it is perhaps not surprising to meet with glaring inconsistencies in the clinical application of this test. Cases that appear very grave on general clinical and urinary grounds are often found to yield a normal or nearly normal function index, and conversely, instances that appear to be on safe functional ground when judged by purely clinical findings, yield surprisingly low values when kidney efficiency is tested out. Just how we are to strike a balance between the two is often difficult to judge, but in view of the long recognized fact that it is impos-

sible to predict accurately by clinical study alone what course the disease will take in development, it would appear that we should at least accept the results of function study as a qualifying factor in prognosis. It is surprising how long certain cases of chronic nephritis will survive after the excretion of phenolsulphonephthalein is reduced to a mere trace or suppressed entirely; weeks and even months may go by before death ensues after this apparently terminal phenomenon has appeared. No absolute prognosis as to duration of life appears possible on functional findings alone, because we do not yet know how low the phenolsulphonephthalein excretion may go and yet be compatible with a renal efficiency sufficing to maintain life, provided the diet and hygiene of the patient are properly adjusted (Arnold¹⁶).

DIET THERAPY AND THE TEST

Diet therapy in nephritis is dominated by the principle of protein restriction. Our practice in this important item has hitherto been governed by empiricism without scientific control. So far as can be seen at the present time, the only reliable criterion available for regulating the protein intake in nephritis is the determination of the amount of waste nitrogen retention by blood analysis. That it is possible to reduce the urea waste nitrogen of the blood to normal or less is abundantly proved by the feeding experiments of Folin, Denis and Seymour,⁹ and of Frothingham and Smillie.¹⁷ Cases with a considerable retention require a restriction of protein, and by this means a return to normal may be brought about provided the azotemia be not too severe. In case of outspoken uremia no marked reduction of the azotemia results from a protein-free diet. Folin, Denis and Seymour state that the response to the phenolsulphonephthalein test can be reduced by one-half before abnormal accumulation of nonprotein nitrogen takes place in the blood. This estimate is in keeping with Agnew's statement that at 40 per cent., phenolsulphonephthalein excretion, cumulative phenomena appear in the blood. These observations may justify the assumption in clinical practice that when the response to the phenolsulphonephthalein test drops to 40 per cent. or lower in two hours, waste nitrogen blood accumulation is present.

Routine observations with this readily available test may thus enable us to appreciate with greater precision than is possible from clinical observation alone the point (40 per cent. or lower) where positive protein restriction becomes necessary. When the functional index is normal or nearly normal in contracting kidney, it is difficult to understand what harm will result to the kidneys, provided no inflammatory element is present, from a protein ration based on physiologic requirements. Aided by periodic functional testing to check up the functional integrity of the kidneys, and with our present knowledge of physiologic food requirement for good nutrition, the diet therapy of chronic nephritis may be adapted with reasonable safety, if not perhaps with accuracy, and with due realization that in so chronic and widespread a disease general nutrition and kidney conservation should stand on a parity.

30 North Michigan Boulevard.

16. Arnold: Boston Med. and Surg. Jour., 1914, clxx, 601.

17. Frothingham, Jr., Channing, and Smillie, Wilson G.: A Study of Different Nitrogenous Diets in Chronic Nephritis, Arch. Int. Med., February, 1915, p. 204.

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OF THE INTERNATIONAL HEALTH
COMMISSION

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The International Health Commission was created in June, 1913, by the Rockefeller Foundation as its first important act after receiving a charter from the state of New York. Its expressed object is "the promoting of public sanitation and the spread of the knowledge of scientific medicine." Its immediate task contemplates the extension of measures for the relief and control of uncinariasis or hookworm disease to those countries and peoples where conditions invite. This phase of the work is already well under way. Active measures are in progress in several territorial units in the Southern States, Central America, the West Indies, British Guiana and Egypt; and other countries have signified a desire to have the cooperation of the International Health Commission.

In order to give a clear understanding of the plan of organization and the working methods of this commission, I shall review briefly the work of the Rockefeller Sanitary Commission, from which it has developed as a natural outgrowth. The Sanitary Commission was organized by Mr. John D. Rockefeller in 1909, and was granted a million dollars to be used during the ensuing five years toward the eradication of hookworm disease in the United States. This commission was composed of thirteen of the country's leading educators, physicians and business men.

Mr. Wickliffe Rose, executive secretary of the Southern Education Board and general agent of the Peabody Education Fund, was selected as administrative head of the work, with the title of "administrative secretary." Mr. Frederick T. Gates, adviser to Mr. Rockefeller and the chairman of the General Education Board, was elected chairman. As scientific secretary, Dr. Charles W. Stiles was elected. It was Dr. Stiles who discovered the presence and prevalence of the disease in the South, identified as its cause a new type of hookworm termed by him the *Necator americanus*, and did much to center the attention of the profession, the public and Mr. Rockefeller's advisers on its baneful influences.

Mr. Rose opened offices in Washington in January, 1910, and proceeded to organize the work. For obvious reasons the state board of health of each state was selected as the agency through which to undertake the work. Where a health department was weak, he endeavored to aid in strengthening it; and where there was no health department, he sought to help lay the foundations for developing one. The work was always conducted in the name of the state board of health. In each of the eleven states with which the commission cooperated, a state director was appointed by the joint action of the public health authorities and the commission. This director became a state official—an officer of the state department of health—clothed with the powers and responsibilities of the office. He was the organizing and directing head of all the work in the state for the eradication of hookworm disease, and was responsible for results. He worked under the general supervision of the state department; he made reports quarterly to the state department, and

through the department to the commission. Under his direct supervision was a force of from three to six physicians as field directors, each of whom was generally assisted by one or two trained microscopists.

On this general plan, eleven states invited and received the cooperation of the commission: Virginia, North Carolina, Georgia, South Carolina, Tennessee, Arkansas, Mississippi, Alabama and Louisiana between February and November, 1910; and Kentucky and Texas in 1912. The remainder of 1910 and a portion of 1911 were devoted to perfecting the state organizations, to educational propaganda, to survey work and to the trying out of working methods.

In beginning the work, the cooperation of the physicians, the educational forces and the press, was successfully enlisted. The educated public soon began to regard hookworm disease as a problem worthy of serious consideration. Working methods were gradually developed on the basis of actual experience under varying conditions. These methods have been growing more systematic, the efforts more intensive and the results more definite.

The work in the beginning consisted very largely in visiting physicians, interviewing them, demonstrating the microscopic technic in recognizing the disease and urging physicians to make examination for its presence a routine in their practice. The essential facts about the disease were prepared in popular form and distributed broadcast over the state—through the newspapers, in leaflets and pamphlets, and by means of circular letters. Lectures to public audiences and to schools were employed as a feature of the work at this stage. Soon, the laity was ready to aid in determining the extent to which the disease prevailed; that is to say, specimens for examination could be obtained with reasonable effort. The state militia was first examined; then children in the various orphanages. When these investigations were completed, and the results published, it was found feasible to have the children in the public schools examined. Squeamishness began to disappear, and the work of examining schoolchildren proceeded rapidly. A group, usually of two hundred children or more, taken at random, was examined in every county, or at least in representative counties. Thus, the prevalence and distribution of the disease were established with reasonable accuracy. In visiting the schools, the field directors also inspected the sanitary conditions of the country homes on the roadside and recorded their observations in each instance.

At this juncture stock was taken. It was observed that the survey work was highly satisfactory. The disease, varying in different localities within the state, and even within the counties, was found to exist among from 10 to 90 per cent. of the people. But the record of cures was small. In December, 1910, Mississippi tried, for indigent cases, the dispensary plan that had worked so successfully in Porto Rico for the whole of the infected population. It was found to be very satisfactory in that state, not only for the indigent cases but also for all who applied. It was soon tried elsewhere, and speedily became in all the states the agency around which the chief activities centered. It provided a means for effective teaching by actual demonstration.

It is still employed in some of the states, which are completing the work with aid from the International Health Commission, in a few of the heavily infected

counties that could not be reached before Dec. 31, 1914, which marked the close of the five-year period covered by the pledge of Mr. Rockefeller to the Rockefeller Sanitary Commission. A summary of the work through the dispensaries and through the increased activities of the physicians showed, by the close of 1914, that much had been accomplished in the South in treating the disease. The number of persons microscopically examined was 1,273,850. The number of persons treated and reported was 694,516. Of these, 254,118 were treated and voluntarily reported by the physicians, and 440,398 were treated in the dispensaries.

This county dispensary work was very strenuous for the field forces. County appropriations for local expenses had to be secured; the campaigns had to be advertised and wide interest quickly created. A different dispensary had to be reached every day, often by traveling over miles of rough roads; frequently from one to five hundred people had to be examined during a day, lectured to, the infected ones treated and a complete and accurate record of each case kept. This meant that the men were often out on the day's task from dawn until long after nightfall; but they loved the work and were convinced that the effort was well worth while.

It is to be doubted whether an equal number of men could have been found who would have worked harder, or more effectively, or who would have accomplished so much in the same length of time by any other methods. The population and area to be reached were vast; the funds, and consequently the size of the working force, were limited; the time for completing the work was short, and the county dispensary campaigns were consequently limited to periods ranging from four to eight weeks—a time insufficient to develop satisfactorily the sanitary features of the campaign along with the curative measures.

Obviously, the next development in methods called for a lengthening of the working period; limiting the area to be worked, intensifying the efforts and putting into effect both curative and sanitary measures. This modified plan of work was very satisfactorily developed, during the closing months of the Rockefeller Sanitary Commission, in four states which were early in completing the dispensary work. It was completed before the close of 1914 in twelve communities, each having an area averaging in size about 32 square miles and an average population exceeding a thousand persons (1,025, to be exact). The working period in each averaged about four months. The work was done by a field director, who in some cases was aided by a microscopist. Of the 12,305 persons in the twelve communities, 75 per cent. were examined; 26 per cent. were found infected and 94 per cent. of these were treated and probably cured. Twenty-nine per cent. of them were actually reexamined after a course of treatment and all found to be cured.

In these communities there were 2,257 homes. Fifty per cent. of them in the beginning had no kind of privy, and the privies found were seldom, if ever, sanitary. When the work closed 88 per cent. of the homes had privies, and 81 per cent. of these were of an improved type. The work in some communities was, of course, further advanced than in others. In fully a third of the communities, every family had an improved privy and every person found infected was treated.

This intensive work deserves special attention. It has been carried one step farther by British Guiana. In selected areas of British Guiana there are two staffs at work, under the general supervision of the Surgeon-General. The sanitary staff, financed by the government, enters the area first. It gives the area a thorough cleaning, attends to drainage and enforces compulsory measures requiring every family to provide itself with an approved privy, and to use it and care for it. When this staff completes its work, it moves into another area, leaving in the district a sufficient number of sanitary inspectors, employed permanently by the government, to insure the maintenance of the improved sanitary conditions.

The second staff is medical, and is financed through the local government by the International Health Commission. It aims at the examination of every person in the working area, and the treatment until cured of every person found infected.

This plan insures the development of adequate public health agencies by the government, which will carry on the work after the commission has transferred its aid to other fields, and leaves to the local health organization the enforcement of public health laws. The agency supported by the commission can be temporary, and it depends for its success on the voluntary cooperation of the people. Both staffs have made admirable successes, and there seems much promise that a wider application can be given to the plan.

Return for a moment to the Rockefeller Sanitary Commission. Its work, per se, accomplished gratifying results. Many observers state, however, that the by-products have greatly exceeded in importance the tangible results with hookworm disease as published in the records of the state boards of health, and in the reports of the Rockefeller Sanitary Commission. To give an illustration of this: It was found that the available funds for public health work in the eleven Southern States where aid was given amounted in 1910 to \$216,195, and in 1914 to \$392,364, an increase of 81 per cent. in less than five years. Of course, the commission does not assume the credit for this increase; it was wholly voluntary on the part of the states. It may be, however, that the states were stimulated by the spirit which pervaded the forces devoted to measures for the control of hookworm disease. At any rate, the health departments are much stronger now than they were five years ago.

One incidental service of the Rockefeller Sanitary Commission to the public health agencies of the South and nation has been the bringing into the field of public health work of nearly one hundred carefully selected young physicians. The large majority of them have acquired a love for the work and an appreciation of the broad possibilities it offers for service to man. More than a third of them have chosen it as a career, and have identified themselves with the state or national public health organizations.

The Rockefeller Sanitary Commission accomplished all that was expected by its founder, and paved the way for the International Health Commission. Mr. Rose studied the work in all the states very closely and correlated it by acquainting all the directors with any significant method employed by any one. His suggestions for increasing efficiency came to the state directors from time to time. They were not imperative. They usually carried by their own force. Occasionally he called the workers together for conferences,

when there would be round-table discussions, exchanges of experiences; and usually out of these conferences there developed more effective, more uniform and more systematic working plans.

These fundamental policies which guided the Rockefeller Sanitary Commission are being adhered to in the development of the International Health Commission. They have worked satisfactorily thus far in dealing with a single problem in preventive medicine in the international field. They will probably apply with equal force to other public health problems with which the commission will deal in the course of its development.

Having described the groundwork on which the International Health Commission rests, and outlined the policies which are guiding its organization, I can tell the story of its activities to date in a few words.

In considering this larger work, Mr. Rose in 1911 set to work to collect, from all countries of the world, the available information on the distribution and prevalence of hookworm disease; the extent to which it was a handicap to the health and working efficiency of the people; the agencies at work toward its control; the results secured, and the methods employed. The results of this study were published in 1911. They indicated that the disease prevails in a belt of territory encircling the earth for 30 degrees on either side of the equator, inhabited by more than a thousand million people; that "the infection in some nations rises to nearly 90 per cent. of the entire population"; that the disease has probably been an important factor in retarding the economic, social, intellectual and moral progress of mankind, and that "little or nothing is being done toward its arrest or prevention."

Owing to the time consumed in getting the Rockefeller Foundation chartered, the International Health Commission was not organized until June 27, 1913. The members are: John D. Rockefeller, Jr., chairman; Jerome D. Greene, recording secretary; Wickliffe Rose, director-general, Charles W. Eliot, Simon Flexner, Frederick T. Gates, William C. Gorgas, Charles O. Heydt, David F. Houston, Starr J. Murphy, Walter H. Page and William H. Welch.

In July, 1913, I went to Washington to give assistance in directing the work of the Rockefeller Sanitary Commission and to become later the assistant director-general of the International Health Commission. This relieved Mr. Rose, so that he could make several journeys to foreign countries. He proceeded to London in August on invitation, with a view to establishing work in the British dependencies. The stability of the government and the official use of the English language made them a most suitable field for beginning work. A series of conferences had been arranged for him with groups of scientists, physicians and government officials, the most important, with respect to action taken, being a dinner given by Ambassador Page—himself a member of the commission—August 13. Mr. Rose told, while there, of what had been done in the South, described the plan followed and indicated that the International Health Commission was prepared to cooperate with the British government on a similar basis. The proposition was accepted with eagerness; the government expressed its appreciation, pledged its active cooperation in the work and appointed an advisory committee to assist the commission in the colonies.

The British West Indies appeared to all the logical region for beginning work. Accordingly, Mr. Rose, in October, visited seven of the colonies: Barbados, Trinidad, British Guiana, Grenada, St. Vincent, St. Lucia and Antigua. He desired to make a first-hand survey of conditions. He obtained a general view of the country and established an acquaintance with the officials and the working population. He observed the conditions of infection and discussed working plans with the medical officers. In 1914 he spent about half the year on a journey around the world, visiting a number of countries, giving special consideration to Egypt, Ceylon, the Federated Malay States and the Philippine Islands.

In the meantime, the work of organization had been taking definite shape, and work was getting well under way in some of the colonies. Early in March Dr. J. H. White was secured for a year from the United States Public Health Service to undertake the establishment of work in certain of the Latin-American countries.

Here, as in other places, the commission did not enter the field without first being invited by the government, and receiving assurance of cooperation in the work undertaken. Dr. White had an intimate acquaintance with the Latin-American people, which enabled him to lay the groundwork successfully and develop excellent working forces for Panama, Costa Rica, Nicaragua and Guatemala before the close of his year's work with the commission. These republics will afford nuclei from which operations can spread to the other Latin-American republics as conditions warrant.

In the West Indies, Dr. H. H. Howard is now directing the work. He received his training in the commission's service in the South. On government invitation he aided in organizing the work in British Guiana, which I have already mentioned. Active measures are now in operation or pending for six of the West Indian colonies, and work will be under way within a few weeks in Dutch Guiana. In general, the working plan followed in British Guiana is contemplated in all this field.

The East presents an enormous field for work, which in many respects offers very difficult problems. For this post the commission secured Dr. Victor G. Heiser of the U. S. Public Health Service, who, as director of the Bureau of Public Health in the Philippines during the past twelve years, has dealt successfully with the more or less primitive native population, and developed a highly efficient department of health. He is to give general supervision to the activities previously started in Egypt, and immediate direction to the extension of the work to other countries of the East as conditions favor.

The work of the present year will cost the commission approximately \$400,000, which amount is supplied by the Rockefeller Foundation. It is expected that the funds will be increased from year to year with the growth of the commission's work.

I do not know what other fields of activities will be entered by the commission. Measures that now or ultimately may be of international scope would be viewed with greatest interest. You have been told how aid is already given toward the development of public health agencies in several countries. This kind of work will, of course, be continued on one plan or another.

The Director-General has been giving considerable thought to the development of facilities for adequately training workers for the many tasks in the field of preventive medicine. He recognizes also, as very pressing in many countries, the need of facilities for the care of the sick. This field would call for strengthening or establishing medical schools, hospitals and clinics, and the training of natives to operate them. The attack on hookworm disease has led also to the consideration of a similar attack on other diseases, such, for example, as yellow fever or malaria. Entrance into any of these fields, I think, would not be expected except on the basis of careful study and the maturing of definite plans. It might develop that other fields will present themselves which offer more fruitful effort in accord with the paramount aim of the commission, which is to help the countries to help themselves in bringing into activity their own working agencies with their own resources.

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INJECTION OF ALCOHOLIC SOLUTIONS OF DIFFERENT STRENGTHS INTO PERIPHERAL NERVES

A COMPARISON OF THE RESULTS OBTAINED *

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For the treatment of certain kinds of severe neuralgia, intraneural injections of alcohol have achieved much success. Pain can be relieved; but, unfortunately, in order to do so, other disturbances more or less severe may be substituted.

Alcohol destroys nerve tissue by dissolution, coagulating albuminous material and dissolving lipoids. And the extent of destruction must depend on the completeness of contact and the strength of the solution injected. Whenever the sensory fibers of a mixed nerve are destroyed and pain put an end to, motor fibers must at the same time be destroyed and paralysis created, for unlike some other toxic substances, alcohol does not have a selective action on functionally different nerve fibers. In purely sensory nerves like the trifacial, this is of no importance; but in motor and mixed nerves, the sciatic for example, it is of the greatest moment. Strauss¹ has recorded a case in which the sciatic nerve remained paralyzed for a year after the injection of alcohol.

It can readily be appreciated that if a method of using alcoholic injections could be perfected by which the degree of motor paralysis could be greatly diminished without a corresponding diminution in the amount of sensory loss of function, then an almost perfect method for the relief of severe pain might be attained.

The following experiments were begun by Dr. Eisenbrey, in the laboratory of Dr. Charles H. Frazier, at the suggestion of Dr. William G. Spiller, in order to determine and compare the effects of injections of

different strengths of alcohol, and the microscopic specimens were subsequently prepared in the Laboratory of Neuropathology.

Seven dogs were operated on. In each instance under ether anesthesia an incision was made and the sciatic nerve was exposed by blunt dissection without disturbing its fascial relations. The nerve was then injected by means of a small hypodermic syringe with the required solution. The nerve sheath was punctured two, three or four times at points close together. The skin incision was closed by suture. After a certain time had elapsed the animals were killed and the sciatic nerves of both sides were removed for microscopic study and comparison. Muller's fluid was used for preservation. Sections were cut in celloidin and stained by the Weigert, hemalum and fuchsin and Marchi methods.

When 80 per cent. alcohol was used, paralysis was immediate and complete; but with 50 per cent. alcohol, paralysis did not appear to be so severe; 25 per cent. alcohol had little or no effect. In one instance 40 per cent. alcohol seemed to cause more disturbance than did a 50 per cent. solution.

These results were substantiated by the microscopic appearances of the nerves themselves. In every case paralysis was caused by the direct chemical action of alcohol, which invariably resulted in nerve degeneration. With 80 per cent. alcohol degeneration was practically complete, but 25 per cent. alcohol did not cause any definite changes from the normal. With 50 per cent. alcohol, degenerative changes within the nerve were very distinct, but somewhat less pronounced than those caused by 80 per cent. solution.

In no instance did salt solution injected into the sciatic nerve cause any evidence of degeneration, or any clinical signs suggesting paralysis.

The mere technical procedure of inserting the needle did not produce any disturbance, hemorrhage did not occur, and scar tissue did not develop at the site of injection; nor was perineuritis sufficiently marked to be of importance.

In drawing deductions from the facts presented, it would seem proper to conclude that strong alcoholic solutions cause greater destruction of nerve tissue than very weak solutions, and that salt solution may be entirely harmless. The nerve fibers were entirely destroyed by the stronger solutions, yet they appeared in a favorable condition for ultimate regeneration and recovery of function.

In general these results are in harmony with those obtained by May.² In his Group 1 the results were rather variable. Thus, in his Cases 11 and 14, the injection produced no obvious effects, but in Case 12 a slight transitory weakness ensued, while in Cases 9, 10, 13, 15 and 16, the disturbances of function were very severe and lasting. However, in Case 11 he used only 50 per cent. alcohol, and in Cases 9 and 14, 90 per cent. was used. May believes that such great contrasts must depend largely on the difficulty of ensuring adequate penetration of the nerve by alcohol. No doubt this is true; nevertheless, stronger solutions are much more destructive than weak ones, provided the technic is adequate.

There is abundant clinical evidence to prove that after destroying the nerve by injecting alcohol, regeneration and restoration of function does occur, provided complications do not interfere.

* From the Laboratory of Neuropathology of the University of Pennsylvania.

1. Strauss: Jour. Nerv. and Ment. Dis., January, 1914, p. 37.

2. May: Brit. Med. Jour., Aug. 31, 1912.

Schlosser,³ after having treated 209 cases of neuralgia, expressed the opinion that cures by this method were not permanent, but afforded freedom from pain for about a year. In 123 of his cases, the trifacial nerve was affected, and among these there was an average of ten and a half months' relief from pain.

My experiments do not warrant any conclusions in regard to the length of time required for regeneration; all that can be said is that the nerves appeared to be in a favorable state.

When a nerve has been severed and reunited, a number of months may be required for restoration of function; indeed, many such cases are recorded in which the conditions appeared to be favorable, yet more than a year elapsed before recovery took place; but it would seem probable that nerves destroyed by alcohol should regenerate at least as quickly as when severed by some other means; in fact, they might regenerate more rapidly because their sheaths would not have been disturbed, and the likelihood of scar tissue developing would be diminished. In most of Schlosser's cases, recovery of function seems to have required about ten and one half months.

In Greeman's⁴ experiments on rats, he found that when the sciatic nerve was cut, so much scar tissue formed that regeneration was interfered with; therefore he destroyed the nerve by crushing, by this means preserving the nerve sheath, which served to exclude fibrous tissue, and regeneration was not interfered with. It is not improbable that in some instances the mere mechanical interference of inserting a needle might lead to scar tissue formation or hemorrhage. This might account for the permanent paralysis which occurred in a case mentioned by Bassoe.⁵ In so large a nerve as the sciatic there are blood vessels of considerable size relatively, and if injured, hemorrhage might occur sufficient to cause paralysis. In such a case surgical interference should be considered, for if sufficient time for regeneration had already elapsed, there must still be some local disturbance, which might be successfully removed if the sheath of the nerve trunk could be opened.

Facial spasm can be stopped by injection of the stronger solution of alcohol, but of course paralysis must be substituted. It would seem that in such cases repeated injections should be tried, first beginning with 25 per cent. alcohol and then gradually increasing the strength; by this means spasm might be relieved and the paralysis which is substituted would be made less severe and of shorter duration.

3. Schlosser: Quoted by Hecht, D'Orsay: The Methods and Technic of the Deep Alcohol Injections for Trifacial Neuralgia, THE JOURNAL A. M. A., Nov. 9, 1907, p. 1574.

4. Greeman: Jour. Comp. Neurol., 1913, xxiii, 479.

5. Bassoe: Jour. Nerv. and Mental Dis., January, 1910, p. 38.

The Industrial Proletariat.—A century and a half of the new economic system of production has passed and has inevitably brought about profound changes in the industrial and political development of the civilized world. During this period, giant strides have been made in industrial expansion, and wonderful discoveries in the domain of the physical sciences. Invention has been followed by invention, and greater economic progress made within this comparatively short period than during the whole history of mankind. Methods of production have been completely revolutionized and industrial control concentrated in the hands of a special class; while a large portion of the population has been converted into a great standing army of a new class—that of the industrial proletariat.—Price, the *Modern Factory*.

RELATION OF THE GENUS "MONILIA" TO CERTAIN FERMENTATIVE CON- DITIONS OF THE INTESTINAL TRACT IN PORTO RICO *

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Throughout the last six years I have had an opportunity to observe more closely the large number of indefinite symptoms which make up what has been variously termed by us neurasthenia, anemia, chronic gastritis, gastro-intestinal catarrh, fermentation in the intestinal tract, fermentative dyspepsia, chronic gastro-enteritis of the tropics, *descomposiciones del intestino*, culminating in such diagnoses as gastro-enteritis tropical, phthisis intestinal, and sprue.

Fully one-half of my own personal experience has been with those who suffer from what our patients are pleased to denominate "the stomach," meaning, nine times out of ten, the intestinal tract. The complaint usually is that they cannot eat without bloating; that, from time to time, they have "decomposition of the bowels"; that they are getting pale and losing strength in spite of what they eat—all trying to over-feed in the hope of strengthening themselves. To this add the very large number who have, in addition, vague pains in the "kidneys" and the rest of the body, who become breathless on the slightest exertion, and who are extremely nervous. It has been entirely impossible for me to deny the self-evident fact that from the rank of these people come the majority of our cases of true sprue, as so described, with its four cardinal symptoms—sore and beefy tongue, a gaseous bowel, a foamy, light-colored, abundant diarrhea, and a small liver. It has been entirely impossible for me to dismiss the suspicion that sprue, as we know it, is usually only the terminal phase of that which we have so frequently seen in our offices, and which we have contented ourselves heretofore in calling "fermentative dyspepsia," or any other descriptive term which seemed scientific and medical.

The strife which has taken place to determine the cause of that most fatal disease, still known by its Dutch name of sprue, has led men all over the world to variously consider it here a condition, there a disease; here due to a protozoon, and there to a fungus. Of late this strife has become acute and some men are boldly asserting that no one has proved even that sprue is a disease.

Several years ago I had about concluded that sprue was a disease and that it might be due to some parasite carried in certain fruits, particularly the pineapple. That was because a good many of my patients at that time, representing my worst cases, came from fruit-bearing districts. Then, unable to find anything definite in the pineapple theory, I began to believe that sprue was a disease like beriberi, considered to be an intoxication; but after taking careful histories, my suspicions rested more and more on the yeasts. With this strong suspicion in my mind, I received one day from Mr. John M. Turner of San Juan, a pupil of Doremus, and a man who is very practical

* Read before the Medical Society of the District of the North of the Porto Rico Medical Association, March 18, 1915, by the author as president of a board for the study of tropical diseases as they exist in Porto Rico, and collaborating with the Institute of Tropical Medicine and Hygiene of Porto Rico.

in his judgment of the value of flour and yeasts, a letter in which he said that he believed that something was the matter with the yeast here, and he connected it in some way with sprue. Later on I was attracted to examine the tongue of a child 12 years of age, suffering from what appeared to be thrush. On culture, however, the organism did not ring true to what I had read of *Oidium albicans*, and from that time I have steadily devoted myself to the study of mycology as it applies to sprue. To Chalmers and Castellani is due the credit of furnishing a means by which we can distinguish between the various species of "Monilia," understanding that Monilia is a yeast-like body producing mycelial threads in its vegetative state in contradistinction to its congener, with which it has heretofore been confounded, *saccharomyces*, which reproduces in its vegetative condition by ascospores.

Up to the present, since October, 1914, I have made cultures in Sabouraud's glucose agar, 4 per cent., plus 2, from 100 tongues. I consider this medium as specific for Monilia as Loeffler's blood serum mixture is for *Bacillus diphtheriae*.

Twenty-two of these cultures were from cases of typical complete sprue, with actively inflamed tongues and with frothy diarrhea at the time of examination, and all were positive for Monilia at the first examination. Three of these patients have since died. This gives a percentage of 100 harboring Monilia in this group.

Forty-seven either had been cases of sprue under my care or had histories, present or past, which were more or less suggestive of it. All save 7 of these had normal tongues at the time cultures were made. Of these 47 cases, 10 gave positive cultures for Monilia, 7 causing, if we accept moniliasis as the new term for sprue, the intestinal, and 3 the tongue type. Of the 7 which had inflamed tongues in this group, 3 were clearly cases of tongue sprue. The 4 negative were as follows:

A baby, aged 4 months, with simple stomatitis of brief duration (four days).

A teething, rachitic child of 18 months, with a severe enterocolitis.

An old man with chronic enterocolitis.

A young man, father of one of the three patients with tongue sprue positive for Monilia, one of this series of 47.

(Only one tube was inoculated, and with another effort the parasite might have been demonstrated.)

The percentage of cases positive for moniliasis of the tongue was 21.

Thirty-one persons were examined who did not have sprue. Twenty-six had no suspicion of sprue, past or present, and had normal tongues. Only one of this class was positive for Monilia. This case was one of a pale man who at first gave no past history of fermentation disturbance of his bowel, but who later recounted a history most suspicious of sprue of the intestinal type. His wife had active, complete sprue, and belongs to the first group.

Of the 47 cases suspected of sprue, the feces of 4 negative by the tongue were examined and 3 found positive. The remaining 33 are still to be investigated in this sense. Three of the 47 cases suspected of intestinal sprue on cultures from their feces were positive.

In all, the feces of 10 of the 100, and one other, were plated and only the 3 above noted, and one of Series 1 already positive for his tongue lesion, were

positive. Three of the remainder were cases of pelagra. The other 3 were from healthy persons.

RESULTS OF TREATMENT

Treatment consists usually in the administration of food in which Monilia does not flourish, and which it cannot ferment. There are three types of diet:

1. A strict milk diet, giving 8 ounces every two hours on nine occasions a day for four days, and thereafter increasing the dose by one ounce every four days until 13 ounces every two hours have been taken for one week. The milk should be taken cold through a straw, slowly, and half a culture tube of the liquid culture of the Bulgarian strain of the *Bacillus acidus lacticus* should be added to each feeding, for the purpose of overgrowing bacterial sources of fermentation. On reaching a dose of 13 ounces of milk, one banana a day should be added, and every four days one more for every ounce of milk to be subtracted per feeding. When 10 ounces of milk every two hours and three bananas a day are reached, the diet may be modified by gradually permitting eggs, fruits and fresh vegetables with a low carbohydrate content. After a few days on this diet the excess of gas usually diminishes; indeed, generally disappears.

2. A strict meat diet, giving 2 pounds of chopped and roasted meat per day, divided into six feedings three hours apart. Few can sustain this diet over a week, but almost without exception it stops the diarrhea. (Carnegie Brown.)

After this week add vegetables, fruits and eggs as above, and reduce meat.

3. A simple fruit diet in which bananas may form the principal feature.

Of this series of sixty-nine cases of sprue and fermentation conditions of the bowel or simple stomatitis, 12 were cured, 32 have improved, as a rule greatly, with gain in weight and color, 19 are still not sufficiently changed to warrant deductions, 2 have become worse, 4 have died.

I regret to state that continued experience with santonin and emetin has long since caused me to abandon their use because of their inefficacy.

The organism is a typical Monilia. Its biologic characteristics are that it ferments glucose, levulose and maltose; that it causes an acid reaction in these three, and in saccharose and galactose; that it does not liquefy gelatin or serum; does not coagulate or render milk acid, but on the contrary, renders it alkaline; and that all other sugar mediums lose rapidly in acidity. In pure culture, five drops of it were injected into the muscles of the tongue of a large Belgian hare, causing its death in seventy-five hours thereafter, with enormous production of intestinal gas and diarrhea, but without sore tongue, the identical organism being recovered in pure culture a few hours after death directly from practically all of the organs of the hare's body.

The same organism—which, by the way, was one isolated from the tongue of one of our most beloved officials of the American government here, and which not long since caused his death—was fed in pure culture to a one-thousand gram guinea-pig, causing, I suspect, its death three weeks thereafter. Cultures from the organs of the body, save tongue and stomach, however, were very disappointing, and the histopathologic picture in its intestines and stomach has not yet been worked out for lack of time. This

animal also suffered from gas and diarrhea. Cultures of this organism with malted milk were fed during a time to a monkey. This monkey is still alive, but, although the feeding experiments have been stopped now about three weeks and the animal is being fed good rations, it having previously been fed on malted milk mixed with the culture, it is rapidly declining in health, becoming thin and sick, with occasional sharp diarrhea. The last word must yet be said on this animal.

To sum up, animal experimentation seems to bear out in a general way that we are dealing with a pathogen of low virulence and that we cannot expect to obtain any sensational sudden deaths from acute sprue due to feeding experiments, if, indeed, we shall be able to satisfy the scientific world that *Monilia* has been the determining factor in the death of any animal fed by its cultures.

What I particularly want to bring out is the suggestive evidence presented by the examination of what now is a considerable number of tongues, of cases of sprue and those not sprue.

Bahr's conclusion that *Monilia albicans* is the cause of sprue in Ceylon requires some comment in this paper. With his reasons for and against considering sprue to be a moniliasis of the digestive tube, and his conclusions therefrom, you are now familiar. The conclusions drawn are the result of an interesting study of sprue in Ceylon for two years by a most distinguished group of English workers, and cannot be lightly criticised. Nor are we authorized to question their findings. But the work here demonstrates that the *Monilia* of sprue in Porto Rico is *not Monilia albicans*, but an organism which has not heretofore been described. For the rest, Bahr's reasons for considering sprue to be a moniliasis of the intestinal tract are remarkably strengthened by the work here. Bahr states that he has found *Monilia* in 57 per cent. of sprue tongues and 17 per cent. of normal tongues. I have found them in 100 per cent. of sprue tongues and 3 per cent. of normal tongues. If you care to add my seven cases of intestinal sprue with normal tongue, the percentage would be raised to 11, but this is not fair, as it would deny that the seven were intestinal sprue.

I have not yet found *Monilia albicans* in Porto Rico, nor does any one seem to have described my species in temperate climates. Hence, Low's chief criticism of Bahr's work, in which he practically denominates it a failure to prove the cause of sprue, certainly does not obtain here. This distinguished worker objects that a *Monilia* common in England without sprue could cause sprue in Ceylon. It is well answered by Bahr, who notes that regional influences may greatly affect identical organisms and make of pathogens of almost no virulence, very dangerous parasites. As to Low's objection that the geographical distribution of sprue is in favor of his and Castellani's protozoa theory, let me say that we do not at all know the distribution of sprue, even clinically, because little has been written of it and a diagnosis is often difficult.

May not some of the pellagra of our Southern states be in reality sprue? It would be interesting to study some of the cases without skin lesions in which the diagnosis is pending between these two diseases. I have had so far three cases with stomatitis and white diarrhea which I considered sprue without moniliasis of the tongue, but which later cleared up by the appearance of the pellagrous eruption.

While fully aware that it will be some time—perhaps many years—before the sum total of circumstantial evidence will point to *Monilia* as the unmistakable cause of sprue, I wish to state my belief that sprue is moniliasis of the digestive canal, and that in Porto Rico, at least, it is due, so far as I have yet gone, to the species which I have recently described in the course of work in the Institute of Tropical Medicine and Hygiene in Porto Rico.¹

I have found other monilias in the stool, which are still under study, but the examination of tongues seems to point overwhelmingly to sprue tongue as being caused by the *Monilia* I have described, and from a sprue tongue to intestinal sprue is only a matter of extension. It is difficult to conceive how a protozoon could be affected by the treatment which has been found to be the *sine qua non* for the cure of sprue, namely, the withholding of those articles of food which in my cultures of *Monilia* are proved to favor its growth and cause fermentation and acidity. In fact, apart from the remarkable consistency of my *Monilia* in sprue tongues, and its usual absence in uninflamed tongues, to me the therapeutic test is the most striking, for any one can take a case of sprue and, almost without exception, after an appropriate diet of milk, meat or fresh fruits, or a combination, can dismiss inflammation of the tongue, gaseous distention of the bowel, diarrhea, and even, if you please, much, if not all, of the cachexia. Is it not more than a coincidence that the withholding of carbohydrates is enough to cause an immediate betterment, for the time being at least, and generally, a temporary "cure" of sprue, which perhaps may be permanent? The very fact that some cases are permanently cured by these diets alone, without any medicine whatsoever, makes me extremely suspicious of the asseveration of Chalmers and Castellani that sprue is not likely to be a "mycosis," but is probably a protozoal disease.

In conclusion, I wish to call attention to the fact that I am now engaged in studying cultures from the excrement of persons affected with fermentative conditions of the intestinal canal in Porto Rico, and am finding with great regularity monilias which seem to correspond, in the few mediums I have sown, with those I am finding in true sprue, not forgetting that it is more than possible that in this dangerous genus *Monilia* there must be more than one pathogen for the intestinal canal. One must ever keep in mind that the clinical signs and symptoms of sprue depend largely on the portion of the intestinal tract affected, an observation well brought out by Bahr. Thus, tongue sprue is called *Sapito*, or thrush, here. It is common among children, and often is followed by a picture impossible to avoid denominating sprue. But many such cases promptly get well, and an incredulous smile is the only reward for suggesting that such cases of "thrush," frequently of long duration, but strictly limited to the tongue, are really local sprue. I have a little patient who for six months suffered from tongue sprue alone, positive for *Monilia*, and utterly rebellious to all treatment so far employed, but some months previous to his tongue symptoms he had a three months' bout of white, frothy, abundant diarrhea without mouth symptoms. I have another such case of short standing, in a patient who was taken suddenly ill with fever of 40 C. and a fiery red and desquamated tongue. She was

1. Ashford, B. K.: A *Monilia* Found in Certain Cases of Sprue, THE JOURNAL A. M. A., March 6, 1915, p. 810.

a young school teacher and gave a history of occasional gaseous disturbance of the bowels with frothy movements. No diarrhea, however, accompanied her tongue sprue. In fact, this oscillation from simple tongue sprue to intestinal sprue and back again is typical of sprue. Whether there is more than one species of *Monilia* that causes sprue remains to be seen, but the matter is one of vital importance, and every effort should be made to assist the Institute of Tropical Medicine in investigating all cases in which the diagnosis of sprue has or should be made, to determine the presence or absence of monilias.

I cannot close this paper without requesting that some systematic effort to examine the bread in this island for the presence of *Monilia* be made. I have found living *Monilia* in the center of a cooked loaf of bread, underbaked, of course. With my colleagues of the Institute, we examined 10,140 country people in the mountains of Porto Rico last year for clinical evidences of sprue and were only able to obtain nineteen cases, some of which were even doubtful, while in San Juan I have seen over 300 cases in six years, and I know you all have had many cases. When we consider this and think also that country people in Porto Rico, such as live in the mountains and in distant barrios—such, in short, as form our clinics in the mountains—rarely eat bread, and that out of the nineteen cases eleven were from the town of Utuado, there is another reason why we should fear *Monilia* infections of bread—if not fear, at least investigate—for the matter is becoming actually vital to the life and health of many people who are willing and able to spend the money to keep in good health.

INDICATIONS FOR OPERATIVE INTERFERENCE IN GOITER

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If, in the present state of our knowledge of the clinical manifestations of goiter, we undertake to operate on others than those that are unquestionably causing immediately grave, evidently correlated detriment, a very nice discrimination must be exercised. In young people it is probable that most of the enlargements are more or less physiologic, an effort to meet an increased demand; here if any treatment is indicated it certainly should not be of a destructive kind.

The real or fancied presence of a goiter is rather common. Even more common are individuals who are out in their functional adjustment; the neurasthenic, the highly strung person suffering from mental or physical overstrain, the early phthisic, or the patient suffering from any one of a number of chronic intoxications; many of these give a picture that may more or less closely resemble thyroid intoxication or irritation, and these individuals may have a coincident goiter. If, on the other hand, we are content to deal surgically only with those that are unquestionably responsible for imminently dangerous conditions, then we shall miss the most opportune time for effectively treating many that are causing real, progressive damage, the seriousness of which will later have become much more evident: as a general rule, the more evident the damage the more danger in the operation and the less satis-

factory will be the result. The real degeneration caused by goiter can only be checked, not repaired, by the removal of the goiter.

For practical purposes, goiters may be considered to do damage in one or both of two ways, by mechanical pressure or by intoxication. In using the term "intoxication" I know I am somewhat begging a question, but I use it as a matter of convenience to avoid prolix discussion. Either the pressure or the intoxication may be very acute, or it may be very insidious but none the less detrimental in the end.

Goiters that seem to poison the patient have been grouped together under the terms of "toxic" or "exophthalmic" goiters, while goiters that do not produce toxic symptoms have, regardless of their histology, been classed as simple goiters. Kocher has pointed out that not all toxic goiters are of the same nature. H. S. Plummer,¹ seconded by Wilson's² histopathologic studies based on clinical and histologic analysis of a large series of operated goiters, have subdivided the toxic goiters into true exophthalmic and toxic simple goiters; the former show mental stimulation and sympathetic phenomena and histologically show true hyperplasia in some part of the gland, while 50 per cent. of them will show exophthalmos. According to their statistics the toxic, simple goiters never develop exophthalmos, and differ in other respects clinically from the true exophthalmic goiters and do not show hyperplasia. Since they have published these studies, we have been able to foretell whether the histologic examination will show the presence or absence of hyperplasia with sufficient constancy to lead me to accept this subdivision as a definite step forward in the unraveling of goiter pathology.

In dealing with them clinically, we divide goiters into five groups:

1. True exophthalmic goiters.
2. Toxic, simple goiters.
3. Nontoxic, simple goiters that are not causing demonstrable damage and are apparently not liable to.
4. Simple goiters that from their size, location or growth tendencies are liable to cause obstruction or might be malignant, and those that are actually causing obstruction.
5. Inflamed goiters.

To these five groups might be added a sixth, malignant goiters, were it not so very difficult to distinguish them clinically, while they are still operable, from simple nodular goiters in which operation is definitely indicated on account of some peculiar growth characteristic.

Kocher long ago came out flat footed with the contention that excision of one half of the thyroid was the proper treatment for an exophthalmic goiter, and advanced medical thought has slowly swung around to accepting, tentatively, the correctness of this principle. There are those who treat certain exophthalmic goiters medically and successfully, as they treat certain cases of appendicitis in the same way; but this does not gainsay the propriety of the operative plan of treatment.

The premise on which exophthalmic goiters are subjected to operation is that in some way the goiter mass is related to the clinical symptoms and that reduction in the amount of the mass will reduce the intensity

1. Plummer, H. S.: *Am. Jour. Med. Sc.*, 1913, cxlvi, 790.

2. Wilson, L. B.: *Am. Jour. Med. Sc.*, 1914, cxlvii, 344; *Relation of the Pathology and the Clinical Symptoms of Simple and Exophthalmic Goiter*, *THE JOURNAL A. M. A.*, Jan. 10, 1914, p. 111; *Journal-Lancet*, Feb. 15, 1914.

of the symptoms. This does not mean that the intensity of the symptoms bears a direct relation to the size of the goiter, for a large goiter in one individual may be much less toxic than a small one in another person, and the toxicity or the susceptibility of the individual may vary from time to time without material change in the size of the gland. What I do mean is, if in a given exophthalmic or even in a simple, toxic goiter at a given time a certain amount of the gland is removed or put out of commission, there will be a proportionate reduction of the toxicity. For reasons to be given later, the clinical evidence of this reduction of toxicity is not always perfectly plain.

Along with our ability to reduce the intoxication by the removal of part of the goiter, we should not lose sight of the other equally important clinical fact that the toxic stage of an exophthalmic goiter has a distinct tendency to crisis and self limitation. If this is so, why operate on them? For the same clinical reason that we will operate on a diseased appendix; to reduce the direct death rate which under any treatment is not very large in either of these diseases, and also, which is more important, to reduce the period of chronic disability and to prevent the permanent damage which may result when the disease is not completely cured. That the general results of operating for exophthalmic goiter are not so brilliant or so evident as those for appendicitis may be due wholly or partially to one of the following three causes:

First, a certain percentage of cases have been operated on a mistaken diagnosis and never were cases of goiter intoxication.

Second, a case presenting goiter, exophthalmos, tremor, rapid heart and nervous derangement is not necessarily a case of present goiter intoxication; these may all be evidences, more or less, of permanent damage in a goiter that has run its toxic course, and has ceased to be active. It is reasonable to suppose that in such a case no amount of thyroid reduction will repair the damage. An old Pennsylvania mountain practitioner once designated them as "burnt out goiters," and whenever I observe one of them, I am impressed with the aptitude of the simile.

Third, a common cause of only partial success is the removal of an insufficient amount of goiter tissue, and yet in the very case that is apparently so disappointing, you may have accomplished your chief object, namely, the saving of the patient's life. This point has been aptly illustrated by comparing a goiter toxemia to alcoholic intoxication. We will grant that in two certain individuals a quart of whisky would be lethal, and that a pint would not be. Then if those individuals were to swallow a quart of whisky each, and one of them vomited half of his dose, for a time both might be apparently equally drunk, but in the end one would recover and the other would die.

This point, ingeniously expounded by Plummer, is illustrated in the following hypothesis: Suppose if in a certain case of exophthalmic goiter it were left unoperated, a fatal crisis would have occurred in the ninth month of the disease, yet in the fourth month the patient shows only a moderate amount of intoxication. If in the fourth month half of the thyroid is removed, it is perfectly conceivable that the intoxication may be greater at the ninth month, the height of the crisis, than it was at the time of operation, and still this patient's life may have been saved by operation.

Halstead³ reported thirty-nine cases with successful results, in which the greater part of both lobes of the thyroid were removed at two or more operations, in patients who had not been cured by the excision of a single lobe, and in some of them three arteries had been tied. My own experience with secondary excisions has been equally satisfactory, but I now try to avoid them, whenever practicable, by excision of one and one-half lobes at the first operation. Much is supposed to depend on the postoperative care which the patient receives, and in practice this phase should never be neglected; but I feel rather satisfied that if sufficient gland has been removed, the postoperative care will be of less importance.

The most valid objection that can be raised against radical operation for exophthalmic goiter is that the operative mortality which is almost inseparable from operations in these patients in inexperienced hands, which is the early part of any series, unless the operator has been fortunate in his training, is apt to be most discouraging. Most exophthalmic goiter cases come to, or are referred to, the surgeon in or near the height of a crisis, and at this period a radical operation is only too apt to be fatal. However, these patients can usually be nursed along and the crisis bridged over by rest, the use of galvanic current, and one or more ligations, to a stage when the operation can be performed with sufficient safety to be good surgery. Some patients will die after a single ligation, but these deaths are to be charged to the disease, and not to the surgery. Plummer has told me that he has seen more people die of exophthalmic goiter within the first three days after their arrival at Rochester, than have died there postoperatively from goiter excisions. In doubtful cases, preliminary ligations give a very good index to the patient's ability to withstand the radical operation.

The thymus gland is apparently always enlarged in exophthalmic goiter. For a long time, especially in Germany and France, numerous men have contended that in a certain proportion of cases the thymus, and not the thyroid, is the chief factor, and some partial thymectomies have to be done. There has not been sufficient clinical experience to prove or disprove this contention, but rather a definite picture has been described as belonging to thymic cases. Lately Halstead⁴ has come out in support of this view. In the hope of obtaining more light on this particular phase of the subject, in relation to certain of our own cases, I recently made a visit to Rochester, Minn., to learn the views at the Mayo Clinic. Plummer said that he had not seen sufficient evidence to warrant the distinction. Judd, after talking to some French visitors, said that he had been tempted to resect the thymus in a certain few cases but had not done so. As far as I know, Kocher has not conceded a major rôle to the thymus in exophthalmic goiter, but has regarded excessive enlargement of the thyroid with glycosuria and nephritis as an advanced and inoperable stage of the disease. I believe that at present this phase must be regarded as an open question. Of my own patients, referred to above, who in some way resembled the pictures described by those who believe the thymus to be a possible major factor, two had thyroidectomies done last summer, and one a double ligation. The late reports from these thyroidectomies would indicate that,

3. Halstead: Excision of Both Lobes of the Thyroid Gland for Graves' Disease, *Ann. Surg.*, 1913, lviii, 178.

4. Halstead: *Bull. Johns Hopkins Hosp.*, August, 1914.

for the present at least, they are in need of no further surgery. The ligation case is now ready for a thyroidectomy.

Toxic simple goiters are to be treated by excision or enucleation of the more evidently diseased part of the gland. In these, there is apparently no danger of postoperative hyperthyroidism, but these patients may die postoperatively on account of the advanced degenerative changes that have developed during the period of intoxication. Results of radical operation in these cases are usually excellent, but often great care must be exercised in the diagnosis. That a patient has a goiter is not in itself sufficient reason for assigning accompanying nervous or cardiac symptoms to the goiter as a cause.

Whether or not we accept the hypothetic distinction between exophthalmic and simple goiters cited above, it has no real bearing on the question of the operative treatment of toxic or exophthalmic goiters as a class; but I believe it does give the surgeon some further guidance in the prognosis and in the selection of a particular mode of procedure in a particular case.

Of the nontoxic simple goiters, probably only the ordinary adolescent and certain nondegenerating colloid goiters are amenable to medical treatment; but unless one took the extreme view that because a certain proportion of simple goiters will later show toxicity or cause obstruction, or become malignant, all should therefore be removed; this does not mean that all simple ones require surgical treatment. A very few during adolescence will require operation; a few of them will be of the exophthalmic type, and even here conservative operation may suffice. There is no evidence to show that adolescent, simple goiters are in any way related to the simple ones of later life; and until such evidence is forthcoming they will not be operated on except in special individual cases. Occasionally they are resected on account of their size, but this is a rare occurrence, though Kocher states that goiters of pronounced irregular growth should be removed regardless of age. Many adults carry simple goiters through life without inconvenience or symptoms. Simple goiters causing no symptoms may demand removal on account of their size. The ease with which a single nodule or cyst can be enucleated may decide the removal of those of but moderate size. Goiters causing pressure symptoms, including those interfering with the recurrent nerve, rapidly growing goiters, those situated in the chest or behind the pharynx or trachea, tender goiters and those causing spontaneous pain should receive surgical treatment, which usually consists in the removal of the more evidently diseased part of the gland with the preservation of sufficient functioning tissue. As a general rule, nodular goiters are more apt to require thyroidectomy enucleation or resection than the smooth homogenous ones.

Simple thyroiditis is seldom, but suppurative thyroiditis and acute and chronic strumitis are usually helped by proper operation. This may consist in simple drainage, excision of a lobe or enucleation of a calcified nodule or suppurating cyst.

Malignant goiters, if movable, should be removed; but the diagnosis of malignancy in operable goiters is usually made after their removal.

Before undertaking any goiter operation, it should be determined that the general condition warrants the surgical risk. Even in simple goiters of long standing,

this may require nice discrimination on account of the extent of the secondary degeneration present in vital organs.

Judd has made some interesting observations in regard to goiter in pregnancy. If exophthalmic goiter develops during pregnancy, either death in crisis or spontaneous recovery is apt to occur toward the end of the pregnancy. Patients operated on during pregnancy, other than by simple ligations, are apt to miscarry a month after operation, and to be extremely ill or die. This has happened when it was not known that the patient was pregnant at the time of operation.

In the presence of real hyperthyroidism, none but absolutely necessary excisions for relief of pressure are indicated.

SUMMARY

Toxic simple goiters and exophthalmic goiters that are still active are entitled to some sort of operation that tends to lessen the bulk or activity of the gland.

Adolescent goiters, with rare exceptions require no operation.

Simple goiters are to be dealt with according to the indications of the individual case.

Pregnancy greatly increases the risk of radical goiter surgery.

Metropolitan Building.

THE PRESENT STATUS OF THE ABDERHALDEN TEST*

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Much has been written in the last two years on the Abderhalden test. The workers in this field may be divided into three groups:

1. Those who support Abderhalden's contentions entirely and believe that a diagnosis of pregnancy, carcinoma and various other conditions can be absolutely made by exposing the serum from a case to the specific substrate against which these ferments are mobilized by the body.

2. Those who believe that the method is of no possible value in diagnosing pregnancy or any other condition.

3. Those who believe that, while the ferment content of the blood is undoubtedly increased in pregnancy and various other conditions, the specificity of the ferments as maintained by Abderhalden and his supporters is not proved as yet; and in the light of the most recent work is highly improbable.

To the individual not engaged in the work, the many papers appearing, some of which contain contradictory statements, must be very confusing. It is in the hope of clearing up some of this confusion by a statement of what has been found recently by other authors as well as by the writer, that this paper is offered.

In the first place, Abderhalden's present position must be of paramount importance. Since the first descriptions of his technic appeared, various slight modifications have been advised by him. For example, he advises a longer period (from twenty to twenty-four hours) for dialyzation.¹ Why, may we ask, if, as

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1. Abderhalden, E.: München. med. Wchnschr., 1914, lxi, No. 8.

he states, he has never obtained an incorrect result with the shorter dialyzation period, does he advocate this change? Furthermore, why is the limit of dialysis put at twenty-four hours? If the ferments are strictly specific, no digestion would occur in the longer dialysis period. The obvious answer to these queries is that he failed to obtain positive reactions in true cases of pregnancy when dialyzing only sixteen hours; and he obtained positive reactions in cases not pregnant when dialyzing more than twenty-four hours. These results are exactly in accord with my own, and with those of others. However, this point is not set forth in Abderhalden's writings or in those of his associates. Moreover, Abderhalden arbitrarily insists that a reaction which contradicts the clinical findings must be due to error in technic and that one must find such error to explain the apparent discrepancy. This is practically an admission that the reaction is not infallible, and that search for the cause of the failure must often be made after the clinical diagnosis is apparent in a given case.

From the workers in this field in this country whose papers appeared in the early months of last year, and who then enthusiastically endorsed Abderhalden's assertions, we have heard very little in the later months. I have determined by personal communication in some instances that their early results were not borne out by their later experiences, and that in several cases the test has been given up entirely because of its unreliability.

The men who are still supporting Abderhalden's assertions as to the absolute specificity of the ferments and reliability of the test are either relatively new workers in this field of serology, or men connected with a commercial laboratory.

Of the second group of men, those who deny that the test has any value, that there is nothing to show that the ferments are increased in pregnancy and other conditions, little need be said. They demonstrate by their statements that either they have not done enough work with the test to know whereof they speak, or that their technic was so poor that they could not obtain results with any test requiring a knowledge of serology.

The third group of men believe that the ferments are increased in these various conditions; that there is no proof that these ferments are specific, and that the Abderhalden test may be of value as an aid to diagnosis in a given case, but that it is not by any means infallible. Most of these men, including myself, consider that a negative reaction in a doubtful case is of more value in ruling out pregnancy than a positive reaction would be in affirming it. This view was put forward by Echols² and by the writer³ at the 1914 session of the American Medical Association, and at that time aroused considerable adverse comment because it was opposed to the experience of most of the workers in the field at that time, and was not in accord with the teaching of Abderhalden.

Since that time, however, much work has been done on the typical Abderhalden test, and on a modification which tests for the antitryptic value of the serum in the various conditions, including pregnancy.

In this country Jobling and Petersen⁴ have led the work, and have shown that the antitryptic power of the blood serum is increased in some of the conditions in which I have demonstrated the increase of the tryptic power of the blood serum.

In collaboration with Eggstein,⁴ they have produced evidence which, if substantiated, will destroy some of the underlying principles of the Abderhalden theory. They believe that the placental tissue has an affinity for, and absorbs the antitryptic substances present in the serum, and that the tryptic ferments are then free to digest the serum proteins. This view had been previously worked out by Adachi in Berlin,⁵ and he has advocated the use of the Rosenthal modification of the Fuld-Gross method of antitrypsin determination instead of the Abderhalden test as a diagnostic aid in pregnancy. Among other men who have arrived at substantially the same conclusions, are Bronfenbrenner,⁶ De Waele,⁷ Kjaergaard,⁸ Oller and Stephan,⁹ Plaut¹⁰ and others.

Concerning the present status of this question, the following conclusions seem justified:

1. The Abderhalden test is not a specific and infallible test for the diagnosis of pregnancy, carcinoma or any other condition.

2. A negative reaction in a given case is of great value as speaking against the possibility of pregnancy.

3. A positive reaction must be interpreted as only speaking for the diagnosis of pregnancy, and that only in the absence of a large number of pathologic conditions, to some of which I have already called attention.

4. The ferments are increased in the blood during pregnancy. As yet, however, no way has been devised of differentiating between these ferments and the ferments mobilized in many pathologic conditions.

5. The test should be done in all cases in which the diagnosis of pregnancy is in doubt, with a full knowledge of its limitations and possible error. It should be regarded as corroborative evidence together with other clinical phenomena.

These conclusions are in accord with what any one familiar with biologic reactions would expect. There is no known serum test or reaction at the present time that is absolutely reliable for diagnostic purposes. The Wassermann reaction cannot be relied on in all cases, and the same can be said of the various complement fixation and precipitin tests. Nobody doubts at the present day the value of the Widal reaction in typhoid fever, and yet no clinician would care to base a diagnosis of typhoid on that alone, and insist that he could not be wrong.

The subject should be approached from a broad point of view, and the Abderhalden test must be given its place along with other biologic reactions. Its value as a diagnostic measure must be decided by the slow accumulation of facts, by careful workers in scientific laboratories; and its right to endure must depend on their verdict.

4. Jobling, Eggstein and Petersen: Jour. Exper. Med., 1915, xxi, No. 3, p. 227.

5. Adachi: Ztschr. f. Geburtsh. u. Gynäk., lxxvi, 516.

6. Bronfenbrenner: Jour. Exper. Med., xxi, No. 3, p. 227.

7. Waele, H. De: Ztschr. f. Immunitätsforsch. u. exper. Therap., xxii, 171.

8. Kjaergaard: Ztschr. f. Immunitätsforsch. u. exper. Therap., xxii, 31.

9. Oller and Stephan: München. med. Wchnschr., 1914, lxi, Nos. 1 and 2.

10. Plaut: München. med. Wchnschr., 1914, lxi, No. 5.

2. Echols, Chester: Limitations of the Dialysis Method as a Practical Test for Pregnancy, THE JOURNAL A. M. A., Aug. 1, 1914, p. 370.

3. Falls, F. H.: A Study of the Ferment Activity of the Blood-Serum During Pregnancy and Under Normal and Pathologic Conditions, THE JOURNAL A. M. A., Oct. 3, 1914, p. 1172.

Concerning the confusion that may arise regarding the work done on the antitryptic power of the blood serum in various conditions, I should like to point out that the antitryptic power of the blood is raised in the same conditions as the tryptic power. While for theoretical purposes it is very important to understand that the placenta is not digested by the ferments in the Abderhalden test, but merely adsorbs the antitrypsin, and leaves the trypsin free to digest the serum proteins, practically this method is a test of the tryptic activity of a given serum after the adsorption of the anti-ferments, which have been mobilized in all probability in response to the increased tryptic content of the blood.

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THE FEEDING OF BILE COLLECTED FROM BILIARY FISTULAS IN OBSTRUCTION OF THE COMMON DUCT

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In 1912, Schmilinsky¹ reported a case in which a biliary fistula developed after resection of the stomach for ulcer followed by gastro-enterostomy. From 800 to 1,000 c.c. of bile were discharged per day. The stools were acholic. The patient was losing strength so rapidly that it became apparent he could live but a few days longer. Schmilinsky met this crisis by collecting all the bile escaping from the fistula and introducing it into the stomach through a stomach tube twice a day (about 400 c.c. each time). The treatment was kept up for two months. The patient bore it excellently. As the fistula showed no tendency toward closing, an anastomosis was made between it and a loop of jejunum. A cure is reported to have followed.

This eminently simple means of improving the condition of such patients was carried out by me in the following case:

Nov. 25, 1914, Benjamin F., pedler, aged 44, was admitted to the Third Surgical Division of Mount Sinai Hospital. A year previously he had been forced to stay in bed a week by an attack of right hypochondriac pain accompanied by fever and jaundice. Two weeks previously another attack of pain in the right hypochondrium forced him to stay in bed. There was jaundice of one week's standing. During the past two days there had been repeated chills.

Physical examination showed a greatly prostrated, deeply jaundiced man with high fever, who gave the impression of being intensely septic. A right hypochondriac mass reached to the umbilicus.

Shortly after admission, the abdomen was opened through a Sprengel transverse incision, and a large pericholecystic abscess was evacuated; the small, almost normal gallbladder, adherent to the duodenum, formed part of the lower wall of the abscess cavity. When it was opened, much purulent bile escaped; a severe cholangitis was present. The patient's miserable condition forbade prolonging the operation by exploration of the common and hepatic ducts; the abscess cavity and cystic duct were drained, and the abdominal wound closed up to the point of drainage.

A stormy long-drawn out convalescence ensued, complicated by cholemic oozing on the seventh day after operation (controlled by packings inserted under general anesthesia—the cut margins of the gallbladder mucosa were seen seep-

ing blood), and further by a bronchitis with remittent temperature.

Finally seven weeks after operation (Jan. 14, 1915), the patient presented the following picture: There was no fever; the general condition was very poor; the pulse was of miserable quality; there was marked emaciation; all bile escaped through the fistula; the stools were white. Tentative closure (plugging) of the fistula caused cramps and failed to divert the flow of bile into the duodenum; evidently there was obstruction of the common duct. The patient's great weakness forbade operation. Following the procedure described by Schmilinsky for the management of such cases, all the bile was collected and introduced into the stomach by means of the stomach tube twice a day (8 ounces each time—16 ounces per day). At no time was there the slightest nausea. The collection was most conveniently carried out by a catheter which snugly fitted the fistula and led the bile into a bottle attached to the belt and worn under the clothing.

A remarkable improvement took place. The appetite became much better.

Accordingly, Jan. 29, 1915, the abdominal wound was reopened under local anesthesia (1 per cent. novocain-potassium sulphate); then, under nitrous oxid-oxygen anesthesia, through a supraduodenal opening in the common duct, a stone impacted in the papilla of Vater was extracted. The common duct was drained with a small soft tube and the abdominal wall closed by layer suture up to the drainage tube. There was no febrile reaction for the first two days. On the second day cardiac decompensation occurred which, however, yielded to suitable stimulation in combination with the semiupright posture. From now on convalescence was uneventful. The patient was discharged cured, February 19; the fistula had closed; the stools were brown. He was presented before the Surgical Section of the New York Academy of Medicine, March 5, 1915, having gained 10 pounds since leaving the hospital.

The experience of Kausch² shows that bile cannot be administered by the mouth. A mixture of bile and red wine was tried. At the end of a week the patient refused continuation of the treatment. During this week, the entire amount ingested totaled but 445 c.c., an insufficient quantity to be of value to the organism.

The advantages of bile feeding by stomach tube for temporarily improving matters sufficiently to permit of further surgical intervention have been indicated above. As a permanent method in cases of inflammatory destruction of the common duct in which the lumen of the duct proximal to the papilla cannot be reestablished, it seems more troublesome but far safer than the forms of anastomosis employed at present in joining the biliary and intestinal tracts. Only too often does one read of death from ascending infection a year or two after operation and after months of apparent health.

CONCLUSION

The administration of bile in physiologic quantities, as just described, is a method for materially improving the condition of debilitated patients with biliary fistulas and common duct obstruction which seems distinctly worth extended trial.

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2. Kausch: Mitt. a. d. Grenzgeb. d. Med. u. Chir., xxiii, No. 1.

1. Schmilinsky: Zentralbl. f. Chir., 1912, p. 1667.

Nursing Mother's Diet.—Nearly every writer on subjects related to maternal nursing, has declared against the view that certain foods ingested by the mother are capable of producing disturbances in the infant through the breast milk. Sour foods, fruits and gas-producing vegetables may be eaten by the mother if they do not cause discomfort to her. They produce no changes in the composition of the breast milk.—Isaac Abt, *Detroit Med. Jour.*, February, 1915.

AN UNUSUAL CASE OF GENERALIZED
NONPIGMENTED SARCOMAS
OF THE SKIN

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Sarcoma of the skin appears in several clinical varieties: it may be single or multiple, pigmented, nonpigmented, melanotic or hemorrhagic. It may remain limited to the skin or attack the viscera, and may be either primary or secondary. General primary nonpigmented sarcomatosis of the skin, especially of such rapid and extensive development as in the present case, is sparingly mentioned in textbooks and in the literature, and is sufficiently rare to be of interest.

Considerable confusion exists as to its place as a clinical and pathologic entity. General sarcomatosis is sometimes used as an alternate name for granuloma fungoides, and is by many considered to be related to the latter or to leukemia cutis. Unquestionably there are some cases which form a connecting link between these diseases, but it is beyond discussion that in others no grounds can be found to put them in the same class. In the case here reported, the absence of a premycotic stage, of subjective symptoms and of any ulcerating tendency is sufficient to exclude mycosis fungoides. The glands and the blood having been practically normal, leukemia could not be considered. Kaposi's grouping of mycosis fungoides, lymphoderma perniciosum and true sarcomatosis, including the multiple pigmented variety, under the collective name of sarcoid tumors, is partly to blame for the present unsettled status of entirely different pathologic conditions.

The present case is interesting from several points of view. While the tumors were present both in the skin and internally, we think we are justified in considering the skin the primary seat for the reasons mentioned below. The first tumor appeared on the flexor surface of the left forearm in a warty lesion of long duration in an individual of perfect health. The largest tumors were found in the skin, which permits the theory that they had existed longest and had had more time to develop. If the internal tumors had been present for any considerable time before their appearance on the surface, earlier and more severe constitutional complications would have been observed.

Unusual features of this case were the absence of subjective complaints such as pain or itching; the skin above and around the tumors remained normal in appearance and color until the very last; not a single tumor underwent degeneration and ulceration. Death was caused by asphyxia due to compression of the trachea. The patient was in our care three weeks after

the start of his illness until his end, and close observation of his symptoms, microscopic examinations of excised specimens during life and finally a necropsy permitted a thorough study of his condition.

P. N., white, Dane, laborer, aged 39, entered the hospital Dec. 1, 1914, referred by courtesy of Dr. C. F. Baumeister, Avoca, Iowa. His parents had lived to an old age. The patient had always been healthy up to the time of his present illness. There was no venereal history. Three weeks prior to his admission to the hospital he noticed a small subcutaneous nodule on the inside of the left forearm in the place of a pigmented papillomatous lesion which had existed for many years without appreciable change. From this time on new nodules appeared rapidly in different places, until they were present all over the surface, gradually covering most of the body. The lower extremities were least involved. Five hundred and sixty-three tumors were counted. At first they were subcutaneous, the size of a marble and movable. As they grew larger they became adherent to the skin above and to the fascia, muscles and periosteum below. The elevation above the skin became gradually

more prominent, reaching the size of a filbert to an orange. The largest were located on the right side of the neck and the inner surface of the elbow of the left arm. Their consistency was hard, almost wooden, with no soft or fluctuating areas. There was no tendency to degeneration and ulceration. The skin above and around the tumors was smooth, normal in color, except in a few, where hyperemia and telangiectases had been produced by compression of the superficial capillaries. The contour of the growths was globular, with a few nodular irregularities. The patient did not complain about itching or pain. He had lost considerable weight since the beginning of his illness and looked cachectic. He was in a slightly stuporous condition at the time of admittance, and very little information could be gained from him. Toward the last he had difficulties in breathing and swallowing and frequently vomited undigested food. Blood appeared in the feces early.

Blood: Hemoglobin 80 per cent. (Tallqvist). Red blood corpuscles, 5,170,000; the cells irregular in size and shape. White blood corpuscles, 7,180.

Urine: Amber, cloudy, with considerable sediment. Specific gravity, 1.030. No albumin, sugar, indican or blood present. Urates present.

Gastric Examination: Total acidity, 38; free hydrochloric, 4. Lactic acid and blood absent. Considerable mucus and many food particles.

The temperature was nearly normal to the last. The pulse was rapid and feeble.

The patient was considered hopeless from the start and a prognosis was made of a rapidly fatal ending, on account of the extreme involvement. Subcutaneous injections with Fowler solution, 5 drops daily, were tried without results.

On the eleventh day the patient had involuntary bowel movements. From the tenth day on he could not swallow any food and had to be fed by nutritive enemas, which were not retained. He died on the sixteenth day after admittance to the hospital, dyspnea and cyanosis having been extreme during the last days.

The chief pathologic interest relates to the distribution and the structure of the tumors. In the skin these were most numerous and most prominent on the arms, chest, abdomen, back and thighs. The largest mass, which measured 8 by 5 cm. and protruded 4 cm. above the level of the surrounding skin, was present at the



Fig. 1. — Patient with generalized nonpigmented sarcomas of the skin.

inner surface of the left elbow, at a point a short distance from the wartlike growth which had been removed thirteen days before death. Over the right zygoma was a mass 5 cm. in diameter, and beneath the chin another of equal size. The remaining, innumerable nodules varied in size from this down to such nodules as were just visible. With the exception of the two large tumors mentioned, the skin of the face and neck was free. The skin over the largest and medium sized nodules appeared thinned and was intensely congested, with a diffuse, bluish-red color. Over the summits of the smaller nodules fine, dilated, radiating vessels could be seen. No nodules could be seen on the forearms and legs, but very many could be felt beneath the skin, and an occasional very small one could be palpated in the skin of the dorsal surface of the hands and feet. The skin felt firmly attached to the larger masses. The smaller ones were freely movable in the subcutaneous tissue. No nodules were present in the mucosa of the mouth. The superficial lymph nodes were just palpable and apparently were not involved. There was no subcutaneous or omental fat.

Within the body the distribution of the tumors was striking in that, while nodules were present in uncountable numbers, the internal organs themselves were almost entirely free. The heart muscle contained a few, the largest 1 cm. in diameter. Three were present beneath the capsule of the liver, the largest 7 mm. in diameter. Within the left suprarenal was a single mass 3 cm. One loop of the middle third of the ileum, which lay superficially in lower half of abdominal cavity, contained several nodules, the smallest 5 mm., the largest, which was flattened, mushroom shaped, pedunculated and protruding into the lumen, 1.5 cm. in diameter. With the exceptions noted, the internal organs were free of macroscopic tumors, and no tumor tissue was found on microscopic examination.

The large number of nodules present within the body were scattered about in the mediastinal, the omental, the mesenteric and the retroperitoneal tissues. Behind the upper end of the sternum was a large multilobulated mass which completely filled in the space behind the manubrium. The posterior mediastinum contained numerous masses, most marked at the hilum of the lung, but not involving the bronchial lymph nodes. In the omentum, the tumors, too numerous to count, varied in size from shotlike nodules to an ovoid mass 5 by 5 by 3.5 cm. Most of the omental tumors were sessile, attached by very fine, long, fibrous peduncles. In the mesentery nodules were also numerous, being largest at the root of the mesentery. Large numbers of tumors were present in the retroperitoneal tissue, the largest ones being present about the kidneys and suprarenals. The pelvic tissues and organs were free.

The site of predilection for the tumors, both in the skin and in the internal tissues, was the loose areolar

tissue. The nodules were sharply defined, pale, succulent, translucent, almost fatlike on section. The congestion noted over the large skin tumors was limited to the overlying skin.

Microscopically the alveolar arrangement of the tumor tissue is so pronounced as to suggest carcinoma. The alveoli are round, oval or elongated in shape, and vary considerably in size. In some of the tumors rather broad bands of dense fibrous stroma separate the alveoli; in others only very narrow stroma bands are present. Peripherally the tumor tissue is sharply defined, often surrounded by a thin layer of fibrous tissue. Only in the suprarenal metastasis and in one of the myocardial nodules is there any evidence of invasion at the periphery of the tumor tissue. Growth appears to have been almost wholly expansive.

The tumor cells vary in size and shape. The smallest, which are rounded or oval, average 18 microns in diameter. Somewhat larger cells are polyhedral, and the largest, which may measure 85 microns and more in diameter, are very irregular in outline. The nuclei are round or oval, vesicular, rich in fluid, with finely

granular chromatin distributed in the form of a closely meshed network. Some nuclei are hyperchromatic. Most of the nuclei have distinct nucleoli, which stain deeply with hematoxylin. The larger cells are multinucleated; in many the nuclei are multilobulated. The cytoplasm is homogeneous, dense, very finely granular, and stains rather deeply with eosin. The cytoplasm of some of the cells contains light brown pigment so finely granular as to give the protoplasm a diffuse coloration. Mitotic figures are extremely rare. Evidences of direct division, on the other hand, abound, the great majority of the cells having nuclei in stages of direct binary fission or single or multiple budding.

The most striking lesion, histologically, is the tumor removed thirteen days before death from the ulnar surface of the left forearm, just below the elbow. This, which originally had a wartlike appearance, had been present for many years. As has been noted, it had begun to grow three weeks before admission to the hospital. Half of it became transformed into a smooth, rounded mass, identical in external appearance with the multiple tumors which developed so rapidly later. At the time of removal, the entire mass was 3 cm. in diameter and 0.8 cm. thick. It was sessile, attached by a short pedicle 3 mm. in diameter. One half had the rough, papillomatous surface of an ordinary wart; the remainder was round and smooth. Sections through the entire tumor show clearly the coarsely papillomatous character of the original tumor. The smooth portion is identical with the tumor nodules present in the skin and in the deeper areolar tissues. In the papillomatous portion are seen all gradations from the structure of a typical lymphangioma hypertrophicum to that of the metastasizing endothelial

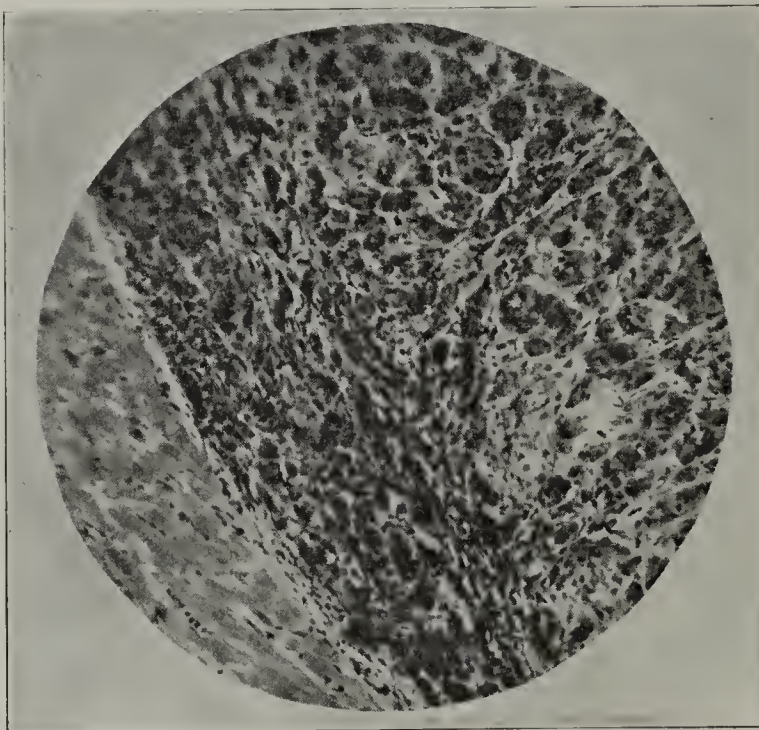


Fig. 2.—Myocardial metastasis. Small alveoli with a minimal amount of intervening stroma. The margin is sharply defined, unencapsulated, and there is no invasion; $\times 120$.

tumor tissue. The gradations are not seen in a single papillary outgrowth. The smaller ones contain numerous elongated and bandlike or round nests of closely placed, small, irregularly cuboidal cells. A large amount of granular, dark brown pigment is present beneath the epidermis; some occurs in cells between the lymphangiomatous islands, but the cells of the latter are free of pigment. An occasional thin epidermal downgrowth extends for some distance into the underlying stroma. In a medium sized papillary outgrowth the cellular alveoli are very closely placed and the individual cells are somewhat larger. In a still larger outgrowth occur numerous alveoli identical in appearance with the nodules elsewhere. In this and in the smooth, nodular half of the primary tumor the epidermis is compressed and thin, its under surface smooth.

For the peculiar distribution of the tumors it appears difficult to offer a satisfactory explanation. The parenchyma of the internal organs remained almost wholly free of metastases. The superficial lymph nodes, as well as the bronchial, mesenteric and retroperitoneal nodes, were in general spared. In the clinical and post-mortem examination there was no evidence of obstruction to vascular or lymphatic channels, and similar evidence is wanting in the microscopic examination of the tissue about the tumor nodules, although particular attention was paid to this point as offering a possible explanation of the peculiar distribution of the tumor nodules in the skin. In view of the large number of tumors and of their widespread distribution in the deeper tissues as well as in the skin, it appears necessary to suppose a generalized distribution of tumor cells by way of the circulation. But why the development of tumors from such cells was confined almost entirely to the loose areolar tissues is a point in explanation of which we can only suggest variations in tissue susceptibility or resistance.

SUMMARY

Sarcomatosis cutis includes several conditions, the inclusion of some of which among the true blastomas does not appear entirely justifiable. This is true of the idiopathic multiple pigment sarcoma of Kaposi, the presence of true pigment-forming cells in this condition also being not established with absolute certainty. The diffuse sarcomatosis of Kaposi is apparently the same as mycosis fungoides, which, in its earlier stages at least, has the histologic characters of an inflammatory granuloma rather than that of a true tumor. Multiple true sarcomas of the skin may arise from a primary skin tumor or they may be metastases from tumors of the internal organs; structurally they may be round or spindle cell, or they may be composed of pigment cells.

In the case reported, the sarcoma type, if one chooses to classify the tumor among the sarcomas, is the lymphendothelioma.

Over five hundred visible skin nodules were counted. There were in addition very many palpable but invisible tumors.

Innumerable nodules were present in the mediastinal, omental, mesenteric and retroperitoneal tissues. The parenchyma of the internal organs and the lymph nodes remained practically free of tumors.

The primary tumor developed from a papillomatous lesion near the elbow. Histologically this lesion was a lymphangioma hypertrophicum.

The case was characterized by the very rapid development of the secondary tumors. The first change in the previously benign primary lesion was noticed three weeks before admission to the hospital; death occurred on the sixteenth day after admission.

TUMOR OF THE THIRD VENTRICLE

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In a careful summary of the literature, T. H. Weisenburg¹ collected thirty cases of tumor of the

third ventricle, and, by a review of the clinical and pathologic findings, established a syndrome. He distinguishes three symptomatic groups:

1. Those cases in which a tumor of a moderate size is situated in the floor of the third ventricle, and in which there is no extension into the foramen of Monro or aqueduct of Sylvius.

2. Small tumors so situated as to obstruct the foramen of Monro and whose position can be changed by deviation of the head.

3. Those tumors, whether large or small, which either extend into the aqueduct of Sylvius, affecting the surrounding structures by direct extension or pressure, or those in which the posterior

portions of the cerebral peduncles and pons are compressed, either by direct pressure or by dilatation of the aqueduct of Sylvius.

The first class does not offer specific symptoms, but presents evidences of internal hydrocephalus, namely, headache, choked disk, nausea, vomiting and dizziness. In tumors of large size, indirect pressure on the internal capsule causes paresis of the corresponding limbs. These symptoms may likewise result from internal hydrocephalus alone. The reflexes are nearly always increased. The mental symptoms, generally supposed to be present in tumors of the third ventricle, are attributed by Mott² to the impairment of the function of the cortex as the result of the pressure of the dilated ventricles.

The second class is unimportant as but one case has been observed. This group presents a variation in symptoms of headache, nausea and impairment of vision on tilting the head forward.



Fig. 3.—The primary tumor. Large alveoli in the subepidermal stroma; $\times 120$.

1. Weisenburg, T. H.: Tumors of the Third Ventricle, with the Establishment of a Symptom Complex, *Brain*, 1910, xxxiii, 236.

2. Mott, F. W., Wakelin Barratt, J. O.: *Arch. Neurol.*, 1900, i, 417.

The third class offers a fairly well recognizable syndrome. The symptoms arise from involvement of the third nuclei, red nucleus, or superior cerebellar peduncles and from pressure on, or destruction of, the posterior longitudinal bundle or the intercommunicating fibers between the third nuclei. Among the symptoms noted are disturbance of associated ocular movements, oculomotor palsies, large pupils with impaired reaction, protrusion of the eyeballs, cerebellar ataxia, symptoms arising from pressure on the pineal gland and the general symptoms of tumor cerebri.

The following case did not present sufficient symptoms to permit localization of the tumor during life, but it possesses an interesting feature relative to the classification of tumors of the third ventricle.

History.—E. O., woman, aged 48, single, dressmaker, with a common school education, was admitted to the Kankakee State Hospital, March 21, 1911. The family history was negative as to points having any bearing on the disease. Nothing was obtainable concerning the patient's childhood. She was ordinarily of rugged health. She was not addicted to the use of alcohol. Nothing was known of any previous illness.

The present illness dated back to July, 1910, when it was noticed that the patient's memory was becoming defective. She became stuporous, apathetic and somnolent and became careless of her appearance, untidy and filthy. Further than the fact that she had lost 20 pounds in weight, there was no reliable statement as to her physical symptoms. From the patient it was ascertained that she had had dizziness and headache.

Examination.—At the time of admission this revealed a well-nourished woman whose height was 163.75 cm. (5 feet 4½ inches), weight, 91.8 kg. (202 pounds), with no deformities or malformations. The skin showed slight icteric tinge. There was no skin eruption. Examination of the lungs showed nothing abnormal. The heart was not enlarged, sounds were normal, pulse was regular, 100 per minute sitting, 108 standing, tension high. Abdominal wall and contents were negative. Organs of generation were negative. Urinalysis showed trace of albumin, pus and blood cells, no sugar.

Neurologic Examination.—Station and gait: The patient stands with lordosis. Sways slightly in the Romberg position. Cannot walk a straight line, gait is shuffling, toes point outward, has difficulty in turning quickly. In walking she bends backward, taking short steps which increase in rapidity, causing the patient to collide with any object obstructing her path.

Active Movements: Right side of the body slightly larger than the left. Left dynamometer 50, right 72. There is no inequality in movements of the muscles of the face. She wrinkles forehead, closes eyes, shows teeth, whistles and opens and closes mouth equally well on both sides. Ocular muscles show no paresis. There is no nystagmus, no exophthalmos. Tongue apparently deviates somewhat to the right when protruded, probably on account of an asymmetry of the teeth. Articulation is defective, slurring and lisping being present. Active movements of all four extremities are possible and well carried out with good power.

Passive movements show general increase of resistance. Tremors: Slight tremor of fingers, not intentional and

more marked on the right side. Tendon and Joint Sense: At times the patient mistakes direction of movements of great toe; otherwise she does not show any change. Approximates finger to finger and finger to nose accurately. There is perhaps a slight clumsiness of movements of the left hand. Sensation: Tests for pain and touch sensibility not well responded to, owing to lack of cooperation. Patient does not take much notice of light touches on the left leg and toes, less on the right. Can feel slightest touch on the face. Makes numerous mistakes as to heat and cold on both sides. Stereognostic sense shows no defect.

Reflexes: Corneal and palatal present. Pupils 2 mm. in diameter, equal, react to light directly and consensually and also in convergence. Epigastric and abdominal present on left, absent on the right side. Plantar reflexes both of flexor type; at times extension of great toes occurs, but it appears to be a voluntary movement. Gordon absent. Has soiled herself several times. No incontinence of urine. Masseters, triceps and wrist jerks equal and normal. Knee jerks increased. Bilateral ankle clonus.

Special Senses: Olfactory normal. Visual fields apparently full. Hypermetropia. Hearing normal. Taste: Sugar is sweet on right, no taste on left; salt is sour on right, bitter on left. Does not recognize vinegar on right, calls it bitter on left. Owing to the mental state of the patient, replies cannot be relied on.

On lumbar puncture the cerebrospinal fluid gushed out, afterward dropped 60 drops per minute. Noguchi and Nonne-Apelt tests negative. Fehling test strongly positive, 2 cells per cubic millimeter.

Mental Examination: The patient is quiet and entirely passive, saying and doing nothing spontaneously. She presents an appearance of fatuous contentment, frequently smiles inanely and takes no interest in her surroundings. She shows no distress concerning the involuntary bowel movements. She is entirely disoriented and does not grasp the meaning of the situation even when it is explained to her

that she is in a hospital for the insane. She, however, seems to realize that she is not clear by saying that "things seemed confused," but does not react in any way suggestive of perplexity. Cooperation is poor and she often does not answer questions, apparently from lack of interest. Memory, as far as can be tested, is extremely defective, and she seems unable to retain any facts given as tests of impressibility. The general fund of information also seems to be very deficient. No sense falsifications or delusional trend can be discovered.

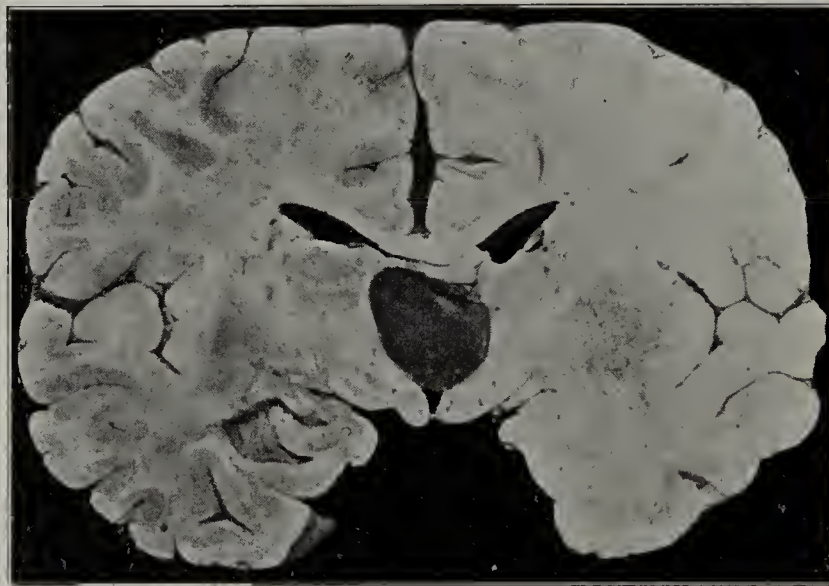
The main features are therefore those of extreme mental dilapidation, without any localizing signs on the part of the projection system.

June 2, 1911, difficulty in standing increased. Gait now resembled a continuous falling forward, with an attempt to regain equilibrium. Patient complained of headache occasionally. Memory defect increasing.

July 1, 1911, patient was unable to stand or sit up, and during this week became rapidly weaker. Greatest weakness appeared to be in the lower extremities. In replying to questions, the patient's answers were irrelevant. No abnormalities were noted in the ocular muscles, although frequently looked for.

July 13, 1911, death occurred.

Postmortem examination was limited to the brain. On section there was found a tumor of the third ventricle.



Tumor of third ventricle.

Macroscopically the tumor consists of an encysted colloid growth, situated in the third ventricle and probably originating from the ependyma. It is attached to the inferior surface of the center of the fornix and velum interpositum. It is ovoid in shape, thickest at the center, where it is about 2 cm. in diameter, and rapidly decreasing in size anteriorly and posteriorly to small pealike extremities. The growth originates posteriorly to the anterior commissure, occluding the foramen of Monro on the right side and dilating it also. By virtue of the direction of its growth from left anterior to right posterior, the tumor enters the lateral ventricle of the left side through the foramen of Monro (which it occludes). The ventricular portion of growth is about the size of a pea, greenish, mottled with yellow. The tumor by the growth drags the septum lucidum and fornix to the right and compresses the right optic thalamus more than the left. Below it lies on and separates the corpora albicantia and rests on the infundibulum. The anterior extremity of the growth, which projects into the lateral ventricle, passes above the anterior commissure. The tumor extends backward to a point just anterior to the middle commissure, where it ends in a small pealike growth. A plica in the septum lucidum curved to the right persists throughout. The tumor does not press on the red nucleus or occlude the entrance to the third ventricle posteriorly to the middle commissure.

The pineal gland is not encroached on. The aqueduct is small and the third ventricle above the middle commissure is dilated. The tumor is dark green except at the anterior portion, where it is mixed with yellow. The capsule surrounds it entirely and it is easily shelled out except at the upper and lateral right borders where it tears, showing a colloid, cheesy appearance, spotted with what appears to be degenerated blood pigment. The capsule is attached on both sides to the walls of the lateral ventricles, and the choroid plexus is seen to enter the third ventricle beneath the capsule of the tumor and forms a very slight elevation. The lateral ventricles are dilated, the right more than the left, and the choroid plexus on both sides show the formation of small cysts.

Microscopically the tumor consists of an encapsulated colloid cyst originating from a glioma. At the portion firmly attached to the cyst wall, the greatest number of undegenerated cells and nuclei are found. The capsule at this point is thickened, the connective tissue forming layers, between which are seen numerous lymphocytes, glia nuclei and a few Abraumzellen. The optic thalamus beneath this portion of the capsule is seen to contain a few Abraumzellen and a greater number of nuclei. The tumor proper consists of a greenish homogeneous material, embedded in which are numerous Abraumzellen, staining red with scarlet r. containing many globules, showing black with Bielchowsky stain. Within the Abraumzellen are found nuclei showing fatty degeneration, red blood cells and debris, fatty granules, and at the periphery of the cells, frequently a crescentic flattened nucleus. There are likewise seen throughout the tumor many colloid bodies, nuclei, lymphocytes and red blood cells. There are no fibers found within the tumor mass.

It is interesting to note that of thirty cases of third ventricle tumor collected by Weisenburg, only three extended into the lateral ventricles at all, and these protruded only slightly through the foramen of Monro, as was the case with the tumor here recorded. The tendency for growth is in the direction of the flow of cerebrospinal fluid. It is apparent that this tumor, which occluded the foramen of Monro, whose position did not change with deviation of the head, which did not extend into the aqueduct of Sylvius, and which but slightly compressed the pons, would, according to Weisenburg's classification, be placed in the third group. It would seem possible that, had not this tumor attained such a large size, it would have occupied the same position without resulting pressure on the pons, and, in such case, should properly be placed in a

separate group in which the tumor is so situated that it occludes the foramen of Monro whether its position changes with variation in the position of the head or not. The cases in which these tumors are changeable in position should then be classified in a subgroup under this head. The symptoms of the group would be dependent on, first, the degree of hydrocephalus and, second, the amount of pressure on the surrounding structures. Inasmuch as there have been four colloid growths reported which did not extend into the aqueduct of Sylvius, and three other cases, excluding this tumor, which extended into the lateral ventricles through the foramen of Monro instead of the aqueduct of Sylvius, it is highly probable that this group will assume greater importance with the subsequent report of cases.

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THE LESION IN A CASE OF SEROUS COLITIS

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Between the purely functional diarrheas, on the one hand, in which we believe no anatomic changes are associated with the disturbed activities of the bowel, and the well-defined dysenteries, such as croupous and amebic colitis, on the other, in which evident and often extensive lesions are always present, there lies a large intermediate group of cases, in which it is by no means easy to be sure whether actual anatomic lesions exist or not. The main reasons for our ignorance in this matter are first: such conditions are not, of themselves, fatal in adults so that postmortem examinations are rare; and second, if the changes are only those of congestion and exudation, they may easily be impossible of demonstration after death.

To the group in question, the general term "catarrhal colitis" is applied, and it may be subdivided as follows:

1. Catarrhal colitis in children which may become so severe as to take life, and regularly shows a swelling and sometimes a rupture of the solitary lymph follicles.

2. Catarrhal colitis in adults, with mucus the chief inflammatory product.

The lesion in these cases has been described by Delafield.¹ The lower end of the large bowel is the most frequently inflamed. The pathologic changes are congestion of the vessels of the submucosa and mucosa, with an abnormal quantity of mucus in the cells lining the tubules. There may be some emigration of leukocytes and some diapedesis of red cells. No ulcers occur, and the solitary lymph follicles remain unchanged. There are very frequent small passages composed of a few drams of mucus, in acute cases often blood streaked. Fecal matter is absent at first, and when it appears is usually formed, though very variable in amount. Colic and tenesmus accompany the movements. There is usually some fever.

As an example of this type I find the following among my records:

CASE 1.—Man, aged 25, began at 3 a. m. to have repeated small movements of bloody mucus associated with colic and rectal tenesmus. A passage which I saw was composed of about 3 drams of bright bloody mucus and nothing else. The

1. Delafield: *Am. Jour. Med. Sc.*, N. S., 1897, cxiv, 401.

patient had little prostration and no fever and got well in two days with rectal irrigations.

3. Catarrhal colitis in adults with serous fluid the chief inflammatory product.

This condition differs clinically from the foregoing.

The passages are copious, from one-fourth to one pint, at first soft fecal, then simply gushes of watery fluid, either green or brown, often preceded by colic



Camera lucida sketch of section of colon, showing outlines of the larger lymph channels in submucosa; $\times 15$.

but unassociated with tenesmus. Blood does not occur, and mucus is absent or nearly so. The patients are prostrated and may even faint after a large passage. There is little or no fever. The condition lasts longer than the mucoid form, and if untreated, may run for weeks.

The following case, also from my private records, serves to illustrate the condition.

CASE 2.—Man, aged 35, without known cause, was taken with abdominal cramps and chilly sensations followed by fourteen large watery movements in twenty-four hours. The passages contained a few flakes of fecal matter but no mucus or blood. He did not suffer with tenesmus. He vomited once, was nauseated and much prostrated. With rest in bed and appropriate drugs the symptoms promptly subsided.

The lesion of this form of colitis has, I believe, not been described. I wish, therefore, to report the following case from the second medical division of Bellevue Hospital:

CASE 3.—A laborer, aged 41, was sick and died of a lobar pneumonia on the eighth day. On the sixth day of his illness, following a dose of salts, he began to have frequent copious watery discharges, without pain or tenesmus, which continued to the time of his death. In the two days he had about twenty passages of brown or green fluid, containing no fecal matter, no blood, and practically no mucus. He did not vomit. At necropsy, three hours after death, the heart was found normal. The whole right lung was consolidated. The stomach was distended with gas and a quart of light green, turbid, serous fluid, and its wall was coated with thick, tenacious mucus but not at all congested. The small intestine contained a moderate amount of viscid yellow chyle throughout. There was moderate gaseous distention of the jejunum; it was normal. The colon contained a little gas and was nowhere tightly contracted, though rather smaller than usually seen at necropsy. It was empty through its entire length, containing altogether about a half ounce of soft mucoid fecal matter, mostly in the caput. The mucosa was

strikingly clean and edematous, looking as if it had just been washed in running water. There were no congestion, no ulcers, no hypertrophied lymph follicles. Under the microscope the mucosa and muscle coat were normal. The submucosa, only, was markedly thickened by edema, and its lymph spaces truly enormous. The accompanying illustration shows the relative dimensions of the larger ones. There were no congestion, no diapedesis of red or white cells and no follicular hypertrophy. There was marked thickening of the walls of the larger vessels, not due to muscular or connective tissue hypertrophy, but to a homogenous swelling of their elements.

It is, of course, uncertain, with the bowel symptoms only an incident in the course of a lobar pneumonia and beginning after a saline, whether the lesion is characteristic of serous colitis or not. But necropsies are so rare and the pathologic features of the colon so definite and peculiar and yet so intelligibly associated with a copious serous exudate, that I have thought it proper to put the case on record as a contribution to the pathology of the condition.

A FENCE STAPLE IN THE LUNG

A NEW METHOD OF BRONCHOSCOPIC REMOVAL

CHEVALIER JACKSON, M.D., PITTSBURGH

The mechanical problem of the bronchoscopic extraction of an open safety-pin lodged point upward in the trachea or the bronchi is readily solved because of the ease with which the pin can be closed or cut in two for removal. With the double-pointed staple, however, we have to deal with a rigid body of tough steel that cannot be bent, sprung or broken. The author has succeeded in three cases in turning and withdrawing the staple by a method which is best illustrated by the last and most difficult case.¹

Mr. W., aged 44, was referred to me by Dr. L. P. Warren of Wichita for the removal of a fence-wire staple which

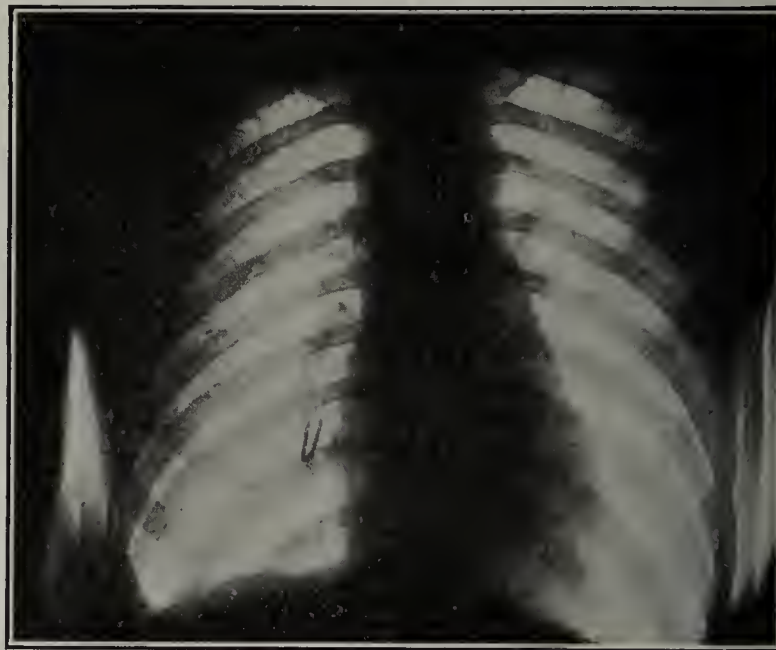


Fig. 1.—Anteroposterior view of chest showing staple in a posterior branch of the inferior-lobe bronchus. (From roentgenogram by Dr. George W. Grier.)

had been in the right lung for fifteen days, having been aspirated while being held in the mouth. There were no symptoms after the accident. Roentgenograms made for me by Dr. George W. Grier showed the staple to be in the lower lobe of the right lung (Figs. 1 and 2). Overlaying with my positive films of the tracheobronchial tree showed the

1. Since the foregoing was written, a fourth case has been similarly successfully dealt with. The points of a very large staple were turned down into the opposite main bronchus.

staple to be in a posterior branch of the inferior lobe bronchus, the bottom of the staple being 4 inches (10 cm.) below the bifurcation of the trachea. Evidently, as is usual with foreign bodies pointed at one end, blunt and heavy at the other, it had worked down by a ratchet-like movement as far as it could go. Respiratory, pulsatory and hecic movements favored deeper lodgment but were powerless to force the intruder back because of the immediate catching of one or both points.

The bronchoscope was passed under local anesthesia. The staple was found tightly wedged in the smallest bronchus it could enter, evidently having reached this location by the ratchet-like action usual with such foreign bodies. Both points were concealed in swollen mucosa as shown schematically at *A*, Figure 3. Obviously, to pull on such a body would mean the ripping of the bronchial wall and certain death to the patient, even if it were possible to make sufficient traction thus violently to pull out the staple.

Working the body slightly downward with a forked rod passed through the bronchoscope, the points were liberated. The staple was slightly rotated with forceps so as to bring the points in new places. With the combined use of hooks,

taken not to exceed the normally great resiliency of the tracheobronchial tree.

The patient had no rise of either temperature or pulse rate and left for his home in the west on the third day.

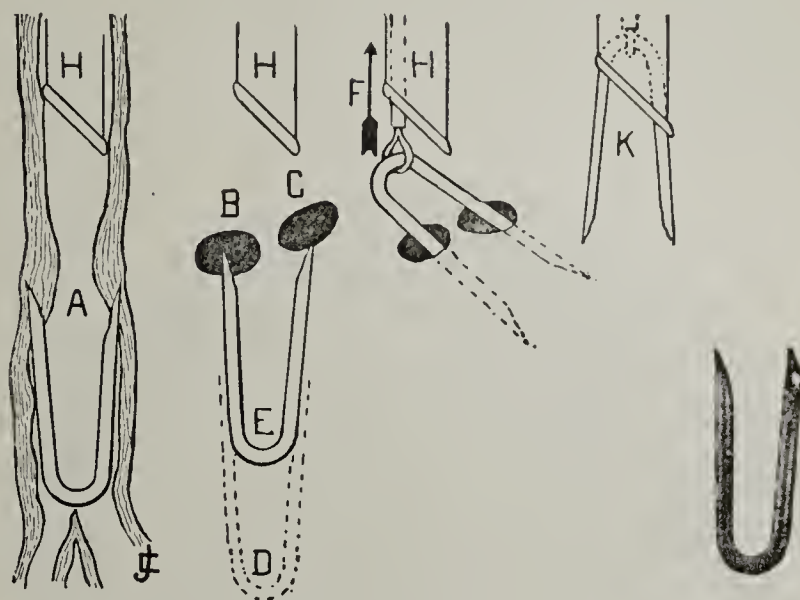


Fig. 3.—Schema illustrating a new method of removal (by version) of bronchially-lodged staples or double-pointed tacks. *H*, bronchoscope; *A*, swollen mucosa covering points of staple; *E*, the staple has been manipulated upward (*D* to *E*) with bronchoscopic lip and hooks until the points are opposite the branch bronchial orifices, *B*, *C*. Traction in the direction of the dart *F*, by means of the rotation forceps, counterpressure being made on the points of the staple, the points enter the branch bronchi and permit the staple to be turned over and removed with points trailing harmlessly behind (*K*).

Fig. 4. — Showing actual size of staple removed from the right lung, bloodlessly through the mouth, by bronchoscopy, after version as shown in Figure 2.

He is now, after three months, perfectly well in every way. The staple is shown, actual size, in Figure 4. Ninth Street and Penn Avenue.

GAUCHER SPLENOMEGALY DIAGNOSED BY SPLEEN PUNCTURE BEFORE OPERATION*

E. P. BERNSTEIN, M.D., NEW YORK

The following report should be of interest as it is the first case of its kind in the literature:

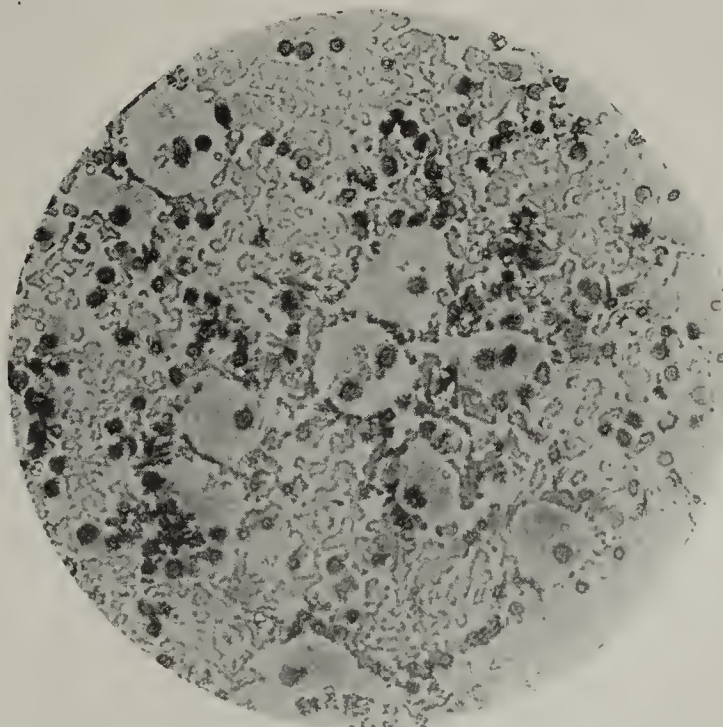


Fig. 1.—Smear from aspirated fluid. Giemsa stain. Low power, showing large multinucleated endothelioid cells.

The patient is the sister of a boy who had been successfully splenectomized by Dr. Henry Roth about two years

* From the Pathological Laboratory of the Lebanon Hospital.



Fig. 2.—Lateral view of chest showing location of staple in lung. (From roentgenogram by Dr. George W. Grier.)

side-curved forceps and the lip of the bronchoscope the staple was gradually, after many slippings-back, manipulated about 1 cm. upward to a place where a pair of suitably spaced orifices of branch bronchi (*B*, *C*, Fig. 2) were available for the admission of the points. The curved end of the staple, *E*, was seized with my rotation forceps which form an eye on closing. Counterpressure being made with the bronchoscopic lip on the two points, the latter were guided into the branch orifices as traction with the forceps in the direction shown by the dart *F* caused the staple to turn over, loop-end upward. The staple being much too large to enter the bronchoscope, the loop was held against the bronchoscopic tube-mouth, the points trailing harmlessly behind, while the bronchoscope, forceps and staple were all withdrawn together, as shown at *K*. The duration of the entire procedure was one hour and twenty-one minutes, almost all of this time being consumed in the manipulation of the staple the one centimeter upward to the pair of branch-bronchial orifices. The anesthetic being local (cocain, 20 per cent.) the patient held his breath at command for a large part of a minute at many different times. Care was

previously for what was clinically diagnosed as Gaucher's disease and proved so after operation by histologic study of the spleen.

Other than this family history and a moderately enlarged spleen, there were no symptoms pointing to or warranting the diagnosis of Gaucher's splenomegaly in the sister. However, she was referred from the Lebanon Hospital dispensary by Dr. Charles Herrman to the surgical service of the hospital under the care of Dr. Parker Syms for operation.

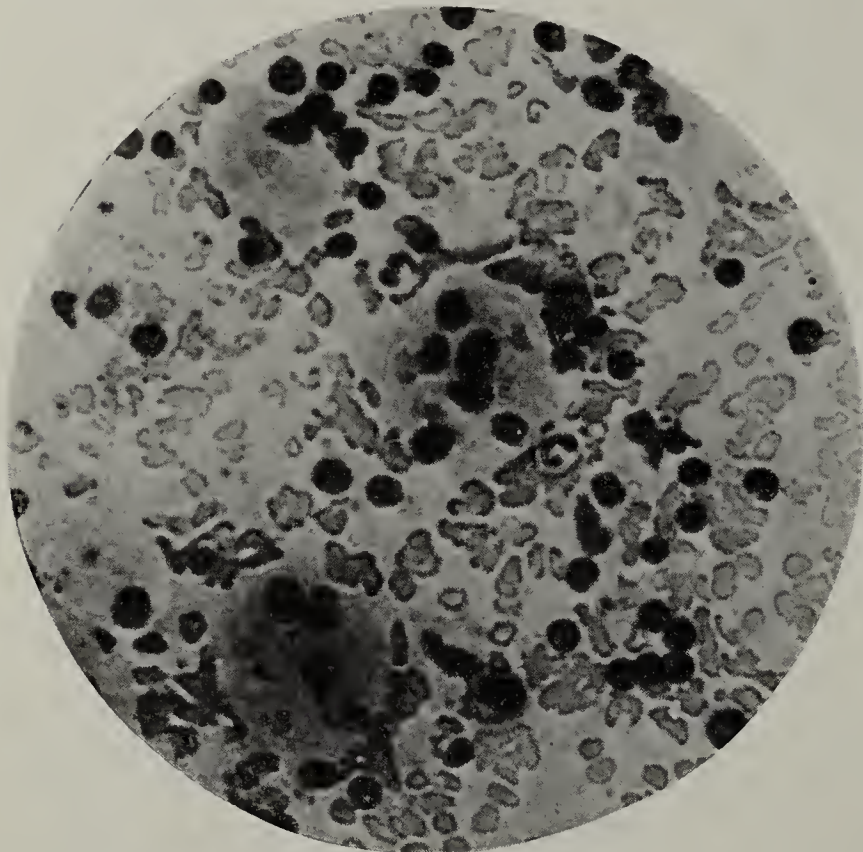


Fig. 2.—High power of Figure 1.

Dr. Syms was kind enough to follow my suggestion of spleen puncture before operation to establish the diagnosis.

While the idea has been voiced before, it has never been tried. A simple puncture with a good sized needle and syringe was made and sufficient spleen pulp and blood mixture was aspirated to render a good sized drop in the needle. This was spread over cover glasses, fixed with methyl alcohol and stained with the Giemsa solution. The characteristic multinucleated endothelioid cells were found in abundance and the diagnosis established (Figs. 1 and 2).

The spleen on removal showed the typical pathologic picture of Gaucher's disease both in spreads of the spleen pulp and sections of the organ.

Aspiration therefore has been proved of final diagnostic importance and should be especially valuable in doubtful cases.

A Suggestion for Removing Foreign Bodies from the External Auditory Canal.—Louis S., aged 7 years, in some manner lost the segment of rubber from the end of a pencil in his left ear. With reflected light I found the rubber filling the diameter of the ear canal and close to the drum. Mere touching of the foreign body produced severe pain, and I decided on instrumental removal under anesthesia. With the ordinary ear instruments it was impossible to get behind the obstruction, and while in this predicament it occurred to me that the dentist has a suitable instrument for this emergency. I procured from my dentist a Donaldson spring-tempered pulp canal cleanser. This is a steel wire with spirally arranged barbs. This wire was easily twisted into the mass of rubber, and the firm grip of the barbs enabled me to remove the foreign body with ease. This dental instrument sells for 15 cents, and, placed in a lead-pencil holder, would be a useful instrument for similar emergencies.—F. P. ANZINGER, M.D., Springfield, Ohio.

New Instruments and Suggestions

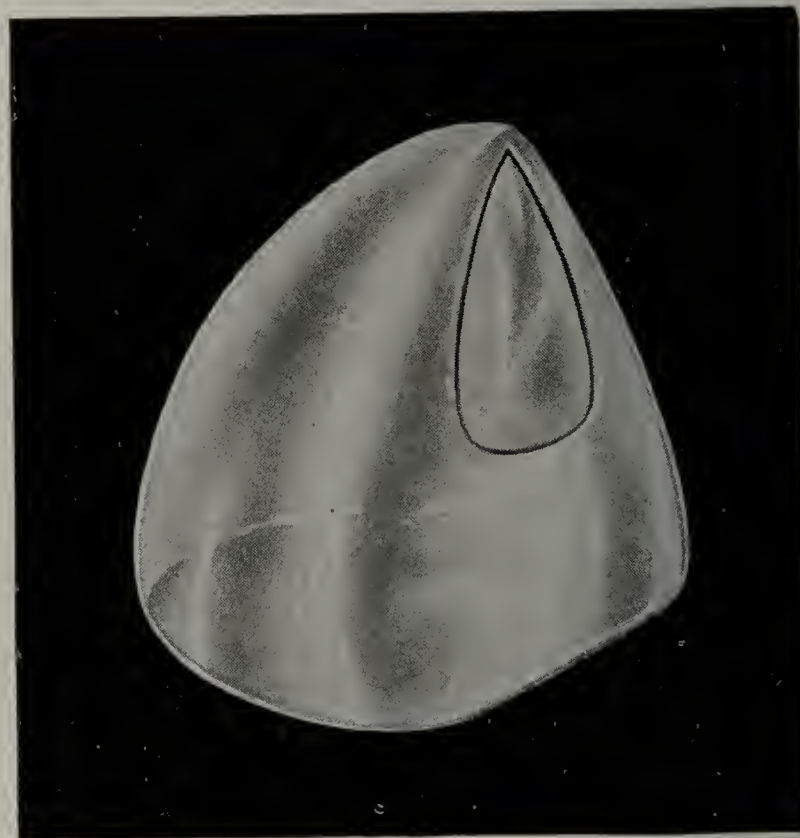
A SIMPLE MEANS OF OBTAINING SPECIMENS OF URINE FROM INFANTS

C. R. SPICER, M.D., CHICAGO

Routine urine analyses in an infant ward of a hospital disclose the fact that a substantial percentage of these little patients suffer from various kinds of urinary disturbances. Pyelitis and cystitis are common, nephritis by no means rare, as shown at necropsy, while acidosis and other metabolic disturbances are so directly reflected in the urine that, in the light of modern pediatrics, urine analyses are as important in infants as in older patients. The difficulty and inconvenience in procuring specimens of urine from babies, however, has doubtless caused much neglect in these cases.

A method commonly used is to strap a test tube or glove finger over the urinary outlet by means of adhesive plaster. This is usually effective, but it is considerable trouble to apply, even in boys, while in girls it is extremely difficult. Repeated applications of adhesive are also apt to cause excoriations of the skin. Some prefer to place the child on a bedpan. This is often successful, though troublesome, and defecation may also occur and contaminate the specimen. Straps of rubber are made to encircle the body or thighs and hold a test tube in position. While generally effective, they are uncomfortable to the child and troublesome to apply. Sponges and absorbent cotton are used, but with even less satisfaction than the foregoing schemes. The device here illustrated was made to meet the objections to the above methods.

The urinal has two plane surfaces, one on which it rests when not in use; the other, somewhat like a plane vertical section of a cone, is applied to the patient when procuring



Infant specimen urinal.

the specimen. An opening of suitable size and shape is located at the upper portion of this face so as to admit the penis or cover the vulva and admit the urine and exclude the feces. The other aspect of the device is convex, and when in use is covered by the diaper which holds it in place, no other means being required. It is molded in glass of sufficient thickness to withstand any ordinary stress. The capacity is about 15 c.c.

The patient may be allowed entire freedom of movement. Owing to the shape of the flask and the location of the open-

ing, it matters not whether he lies on his back, his side or his face, or whether he sits or stands; if urine is voided it will be collected and retained. When the diaper is loosened the urinal remains right side up.

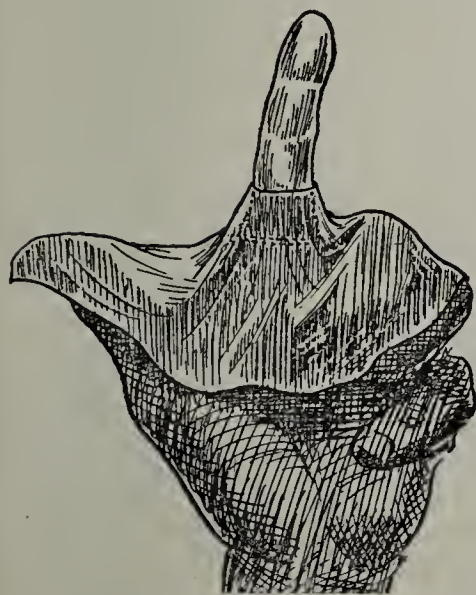
While it was not originally intended to obtain twenty-four-hour specimens, by occasionally emptying the flask, quantitative amounts have been secured. The principal need in infants is a means of procuring a specimen of sufficient quantity for chemical and microscopic examination, free from contamination and without discomfort to the patient or trouble to the nurse. This simple device meets these requirements. It has been in use in the Children's Memorial Hospital for several months.

Children's Memorial Hospital.

SHIELD FOR PROSTATIC EXAMINATIONS

WILLIAM S. EHRLICH, M.D., EVANSVILLE, IND.

The following is a description of a very simple but exceedingly useful little device to protect the hand in the none too pleasant examination and massage of the prostate gland.



Shield for prostatic examinations.

A piece of ordinary dentist's rubber dam is cut in a circle which will have a diameter of 5 inches. Through the center of this, a hole three-eighths inch in diameter is made.

After an ordinary finger cot is slipped on, the finger is pushed through the center hole, which, of course, fits snugly, leaving a margin of at least three-sixteenths inch overhang. This makes a joint which is waterproof, holds the cot firmly, preventing

wrinkles, and absolutely protects the knuckles from any dirt on the external parts.

The shield is easily and quickly made, easily cleaned, and costs practically nothing.

A RELIABLE METHOD FOR TABLE MICROSCOPIC DIAGNOSIS

B. T. SIMPSON, M.D., BUFFALO

Pathologist, State Institute for the Study of Malignant Disease

From the fact that many men who have visited our institute knew nothing of this method, and that "table diagnosis" is in disrepute by many surgeons, it seemed worth while to publish this technic, which I have been using for the past three years. I was led to adopt it by finding that by the usual method of freezing the unfixed tissue, and staining by polychrome methylene blue, sections were sometimes unsatisfactory, and that a diagnosis given in one case was found to be incorrect when further sections were made on fixed tissues.

It seems to me that a great fallacy in making diagnoses at the table is the necessity of returning the report within three minutes. The surgeon expects to take his time with his operative procedure, while he expects the pathologist to be limited to a minimum time, and also to take the responsibility of the extent of the operation and the chances of the future of the patient. After my first mistake I refused to use the three-minute method, and frankly told the surgeons that I did not believe I could make a reliable diagnosis under eight minutes. I am happy to be able to say that, in the three years' experience with the following method, the table diagnoses have been confirmed in every case by further examination by the usual laboratory methods.

The method is as follows: Just before the surgeon is about to remove the tissue, a large test tube, about 2.5 cm. in diameter, containing about 40 c.c. of liquor formaldehydi, is brought to the boiling point and set aside. The removed tissue is laid on a dissecting board and cut with a sharp knife into sections about 5 mm. thick; these are carefully examined for suspicious areas, the selected piece is cut in a square 1.5 cm., put in the liquor formaldehydi, which is heated and allowed to boil for about thirty seconds, the tissue is now put in cold water for a few seconds, and then sectioned on the freezing microtome in the usual way. The sections are stained for half a minute in Harris acid hematoxylin and transferred in a weak solution of ammonia to bring back the blue color, then are run up through 50, 85 and 95 per cent. alcohols, then into 100 per cent. alcohol saturated with alcoholic eosin, then into carboxylol, put on the slide, blotted with filter paper and mounted in balsam. The section obtained by this method is usually as good as any frozen section obtained by the usual laboratory method.

113 High Street.

SOME NEW INSTRUMENTS TO SIMPLIFY THE MODERN TONSILLECTOMY OPERATION*

FRANCIS W. ALTER, M.D., TOLEDO, OHIO

With the multiplicity of instruments already devised for the enucleation of tonsils, one must indeed have a good deal of assurance to bring out something new along these lines. I have felt, however, that the instruments which I am presenting possess sufficient merit to warrant bringing them to the notice of the profession. The combination of instruments which I am presenting has been in use for the past two years, long enough to obtain data as to their practicability and reliability.

The three instruments and devices which I have used for over two years in tonsillectomy are a mouth gag, with a

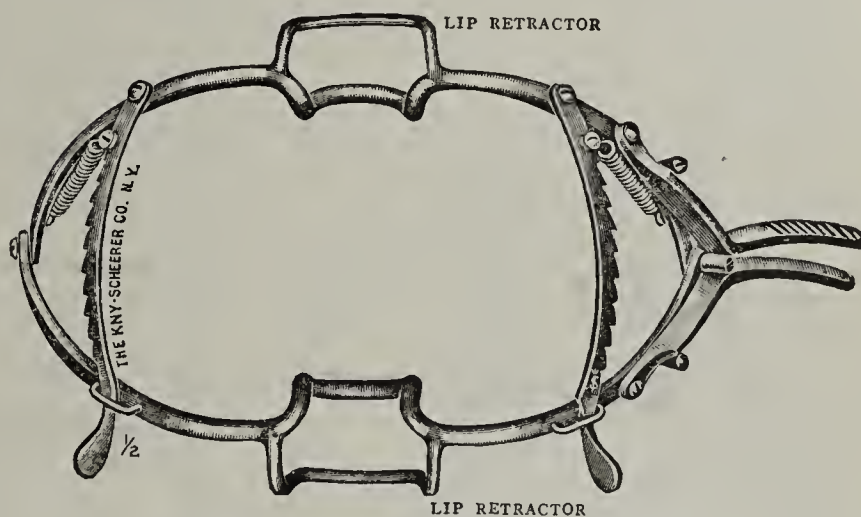


Fig. 1.—Mouth gag with lip retractor.

successful lip retractor; a tonsil-seizing forceps combined with a tongue depressor; and a suction apparatus, with a cut-off.

Figure 1 illustrates the mouth gag, which is a Whitehead gag, with the additional lip retractor. I have had as much trouble with the patient's lips getting pinched prior to the use of this instrument, as the average throat operator.

Figure 3 illustrates the combined tonsil-seizing forceps and tongue depressor, and it has the advantage that it eliminates the assistant whose duty it has been to hold the tongue depressor in position. This combined instrument has the decided advantage of depressing the tongue in the corner of the mouth just where the tongue needs to be depressed.

As will be seen, the lower finger loop of this instrument is open. It has been made this way in order that the snare

* Owing to lack of space, several illustrations are omitted from THE JOURNAL. They are included in the author's reprints.

wire can readily be slipped through this opening and over the upper finger loop.

Figure 5 illustrates the suction apparatus. This is an instrument which certainly has a decided field in the modern operation of tonsillectomy. The instrument can be fitted to an ordinary water faucet, and a gage attached to the jar registers the vacuum pressure in the demijohn.

The main advantage of this device is in the manner of working of the suction portion. This part acts as a suction

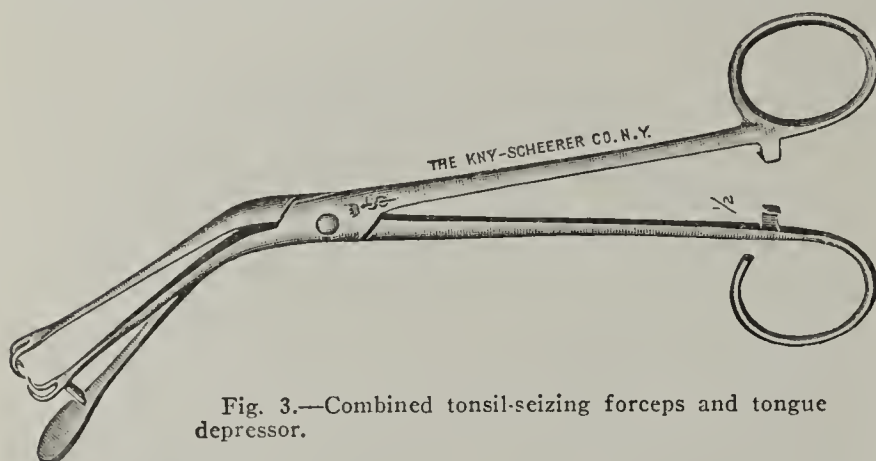


Fig. 3.—Combined tonsil-seizing forceps and tongue depressor.

when the small piston at the end is pressed with the thumb, and shuts off the suction when the thumb pressure is released.

In the use of this instrument it makes a true bloodless operation. There is no sponging in the throat and consequently less postoperative edema and soreness. It is an excellent device for drawing the uvula well out of the field of the snare wire.

It has the decided advantage that it can be placed in the field of operation, and in spite of oozing, the work can proceed without interference or interruption. It also has the

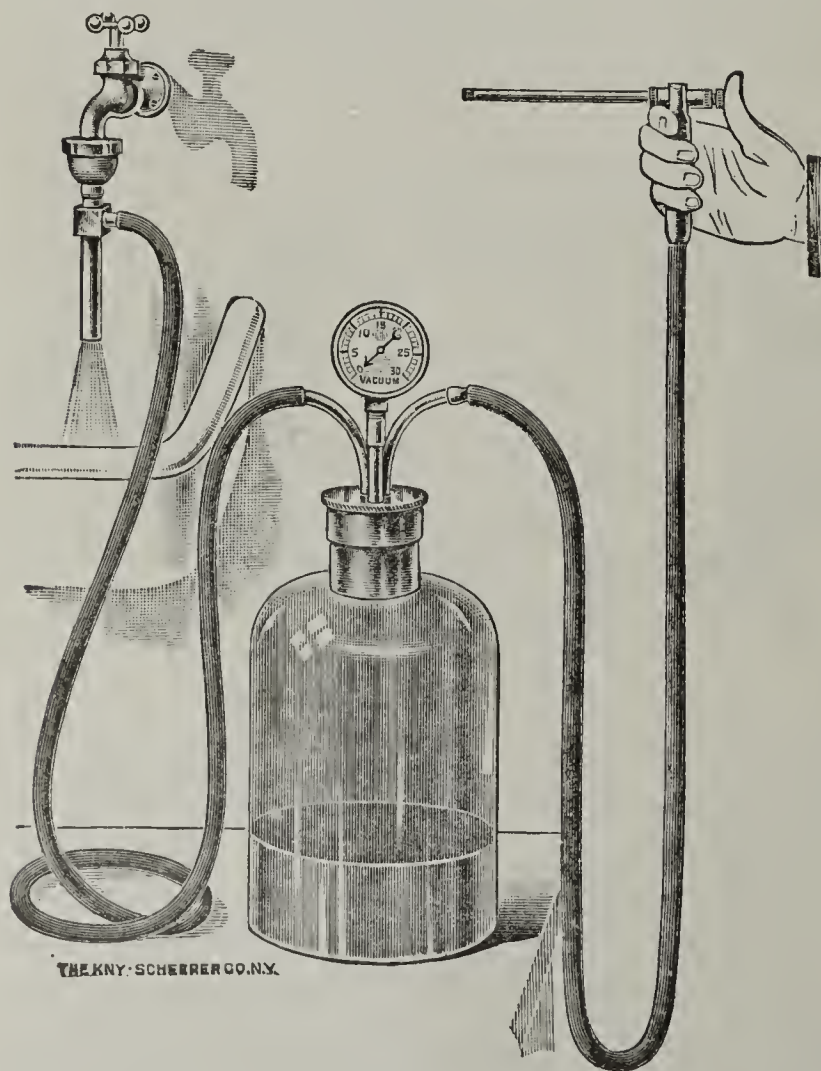


Fig. 5.—Suction apparatus complete, showing the method of holding the cut-off.

additional advantage of making an even anesthetic and hence less danger of shock and anesthetic calamity through reflex stimulation of the vagus.

314 Colton Building.

Special Article

PRACTICAL PHARMACOLOGY *

(Continued from page 1849)

XXII

EVACUANTS—(Continued)

Evacuants may be classified conveniently for study as follows: (1) those acting mainly on the small intestine; (2) those acting mainly on the colon; (3) those acting on the small and large intestines including alkaloidal evacuants; (4) those acting on the rectum; (5) miscellaneous measures for inducing purgation.

1. EVACUANTS ACTING MAINLY ON THE SMALL INTESTINE

OILS

Neutral fats and saponifiable oils like butter and olive oil pass practically unchanged through the stomach, but are saponified more or less completely in the small intestine, and the resulting soaps may be sufficiently irritating to the intestinal mucous membrane to cause increased peristalsis and with an excess of the fat or oil act as a mild laxative.

Castor oil, which consists largely of ricinolein, yields a soap that is much more irritating and prompt in its action. The direct influence of the irritation is usually limited wholly or mainly to the small intestine, because these soaps are absorbed into the circulation without reaching the colon. The increased peristalsis in the small intestine rapidly drives a large amount of fluid into the colon, distending it and causing an evacuation before the stools become fully formed, or at least while they are still soft, because a sufficient interval of time is not afforded for as much fluid to be absorbed as usual.

Castor oil acts mildly even in fairly large doses, because the ricinoleic acid is liberated slowly, and the more active the peristalsis the less is the time allowed for the further liberation of the acid, hence, to a certain extent, its action is self-limiting.

THERAPEUTIC USES

Castor oil is used frequently for children, being a dependable laxative or purgative which may be administered without fear of causing intestinal inflammation or disturbing the stomach seriously, but it is not suited for continued use in chronic constipation because of its gradually lessening effect. It is also applied to the skin and to the eye as a demulcent.

The dosage is 15 c.c. (4 fluidrams). The taste is disagreeable, and children manifest an especial repugnance for it, so that it is best administered in such a way that the taste is masked.

Because of its disagreeable taste castor oil is given preferably with pungent, freely frothing beverages, or enclosed in soft gelatin capsules holding about 1 teaspoonful. It may also be administered in the form of a mixture or emulsion and this latter type of administration is becoming popular. The following may be used as a type formula:

	gm. or c.c.	
Benzosulphinid (saccharin).....	0.05	1 grain
Oil of Cloves.....	0.2	3 drops
Oil of Cinnamon.....	0.3	5 drops
Alcohol	4.0	1 fl. dram
Castor oil.....	q. s. ad 100	3 fl. ounces

* This is the twenty-second of a series of articles on useful drugs—on practical pharmacology for the general practitioner. As soon as completed, these articles, elaborated by additional subjects, will be published in book form.

In making this mixture, the benzosulphinid oil of cloves and oil of cinnamon should be dissolved in the alcohol and this in turn added to the castor oil.

Croton oil contains some free crotonoleic acid, which is irritant to the body tissues, hence it irritates the throat and stomach unless measures are taken to prevent it, and it may give rise to nausea and vomiting. It is decomposed in the small intestine, with the formation of crotonoleates. These are far more actively irritating than the ricinoleates, and croton oil causes more violent peristalsis than castor oil, but it may induce intestinal inflammation without purgation.*

THERAPEUTIC USES

Croton oil finds its special field of usefulness in mania and coma, when a prompt evacuation of the bowels is desired.

Its irritant action in the stomach, and the possibility of its causing severe intestinal inflammation limit its use as an evacuant to those cases in which the administration of a rapidly acting drug in small amount is necessary.

The dosage is 0.05 c.c. (1 minim). It may be administered in drop doses placed well back on the tongue, in the form of a pill made with breadcrumb or other absorbent, or diluted with a bland oil and given in a gelatin capsule, or simply dropped on a small lump of sugar which should be swallowed quickly.

RESIN ANHYDRIDS

There are many vegetable drugs which contain glucosidal acids, or anhydrids, which induce purgation in much the same way that castor oil and croton oil do. The drugs of this group, as a rule, are only slightly irritant to the stomach, but they become much more actively irritant in the presence of bile and when they reach the intestine cause increased peristalsis. The action of small doses is limited to the small intestine mainly but large doses often cause gastric irritation, with nausea and vomiting, and in addition to the effect on the small intestine some of the drug passes into the colon, causing pain, tenesmus and watery evacuations. Very large doses may cause bloody stools, collapse and even death. Moderate doses of these drugs cause little or no pain, but active peristalsis in the small intestine is accompanied by sounds and sensations due to the movements of fluid and gas.

THERAPEUTIC USES

All the members of this group except podophyllum and its resin are used to secure prompt evacuation of the bowels, and all of them are capable of causing profuse watery stools. Their actions are quite similar, differing only in minor details, hence it is often a matter of no great importance which of the drugs of the group is used in a given case.

They are used for the removal of fluid in dropsical conditions, especially as a preliminary to the use of digitalis and other drugs which promote diuresis. They were formerly used much more for this purpose than at present, and many physicians have abandoned their use in this way because of the dangerous depression which they sometimes cause in those suffering from cardiac diseases, and in asthenic and anemic patients.

These drugs, in doses sufficient to cause watery stools, remove fermenting and putrefying material, as well as bacteria, from the intestinal tract, and repeated

catharsis may render the bowel almost sterile for a time perhaps, but large doses of such irritants may injure the natural protective powers of the intestine against bacteria and permit the latter to grow more rapidly than before.

Colocynth extract, resin of jalap or elaterin may be used for the removal of poisons which have passed through the stomach into the intestine, especially when the poison has been taken in a slowly absorbable form (belladonna berries). The action of podophyllum is usually elicited too slowly for this purpose.

The severe irritant action of these agents contraindicates their use in the presence of severe inflammation of the intestine, and large doses are contraindicated in menstruation and in pregnancy, but small doses have practically no effect on the uterus, and may be used without fear of inducing miscarriage or abortion.

The resin anhydrids are sometimes used for the removal of hard dry masses of feces which have been allowed to accumulate in the colon, because of the large amount of water which they drive into that organ. It is more rational to administer a suitable enema when such masses are to be softened, because they do not take up liquid rapidly, and even violent peristalsis may be insufficient to force them through the anus if they are formed into large masses.

Different members of this group have been recommended for the treatment of chronic constipation, and while they are useful at times, it should be remembered that constipation is a symptom of some other condition. It is better to determine the nature of the cause and direct one's efforts toward relieving it than to use the same method of treatment in every case because of the presence of a single symptom. It is impossible to enumerate here any considerable number of the causes of chronic constipation, but it is probable that its ultimate cause may be found in any one of a large number of habits, or minor derangements of various organs. It has been explained that the diuretic action of tea and coffee may augment chronic constipation by increasing the viscosity of the blood; excessive sweating may do this also. The habitual taking of an insufficient amount of water between meals is a common cause, and at least six glasses of cold water should be taken during the day in addition to any liquid that may be taken at meals. An even larger allowance should be taken if one drinks much tea and coffee, provided that this causes diuresis; or if one sweats a great deal. One is apt to suppose that any loss of water from the body in the urine and sweat is quickly made up through the amount taken for the relief of thirst thus induced, and while this is ultimately true, the amount of water in the circulation and tissues varies quite considerably from hour to hour.

An insufficient, or poorly regulated diet, is probably the commonest cause of chronic constipation, even the value of open air exercise being due largely to the increased appetite, as well as to the improved circulation and consequent secretion of digestive juices.

The trouble usually lies in the sluggishness of the large intestine, whether this be due to an atonic condition of its musculature, or to the lack of bulk in the contents received from the ileum, but the choice of the remedy may be governed by the necessity of avoiding irritation in that part of the intestine which is the seat of inflammation; for example, one would not use an irritant to the colon in the presence of appendicitis, even after the symptoms have begun to abate. It is

* Owing to lack of space the materia medica of this group is omitted from THIS JOURNAL. It will be included when this series is published in book form.

conceivable that muscular atony may be the cause of disturbance in one case, while another presenting much the same clinical picture may be due to some disturbance in Auerbach's plexus.

DOSAGE

Colocynth is not used in substance; the extract is laxative in doses of about 0.03 gm. ($\frac{1}{2}$ grain) and drastic in somewhat larger doses, but nearly all evacuants vary widely in their action on different individuals, and with the same individual at different times. One reason for this is that there are all degrees of inertia of the bowel to be overcome, and just as constipation is due to so many different causes, the dose of any given drug to correct it will vary. It is true, however, that any individual who suffers from chronic constipation, or even from occasional attacks, will usually require approximately the same dose to relieve it at different times. Hence the doses given for the purgatives are approximate only, and the drastic dose for one will be merely laxative for another. In the absence of experience as to the dose required for a given patient it is well to give a small dose at first and repeat it in from four to six hours if necessary, except in the case of podophyllum. Drastic doses are not recommended.

The compound extract of colocynth contains extract of colocynth, aloes, scammony and soap, and belongs to the group which acts on the small and large intestines. It is given in doses of 0.5 gm. ($7\frac{1}{2}$ grains). It is much used in the form of the official compound cathartic pill,² which is recommended only for its effectiveness.

The dose of elaterin is 0.005 gm. ($\frac{1}{10}$ grain).

Jalap is seldom used in substance alone, but the dose is stated as 1 gm. (15 grains). The compound powder of jalap, containing potassium bitartrate, acts as a saline, as well as a resin anhydrid.

Podophyllum is seldom given in substance; the laxative dose of the resin of podophyllum is about 0.005 gm. ($\frac{1}{10}$ grain), the purgative dose is about 0.015 gm. ($\frac{1}{4}$ grain).

Drugs belonging to the group of resin anhydrids are preferably administered in the form of pills or massed and enclosed in gelatin capsules.

2. EVACUANTS ACTING MAINLY ON THE LARGE COLON

ANTHRACENE DERIVATIVES

The drugs of this group are said to belong to the group of anthracene, or anthraquinone, derivatives because the crude drugs of the group depend for their evacuant action on one or more substances which may be considered as derived from anthracene ($C_{14}H_{10}$) or from a derivative of it called anthraquinone ($C_{14}H_8O_2$) which differs from anthracene by having two CO groups uniting two benzene rings, whereas in anthracene the rings are united by two CH groups. Hydroxyanthroquinone has an OH replacing an H of anthraquinone, and several hydroxyanthroquinones are present in different drugs of this group. Among the most common are di-hydroxy-anthroquinone, or emodin, and tri-hydroxy-anthroquinone, or chrysophanic acid.

Emodin is present in all the crude drugs of this group, it and other closely related bodies being formed

by the decomposition of glucosidal bodies which are present in larger amount in the crude drugs.

These hydroxyanthroquinones pass through the stomach and small intestine causing no irritation and exert their specific action on the colon. They cause purgation after the lapse of about sixteen to twenty hours following their administration in most cases.

Small doses cause normal evacuations attended with little or no colic; larger doses cause soft, or watery stools, which may be preceded by severe colicky pains. This irritant action on the colon contraindicates their use in menstruation and in pregnancy, because they induce reflex irritation in the uterus, increasing the menstrual flow when menstruation is in progress, or tending to cause expulsion of the fetus during pregnancy. It is possible that they also act directly on the nerves supplying the uterus. The action which contraindicates their use during menstruation indicates their employment as emmenagogues when it is desired to institute the flow.

Aloes contains about 10 per cent. of aloin which belongs to the hydroxyanthroquinone group. Aloin is inactive itself but is changed into an irritant amorphous substance in the colon, and on this decomposition product the purgative action depends. The formation of this decomposition product is facilitated by the presence of alkalies and iron, hence aloes and aloin are frequently administered with soap and iron.

Aloes is especially prone to cause uterine contractions, probably because the aloin is absorbed in part and acts directly on the uterus, hence purgative doses of aloes are especially contraindicated in pregnancy, but it is the most frequently used of the group for its emmenagogue action. Aloin, after its subcutaneous injection, is excreted into the large intestine causing purgation, but the injection is painful.

Fresh cascara sagrada contains emodin and also a ferment having an emetic action, but this ferment is gradually destroyed when the drug is stored. It also contains a bitter principle which may be utilized as a tonic but the taste is so disagreeable that many prefer to use a preparation in which the taste is masked, or one from which the bitter has been removed in part.

Rhubarb contains chrysophanic acid and emodin. The chrysophanic acid is quite irritant, but it is absorbed without reaching the colon, hence it does not participate in the typical rhubarb action. The irritant action of chrysophanic acid is utilized therapeutically as an application to the skin in the form of chrysarobin ointment, chrysarobin being a compound of chrysophanic acid. Rhubarb also contains tannin; hence it is astringent in small doses, laxative in large, and the astringency tends to assert itself after the laxative effect has been induced. It sometimes causes nausea and headache. The aromatics present in the aromatic syrup enhance the astringent effect.

Senna contains emodin and a bitter resin, which is removed by percolation with strong alcohol before preparing the fluidextract and the syrup. This treatment does not impair the cathartic action of the preparation but it renders it much less disagreeable to the taste and prevents the griping to a large extent.

PHENOLPHTHALEIN

The action of phenolphthalein is much like that of the other hydroxyanthroquinones over which it appears to possess no very decided advantage; it is capable of giving rise to poisoning when overdoses are used.

2. This preparation is a survival of the "shot-gun" type of mixtures; there is a rational basis, perhaps, for the employment of two evacuants having different seats of action, but there is no apparent advantage in using together two substances having such similarity of action as colocynth and scammony.

DOSAGE

The laxative dose of aloes is from 0.03 to 0.05 gm. ($\frac{1}{2}$ to 1 grain), the purgative dose (which is not recommended) is from 0.15 to 0.3 gm. (2 to 5 grains). As an emmenagogue the larger dose is employed. Aloes, the extract of aloin, is commonly used with extract of belladonna or atropin in the treatment of chronic constipation, but the continued use of atropin even in small doses is not certainly free from objections, and there seems less reason for its use with small doses of these drugs than with the larger ones used for active purgation. The official compound laxative pill, which is practically identical with certain proprietary preparations, contains 0.8 mg. ($\frac{1}{80}$ grain) of extract of belladonna, representing about $\frac{1}{10}$ mg. ($\frac{1}{650}$ grain) of atropin. This dose of atropin is probably without material effect on the intestine when a single dose is taken, but the possibility of its disturbing the digestion when long continued is worthy of consideration. The compound laxative pill also contains strychnin and ipecac. The aloin alone in the form of a pill will often act quite as well as the more complex mixture.

To avoid gastric irritation aloes and aloin are preferably administered in the form of pills or, like the drugs belonging to the group of resin anhydrides, massed and enclosed in gelatin capsules. For making the necessary mass it has long been a practice to use soap or one of the gum resins like myrrh or asafetida which have the additional advantage of being somewhat aromatic.

Typical combinations for pills of aloes are included in the several pharmacopeias, the only objection to them being that they are set formulas instead of being adapted to the case in hand. They serve, however, to illustrate the combinations that have been used.

Aloes may be prescribed somewhat as follows:

Aloes	gm. 1.3	gr. 20
Soap	1.3	20
Mix and make into 10 pills.		
Aloes	1.3	20
Myrrh	0.6	10
Powdered Glycyrrhiza	0.6	10.
Syrup a sufficient quantity.		
Mix and make into 10 pills.		
Aloes	1.0	15
Asafetida	1.0	15
Soap	1.0	15
Mix and make into 10 pills.		

The dose of extract of aloes is only slightly smaller than that of the aloes itself, and there are no sufficient reasons for the use of this preparation. The laxative dose of aloin is from 8 to 20 mg. ($\frac{1}{8}$ to $\frac{1}{3}$ grain). Phenolphthalein is given in doses of 0.05 to 0.5 gm. (1 to 8 grains) in capsules or cachets. Larger doses are not to be recommended in case this is not effective. Cascara sagrada is practically never given in substance; the fluidextract and the aromatic fluidextract may be given in doses of 0.6 to 2 c.c. (10 to 30 minims), the smaller dose is for repetition several times daily, the larger dose is given after dinner or at bedtime, preferably so that the action may be induced the next morning. The dose of the extract of cascara sagrada is from 0.1 to 0.5 gm. (2 to 8 grains). One should aim to use the smallest dose which is effective, and reduce this from time to time.

Rhubarb is sometimes used in the form of the powder, or one may obtain the drug in the form of "cubes" or "fingers" which are carried conveniently when it is desired to take several doses during the day. The laxative dose of rhubarb is about 1 gm. (15 grains) or

more; with smaller doses—0.1 to 0.3 gm. ($1\frac{1}{2}$ to 5 grains) the bitter and astringent actions only are obtained. The dose of the extract of rhubarb is about one-fourth that of the crude drug. The dose of the aromatic tincture is about 2 c.c. (30 minims) and that of the aromatic syrup about 8 c.c. (2 fluidrams). The cathartic dose of senna is about 4 gm. (60 grains) in the form of powder or infusion. The dose of the compound powder of glycyrrhiza (in reality a preparation of senna) is 4 gm. (60 grains). The fluidextract is given in doses of 2 c.c. (30 minims) and the syrup in doses of 4 c.c. (1 fluidram). This dose of the syrup is only half as active as the dose given of the fluidextract.

THERAPEUTIC USES

The evacuants of this group are widely used in small doses as laxatives in the treatment of chronic constipation. Aloes, or aloin and cascara sagrada being especially valuable for this purpose. Cascara often exerts a tonic action on the intestine, permitting of a gradual diminution and stopping of the dose as the intestine regains its normal function.

The irritant action of the drugs of this group is so slight that they may be used in small doses for long periods without giving rise to inflammation, and the colon does not appear to habituate itself to their action, so that the same dose may continue to be effective for years. It is true, however, that with increasing obstinacy of the constipation larger doses are often called for in time, but this is rather from an augmentation of the condition which gave rise to constipation, and not from habituation to the drugs of this group.

Cathartic doses of aloin and aloes are not especially to be recommended, cascara sagrada or senna being preferred in such cases. One of the most effective of the common cathartic mixtures is the old time compound infusion of senna (senna, 6; manna, 12; magnesium sulphate, 12; fennel, 2; water to make 100), which acts on the large intestine and in addition promotes peristalsis in the small intestine by preventing absorption of fluid.

Rhubarb is used in the earlier stages of diarrhea to remove irritating substances and then to check intestinal movements; the aromatic syrup is especially adapted for children.

SULPHUR

One of the important irritants for promoting peristalsis in the large intestine is hydrogen sulphid formed in the course of decomposition of sulphur-containing substances in the large, and also in the small, intestine. The production of hydrogen sulphid can be materially increased by the administration of sulphur through the action of micro-organisms and albuminoids, more particularly the protein substances present in the small intestine. Sulphur is not affected in the stomach. A portion of the hydrogen sulphid formed is absorbed, some of it is oxidized further and eliminated with the urine as sulphates and a portion not so oxidized is eliminated by the skin and the lungs as hydrogen sulphid. The latter rather objectionable feature has no doubt had much to do with the decline in the use of sulphur as an evacuant.

DOSAGE

Sulphur, because of its insolubility and practical inertness, may be administered in liberal doses; 4 gm. (60 grains) being frequently given. It is still used in medicine in the form of the compound powder of glycyrrhiza referred to under senna.

(To be continued)

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NEWER KNOWLEDGE REGARDING INTESTINAL OBSTRUCTION

The search for the cause of the symptoms and death which frequently attend intestinal obstruction has called forth the efforts of some of the most representative American laboratories in the attempt at an elucidation. At present there is an agreement on some of the features of the situation and a few apparent contradictions in respect to others. Few complex problems of immediate surgical interest have been attacked with greater intelligence and promise of solution. The symptomatology and pathology of intestinal obstruction have been considered from many angles, until today it seems possible to make certain general statements which are likely to improve greatly the surgical treatment of a serious condition. One group of investigators has emphasized the loss of body fluids as a factor in the causation of death; another has pointed out the damage to the intestinal mucosa which must usually be reckoned with; still others have directed attention to the rôle of the ensuing interference with the circulation in the obstructed bowel, and to the opportunity which this offers for an unusual performance on the part of alimentary bacteria.

Interesting though the history of this chapter of medical research may be, there is little practical advantage at this time in reviewing the steps in the direction of the progress made. Most, if not all, of the observers believe that the serious symptoms and death are the result of a toxemia. Where and how the responsible toxin is produced and absorbed has not been so easy to determine. In the words of the most recent contributors in this field, "When the problem of intestinal obstruction is reduced to its fundamentals, it seems that there is not such a wide difference of opinion between the experimental workers, except as to the source and the physical and chemical characteristics of the toxic material which is responsible for the symptoms and death, the apparently contradictory statements being more the result of undue emphasis on different factors, and the failure to distinguish clearly between the production and absorption of the toxin."

To a certain extent, Murphy and Brooks¹ of the Washington University Medical School have reconciled the conflicting opinions.² The toxins which are present in the content of the obstructed bowel and which, when absorbed in sufficient amount, produce the definite pathologic lesions, are the result of bacterial growth. It has been possible, after continued drainage, to obtain a jejunal loop which was sterile. Occlusion of this failed to produce the usually expected death; and the accumulated fluid was not toxic as it ordinarily is when bacteria are present. The toxins are not specific for any part of the intestinal tract, as was earlier believed by some of the investigators. Following the obstruction and interference with the nutrition of the gallbladder containing intestinal bacteria, symptoms identical with those of intestinal obstruction may be observed. The contents of such a gallbladder, even after sterilization, produce symptoms and a pathologic picture identical with that following the injection of the content of an obstructed segment of intestine. A sterile gallbladder, however, can be obstructed up to the point of complete gangrene without the appearance of symptoms or the development of toxic contents.

The toxic substance does not pass through a normal mucous membrane. This is a fact of major significance, so that in the production of harmful effects, the factors which make absorption possible are of more importance than those which produce toxin. Interference with the circulation of the obstructed intestine helps to institute the damage that permits of abnormal absorption. It has been puzzling to find that simple obstruction of a segment of the duodenum or jejunum results in earlier or severer symptoms than similar obstruction of the ileum. It appears, however, that the more abundant secretion into the upper bowel leads to a more rapid distention and consequent circulatory disturbance of the bowel wall. The toxin may enter the circulation by way of the thoracic duct.

It is still too early to generalize about the nature of the poisonous substance. Its chemical and physical characteristics are stated to vary with the duration of the obstruction. The effects in respect to symptoms and lesions produced seem to resemble those attributed to so-called ptomains.³ The outcome of the foregoing studies already furnishes valuable guidance in a practical way. In the surgical treatment of cases of intestinal obstruction, that part of the intestine with a mucous membrane which has been so damaged as to permit of abnormal absorption should be resected rather than drained. The restitution of the body fluids lost must also not be neglected.

1. Murphy, F. T., and Brooks, B.: Intestinal Obstruction: An Experimental Study of the Causes of Symptoms and Death, *Arch. Int. Med.*, March, 1915, p. 392.

2. The literature of the subject, including particularly the work of Murphy, Whipple, Hartwell and their collaborators, is given in the paper already referred to.

3. Faust, E. S.: *Arch. f. exper. Path. u. Pharmacol.*, 1904, li, 248; *Die thierischen Gifte*, Braunschweig, 1906.

THE USE OF ALKALIES IN ASIATIC CHOLERA

It is not far from the truth to say that until recently the treatment of cholera has been essentially expectant and symptomatic. Specific antiseptic substances administered by mouth to inhibit the growth of the infecting organisms in the alimentary tract have been without value. Attempts have been made sometimes to expel the bacterial invaders by the use of purgative drugs. Yet such procedures fail to bring any relief whatever to some of the consequences and complications that attend the original intoxication. Prominent among the latter are the renal lesions, not infrequently accompanied by uremia.

Dr. A. W. Sellards¹ of the Johns Hopkins Hospital, who has had an extensive experience in the treatment of cholera in the Far East, has lately pointed out that some of the symptoms of uremia which resemble toxemia are due, not to the presence of a foreign toxin, but to the depletion of a normal constituent of the blood. In cholera, according to Sellards, there is a greatly increased tolerance to alkali bicarbonate. This tolerance, however, is not specific for the nephritis of cholera. It occurs not only in nephritis arising from other infections, but also in the nephritides which are free from infection. In this respect, therefore, there is a close relationship between the renal lesions of Asiatic cholera and the ordinary forms of acute and chronic nephritis. In renal disease (chronic interstitial nephritis and primary contracted kidney) a group of clinical symptoms, including dyspnea, changes in the alkali content of the blood, and decrease in its quota of carbon dioxid, reach their height during the stage of uremia. Similarly uremia, which follows the common renal disturbances of cholera, is plainly something more than a mere intoxication. The death rate from the uremia alone has been higher than in the majority of the common specific bacterial infections.

It is at this stage of reaction in cholera, when the evidence of nephritis is becoming prominent, that a distinct increase in the tolerance to sodium bicarbonate develops.² Sellards has described it as a clinical picture of acidosis. It seems best, however, to avoid the use of this ill-defined term, which means intoxication with acid in its original sense. As Fischer remarks: The word "acidosis" has had its meaning twisted so greatly to suit the whims of different authors that it might well disappear from our medical and physiologic writings. The mere finding of various acids or "acidosis compounds" in the urine or elsewhere does not yet mean an acid intoxication. The acetone bodies of the diabetic do not betray an acid intoxication, but an altered chemistry from which an acid intoxication may result. A normal or abnor-

mal acid may be produced in great quantities in the organism and appear in the urine, yet if sufficient base is available they are neutralized and so are practically without effect.³ What Sellards actually implies to be the nature of the "acidosis" associated with the nephritis and uremia of cholera is an impoverishment of the sources of fixed bases in the body.

This deficiency in carbonates, with its train of symptoms ending in coma and air hunger, is conceivably attendant upon a diminished excretion of acid on account of urinary changes due perhaps to impaired functional capacity of the kidneys; or it may be attributable to loss of alkali directly by the bowel during the excessive purging that occurs. In any event, Sellards believes that the clinical evidences are sufficiently definite to constitute a rational basis for treatment of the uremia of cholera with alkalies in the form of bicarbonate. He maintains that in practice it has proved far more efficient than the use of solutions of sodium chlorid, which have been employed with some success in the stage of collapse to restore the fluid lost from the body.

Alkali therapy in cholera is not entirely new. The attempt of Sellards is in the direction of a more rational application of the principles discussed above. It is regarded as advisable to give a mildly alkaline solution (0.5 per cent. of sodium bicarbonate) early in the course of the disease, before an outspoken uremia has developed, and to increase the quantities if symptoms of uremia appear. As much as 100 grams (3½ ounces) of bicarbonate may be required in the course of two or three days. Experience in two epidemics of cholera speaks favorably for this mode of treatment.

THE TREATMENT OF INFECTIOUS DISEASES
WITH THE SPECIFIC SERUM OF
CONVALESCENTS

Shortly after the discovery of diphtheria antitoxin, numerous efforts were made to find antitoxins for various other infectious diseases, as it was believed that the principle illustrated by the treatment of diphtheria with antitoxic serum was one of general application. It soon was learned, however, that only in diphtheria and tetanus is recovery dependent on the direct neutralization of definite toxins by specific antitoxins. In the course of this search for specific methods of treatment it was proposed to use the serum of convalescents from attacks of certain familiar infectious diseases. Thus, Weissbecker¹ tried the subcutaneous injection of 10 c.c. of the serum of convalescents in measles, scarlet fever, typhoid fever and pneumonia, reporting good effects especially in the latter disease. He reasoned that recovery from these diseases is the

1. Sellards, A. W.: The Relationship of the Renal Lesions of Asiatic Cholera to the Ordinary Nephritides, with Especial Reference to Acidosis, *Am. Jour. Trop. Dis.*, 1914, ii, 104.

2. Sellards, A. W.: *Philippine Jour. Sc.*, B., 1910, v, 363.

3. Fischer, M. H.: *Edema and Nephritis*, New York, John Wiley & Sons, 1915, p. 640.

1. Weissbecker: *Ztschr. f. klin. Med.*, 1896, xxx, 312; 1897, xxxii, 188.

result of a natural immunization, and that consequently the blood of convalescents may be assumed to contain specific antitoxins or, more broadly, specific antibodies.

Huber and Blumenthal² were impressed favorably with the effects of specific convalescent serum in scarlet fever, measles and pneumonia, and von Leyden³ described sixteen cases of scarlet fever treated in this way, in three of which crisis occurred immediately after the injection of the serum, the quantity of which varied from 10 to 20 c.c. In one case the development of the rash was arrested. Von Leyden makes no mention of the exact time after the attack when he obtained the serum. This report was followed during the next year by a few further reports mostly with "good results"; but now the method fell into abeyance until 1912, when Reiss and Jungmann⁴ described their results in cases of scarlatina gravissima.

Reiss and Jungmann used serum obtained about the end of the third week after the onset, injecting from 50 to 100 c.c. intravenously. Twelve cases are described, all injected not later than the fourth day, and in all there followed a rapid improvement as by crisis within fourteen hours or so, which was in marked contrast to the course in cases not so treated, in which recovery by crisis occurred only occasionally. The serum did not seem to have any effect on secondary infection. In some cases the rash faded away immediately after injection of the serum. Koch⁵ reports on twenty-eight additional cases, treated with convalescent serum in the same hospital. Only one death occurred, and in that case the patient was moribund when admitted. Koch emphasizes that in this series of extremely severe, toxic scarlatina, hemorrhagic nephritis did not develop, that the improvement in many cases was as striking as that seen in diphtheria after injection of antitoxic serum, and that the serum must be injected intravenously in quantities not less than from 50 to 100 c.c. even in small children, and not later than the third day. Koch also reports good effects in twelve cases injected intravenously with normal human serum, and Rowe⁶ was unable to convince himself that there were any different effects in cases treated with normal and with convalescent serum. Koch, however, states that the superiority of convalescent serum is seen clearly in the very severely toxic cases with coma and cool and bluish skin. In order to secure the best effects, the mixed serum from several convalescents is used after it has been stored for some time. The serum should be obtained about twenty-one days or thereabouts after the onset. The most rigid tests must be used to determine freedom from tuberculosis and syphilis on the part of the donors, and the sterility of the serum established by cultural methods.

In hospitals for scarlet fever there need be no difficulty in having on hand suitable serum from convalescents. Koch suggests that such serum be reserved for the gravest cases, and that otherwise normal serum be used. As yet no explanation is offered of the alleged benefits of normal serum. Schultz⁷ believes he has shown that the effect does not depend on lipoids that are extracted in the cold.

Netter⁸ recently has used the serum of persons who had had poliomyelitis in the treatment of the acute attack, giving the serum intraspinally in small doses repeated daily. He says the results were good.

If we ask what we can expect from this method of specific treatment, the answer must be that only by continued critical observations can its value be determined. Certainly the results described in the severe toxic forms of scarlet fever fully warrant extended trial under suitable conditions, and that would mean in hospitals where convalescent serum can be kept on hand in such mixtures as are most likely to insure some specific antiscarlatinal virtues. Where such serum is not obtainable, there certainly is no reason why sterile, nontoxic, normal human serum may not be tried in severe and desperate cases.

THE SIGNIFICANCE OF THE PUPILLARY REACTION TO EPINEPHRIN

When a solution of epinephrin is instilled into the conjunctival sac, no noteworthy effect is produced on the pupil of the eye. After complete excision of a superior cervical ganglion of the sympathetic nervous system, however, similar introduction of epinephrin causes a dilatation of the pupil on the operated side. This was demonstrated by Meltzer¹ at the Rockefeller Institute for Medical Research in 1904. The degree of pupillary dilatation depends on the quantity instilled. It can easily be made maximal and may last for some time. The myotic effect of physostigmin is also overcome by instillation of epinephrin.

The dilatation of the pupil is accomplished by the contraction of a muscle, the dilator pupillae, just as the constriction of the pupil is accomplished by the contraction of the constrictor pupillae. These muscles are exact antagonists. When one is contracted the other is relaxed; and it seems to be an established conclusion that the relaxation is an active one, so that the changes noted at any time can take place promptly, rather than gradually. According to Meltzer's view, the normal effect of the superior cervical ganglion is

7. Schultz: *Deutsch. Arch. f. klin. Med.*, 1914, cxv, 627.

8. Netter: *Bull. de l'Acad. d. méd.*, 1914, lxxviii, 523.

2. Huber and Blumenthal: *Berl. klin. Wchnschr.*, 1897, xxxiv, 671.
3. Von Leyden: *Deutsch. Arch. f. klin. Med.*, 1902, lxxiii, 616.

4. Reiss and Jungmann: *Deutsch. Arch. f. klin. Med.*, 1912, cxii, 70.

5. Koch: *München. med. Wchnschr.*, 1913, lx, 2611; *Deutsch. med. Wchnschr.*, 1915, xli, 372.

6. Rowe: *Med. Klin.*, 1913, ix, 1978.

1. Meltzer, S. J., and Auer, Clara Meltzer: *Studies on the "Paradoxical" Pupil-Dilatation caused by Adrenalin, I, The Effect of Subcutaneous Injections and Instillations of Adrenalin upon the Pupils of Rabbits, Am. Jour. Physiol.*, 1904, xi, 28; II, On the Influence of Subcutaneous Injections of Adrenalin upon the Eyes of Cats after Removal of the Superior Cervical Ganglion, *ibid.*, p. 37; III, A Discussion of the Nature of the Paradoxical Pupil-Dilatation Caused by Adrenalin, *ibid.*, p. 40.

to inhibit the dilator and to stimulate the constrictor, and the effect of suprarenal extract is just the reverse of it, that is, to excite the dilator and inhibit the constrictor. Epinephrin can, therefore, show its proper effect only after the antagonistic activity of the ganglion is removed.

We have reviewed these physiologic investigations in some detail in order to afford an interpretation of the observation made by Loewi,² in 1908, that instillations of epinephrin produce dilatation of the pupils in animals after excision of the pancreas also. Loewi based an explanation of this mydriasis on the facts already cited. He assumed that the pancreas exerts an inhibitory influence on the sympathetic system, so that the removal of the gland would bring about a situation comparable to that noted after extirpation of the cervical ganglion. After either procedure the introduction of epinephrin into the conjunctival sac can induce mydriasis. Loewi attempted a practical application of these phenomena by examining the pupillary responses of persons suffering from various diseases, particularly diabetes. The discovery of positive mydriatic reactions after epinephrin instillations in several of these cases suggested this as an indicator of pancreatic involvement. The reaction has accordingly been proposed as a test for pancreatic disease, and particularly diabetes of pancreatic origin.

It is now reported by Loewy and Rosenberg³ that the mydriatic reaction of Loewi can be brought about in any condition in which there is an excess of sugar circulating in the blood. Not only can the characteristic pupillary response to epinephrin be produced whenever hyperglycemia results in animals after intravenous infusions or even liberal ingestion of glucose, but it also ensues when the sugar level of the blood is raised by certain drugs. The Loewi phenomenon, therefore, cannot be correlated solely with the pancreas, except on the improbable assumption that this gland becomes involved in every condition of hyperglycemia. The reaction can no longer be regarded as a characteristic test of pancreatic function.

In the hypoglycemia produced by phlorizin, the mydriatic response to epinephrin cannot be obtained, despite the prominence of the resulting glycosuria. Perhaps we may now assume that an excess of sugar in the blood directly affects the sympathetic inhibitory factors. It remains to be determined by clinical studies whether the pupillary reaction can be used to distinguish between true diabetes with an attendant hyperglycemia and the glycosurias of renal origin in which the level of the blood sugar is not raised. The introduction of satisfactory clinical methods of blood analysis has to some degree rendered other procedures superfluous.

PELLAGRA IN BESSARABIA

In spite of the rather severe criticism to which his work was subjected at the last meeting of the Italian Pellagrologic Congress, Tizzoni apparently has modified but little, if at all, his idea that pellagra is an infectious disease due to the micro-organism which he claims to have isolated from those sick of the disease, and which he has named *Streptobacillus pellagrae* (T). Recently¹ he has reported work done by him during the past year. In addition to his bacteriologic studies, observations on pellagra were made in Bessarabia, Russia. These observations are incomplete, the war having interrupted his work; but in spite of their fragmentary character, they possess interest.

Briefly, he states that pellagra is very prevalent in Bessarabia, and that the disease shows there an intensity unknown in Italy now for many years. In one village of 3,000 population there were over thirty cases. The disease is much more prevalent in northern and central than in southern Bessarabia, but he could see no reason for this geographic restriction. Cases were not uncommon with diminished urinary secretion, bladder irritability, albuminuria and edema of the face. The disease is observed there rather frequently in infancy, sucklings at six to eight months being often stricken.

The hygienic conditions obtaining among the people are bad, the water supply is suspicious, and their food is monotonous in character, none too abundant in quantity, and of poor quality—mainly maize and that of poor grade. Their diet in large part consists of bread made of maize and wheat flour mixed, polenta, and a kind of soup or broth made from maize.

These data from Bessarabia broadly coincide with observations recorded for other places where pellagra prevails, but we also find here, as elsewhere in dealing with this disease, one or two particulars at variance with recorded observations. The prevalence of pellagra in Bessarabia, if we may judge by the one small group of people mentioned by Tizzoni, is less than that reported for some places in the United States. Even in Italy, where the disease seems to have been on the decline for some years now, there are doubtless some places which still exceed this rate. The highest recorded prevalence of pellagra in the United States is perhaps found among the mill village population of South Carolina, approximately 150 per 10,000 of population.² The intensity of the disease in Bessarabia would indicate, as Tizzoni appreciates, that its advent there is perhaps more or less recent. The first appearance of pellagra in a population seems often attended by severe manifestations, to be later

2. Loewi, O.: Ueber eine neue Funktion des Pankreas, Arch. exper. Path. u. Pharmacol., 1908, lix, 83.

3. Loewy, A., and Rosenberg, S.: Beitrag zur Entstehungsweise des O. Loewischen Pupillenphänomens, Biochem. Ztschr., 1914, lxxvii, 323.

1. Tizzoni, G.: Relazione sulla campagna pellagologica per l'anno 1914, Bologna, 1915. Tizzoni, G., and De Angelis, G.: Significato ed importanza del polimorfismo dello streptobacillus pellagrae (T), Reale Accad. dei Lincei, Series 5, Vol. X, Fasc. XV, 1914.

2. Thompson-McFadden Pellagra Commission, First Progress Report, New York, 1914; Second Progress Report, New York, 1915.

followed by a much milder type of the disease. In a general way, this is the history of pellagra in most places involved. The most obvious interpretation of such a phenomenon would be sought in a kind of acquired racial immunity, but this is not supported by the very evident fact that individual pellagrins apparently develop little immunity to the disease.

The restricted geographic distribution of pellagra in Bessarabia is quite in accord with what has been observed elsewhere. For example, southern and insular Italy have suffered from the disease practically not at all, and in the United States it is very largely confined to the South.

Cases of pellagra with renal involvement are not rare, but such marked evidences of renal inadequacy as Tizzoni reports are not common. The observation of pellagra in infants from 6 to 8 months is a striking thing. Pellagra in infants is by no means unknown, but it is certainly far from common. The frequency of this occurrence in Bessarabia is an epidemiologic observation of importance.

Bad hygienic conditions, and especially poor food have always accompanied pellagra. What factors they play in its etiology remain to be determined.

Much of Tizzoni's work during the year has been devoted to cultural studies of his micro-organism, and he discusses with considerable fulness its rather remarkable polymorphism, the micro-organism assuming numerous forms under changed biologic conditions. Indeed, he thinks he might better call it the pleomorphic streptobacillus of pellagra.

Tizzoni is a pronounced zeist in his views, holding that the infection in pellagra is derived from corn. It is interesting to note, therefore, that he admits in this paper the existence of the disease in persons who do not eat this grain. It is also of interest to note the gravity with which he, and indeed many other Italian scientists, discuss the question of pseudo-pellagra. This conception is largely based on the history of the case with regard to the consumption of maize, and has received scant sympathy among American students.

Tizzoni has studied pellagra for several years, and has written voluminously on his views. His observations remain, however, practically unconfirmed, and, whatever be the individual opinion as to the cause of pellagra, his presentation of the matter is not likely to meet approval in this country. Leaving aside the lack of any confirmation of his work and the very remarkable pleomorphism of the micro-organism he describes, his writings display an effort to create harmony between laboratory results and clinical and epidemiologic facts—harmony too perfect, too beautiful and too soul-satisfying. Such beautiful harmony is rarely realized in actual conditions, and its presence would, in the minds of the wary, be far more likely to produce skepticism than conviction.

One might safely venture the statement that, up to the present, Tizzoni's work has done very little toward giving material help in the solution of the etiology of pellagra. In the present state of our knowledge regarding this perplexing problem, however, we cannot well afford to abandon a safe judicial attitude, and in conformity therewith we cannot entirely neglect Tizzoni's work, however unpromising it may appear.

FACTORS DETERMINING PHAGOCYTOSIS

The mechanism of phagocytosis, that is, the engulfing of bacteria, cells, tissue products, etc., by leukocytes, is usually interpreted in terms of chemotaxis. Substances present in the environment are believed to exercise a sort of directive influence, either attractive or repellant, on the phagocytic cells. Since the stimuli most likely to reach the leukocytes from a foreign agent and bring about an alteration in their movement and performance are chemical in nature, the importance of "chemotaxis" in phagocytosis and leukocytosis is everywhere emphasized.

This familiar attempt at an explanation of the behavior of leukocytes cannot readily be applied to the undeniable phagocytosis of insoluble, chemically inert particles like coal dust or carmin granules. Leukocytes have frequently been seen to enclose these with the same avidity that they engulf bacteria. It has been surmised, without further evidence, that the foreign particles in some way acquire a coating from some component of the solution in which they are suspended, and thus acquire chemotactic properties.

In his early researches on phagocytosis, Metchnikoff interpreted the phagocyte-enhancing power of the medium as a stimulation of the leukocytes. Wright demonstrated that the essential regulating influence affecting phagocytosis rests on the action of the serum on the bacteria, when they are the factors involved. Hektoen and Ruediger¹ have furnished classic evidences of this. They showed that human leukocytes in the presence of normal defibrinated blood will take up bacteria energetically. When the leukocytes, however, are washed free of blood and added to untreated bacteria, phagocytosis is practically nil. If such washed leukocytes are mixed with bacteria that have been previously in contact with serum, active phagocytosis will take place. In other words, the bacteria have been altered by the serum in such a way that they are now amenable to phagocytosis by washed leukocytes. The serum then acts on the bacteria and not on the leukocytes.

These now familiar observations serve to remind us that the conceptions of the mechanism of phagocytosis have been altered with the progress of time. Much remains to be explained, particularly where the

1. Hektoen and Ruediger: *Jour. Infect. Dis.*, 1905, ii, 132.

chemical theories fail. Kite and Wherry² have looked in another direction for an answer. They suggest that the amount of adhesion in a mixture of leukocytes, bacteria and unheated serum must depend on the relative stickiness of the bacteria and the leukocytes. In harmony with observations on the adhesive character of the surface of certain amebas, it is now shown that agitation of suitable mixtures of leukocytes and bacteria causes the latter to stick to the blood cells and become rolled into their substance. Experiments with a minimum amount of agitation show that here "phagocytosis" is reduced.

The rôle of the serum, which is so important in all modern chemotactic considerations of phagocytosis, is interpreted in the following way by Kite and Wherry: Foreign particles, such as carbon, are taken up by leukocytes because the latter have sticky surfaces. Bodies similar to many bacteria stick to leukocytes best in the presence of unheated serum because they adsorb something from this medium which makes them more sticky; or they are in some way rendered more sticky, and hence the chances of their adhering to the surfaces of leukocytes are increased. There is evidence that, even in the absence of serum, certain leukocytes are sticky enough to allow some bacteria to adhere. The casual reader will possibly conclude, however, that there is quite as much uncertainty in the physics of stickiness as in the chemistry of chemotaxis.

Current Comment

THE FLY CAMPAIGN IN DETROIT

The injunction to "swat the fly" has become general all over the country. To this in the last few years has been added the additional injunction to swat him early. Spring fly campaigns are now a feature of the public health work in many of our cities. An especially effective popular movement in this direction is now being carried on in Detroit, under the direction of the local board of health. Taking advantage of the human fondness for rivalry and competition, the boys of the different wards and sections of the city are being organized under one chief junior sanitary inspector and twenty-four junior sanitary inspectors. Under each inspector are from five to seven captains. Under each captain are from two to seven lieutenants. This furnishes a force of twenty-four inspectors, 125 captains and 600 lieutenants. Each lieutenant has as many patrolmen as he can enlist. In all, over 1,000 boys are enrolled in this movement. Each of these young health workers is provided with a suitable and imposing badge. Each lieutenant is provided with a map of his district which he returns, showing all manure piles, uncovered garbage receptacles, breeding places for flies and other insanitary conditions in his district. Restaurants,

meat markets, milk depots, bakeries, etc., are visited at intervals, and a report is made on all the flies which can be counted in a certain number of minutes. The reports are all tabulated on a large map at headquarters, so that a comparison is always possible between different districts. The conduct of the work and the discipline of the junior force are as far as possible left in the hands of the boys themselves. This movement is an interesting illustration of the growing tendency, on the part of health officers to utilize the public and to work along recognized psychologic lines. Probably every boy of from 12 to 16 desires above all things to be a policeman and to wear a badge. If he cannot fight crooks, the next best thing is fighting flies. If the enthusiasm engendered by several generations of "Old Cap. Collier" dime novels can be utilized in fighting flies or, better still, in fighting the filthy conditions under which flies breed, the public health propaganda will have gained a valuable ally.

A COUNTRY EDITOR ON SCHOOL INSPECTION

Manatee, Florida, is a town of less than 1,000 inhabitants, but evidently it has the spirit and progressiveness of some much larger communities. Discussing medical school inspection, the local newspaper, the *Manatee Record*, recently said editorially: "Medical inspection is a business proposition. In a town with 125 children, it is claimed there will be an annual saving of \$2,265 if by thorough medical inspection the curable physical defects that handicap school-children could be remedied." The editor of the *Record* has grasped the essential feature and the advantages of medical school inspection. He sees no reason why modern scientific knowledge should not be utilized in administering the public schools in the most economical and efficient manner possible. Why spend the money in a well-nigh hopeless endeavor to teach children with defective eyes and ears, when at a slight expense each child could be put in the best possible condition to receive and profit by instruction? The question is a simple one. Do the taxpayers of a community wish to put their children in good physical condition, in the same way in which they would improve their school grounds, building and equipment, or do they prefer to spend their money on school equipment and leave the child defective and unable to profit by the instruction offered? The editor of the *Manatee Record* is apparently not alarmed by any specious cries of invasion of "personal liberty." In fact, it is difficult to see how the personal liberty of any one is invaded when a child's defective eyes are put into condition whereby he can see the blackboard or read his textbook without discomfort. Children's diseases also are rightly regarded by the editor of the *Record* as wasteful and unnecessary. "More and more the people of the country are realizing that it is not necessary for children to go through a course of measles, whooping cough, mumps and scarlatina. . . . Medical inspection and prompt and firm handling of parents as well as pupils will enable the majority of youngsters to enter and leave the gram-

2. Kite, G. L., and Wherry, W. B.: The Mechanism of Phagocytosis, *Jour. Infect. Dis.*, 1915, xvi, 109.

mar schools without having had to be a nuisance to themselves and their parents and teachers by various spells of preventable diseases." An exchange whereby different educational institutions trade professors temporarily has become a fixed institution in the educational world. What a valuable thing it would be if some of our larger cities could arrange to trade editors with Manatee for a few years. This would be a misfortune for Manatee, but it might be a godsend for some other communities.

THE MILK SUPPLY AND FOOT AND MOUTH DISEASE

It was to be expected that the extensive and serious outbreak of foot and mouth disease, again discovered in this country last October and now apparently well under control, should raise questions respecting its bearing on human health. Although only secondarily and casually a malady of man, the foot and mouth disease seems to reach him in occasional cases in connection with every epizootic. Some authorities believe that its incidence in man is much greater than the statistics indicate, as the milder cases are not seen by physicians. Reports concerning the appearance of the characteristic vesicular eruptions in the mouths of children were received during the 1914 outbreak. Although infection can doubtless occur by the contact of saliva or contents of the vesicles of infected cattle with abrasions of the skin, the commonly assigned mode of transmission to man is through unboiled milk, butter, cheese or other similar dairy products. In the recent outbreak the history of the cases is said to incriminate the milk supply. There is abundant evidence that the infectious agent can be destroyed with comparative ease by heat or the usual germicides. Physicians and health officials will be interested to learn, on the authority of a government publication,¹ that milk pasteurized at a temperature of 60 C. (140 F.) for twenty minutes is safe so far as infection by foot and mouth disease is concerned.

1. Mohler, J. R.: Foot and Mouth Disease, Farmers' Bull. 666, U. S. Dept. Agric., April 22, 1915.

Fatal Poisoning from External Application of Resorcin.—C. Boeck of Christiania makes extensive use of mucilaginous mixtures containing resorcin in the treatment of lupus. He had never had any mishaps with it, even in a strength of 33 per cent. and more, until recently when he applied a 25 per cent. resorcin mixture to the greater part of the calf of a boy of 16. The lad had had lupus since the age of 3 and it had extended until the entire left leg and most of the left arm were involved. Half an hour after the application to the leg, made where the epithelium was intact throughout, the lad became restless and screamed with pain but soon quieted down. An hour and a half after the paste had been applied, he was found unconscious and cyanotic. Convulsions followed and the boy died nine hours after the application, without regaining consciousness. The formula for the paste was 15 parts resorcin; 15 parts talcum, and 30 parts gelatin base. Boeck has found three cases on record of similar toxic action from resorcin, but the two adults recovered. An infant, 11 days old, who had been treated with a 3 per cent. resorcinated petrolatum for pemphigus, died with symptoms of acute poisoning. The syndrome in all was the same as in Boeck's case. His report appears in the *Dermatologische Wochenschrift*, 1915, lx, 449.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

State Board Election.—At the annual meeting of the State Board of Health, held in Little Rock, May 7, Dr. Andrew L. Buckner, Dermott, was elected president and Dr. Charles W. Garrison, Little Rock, secretary.

Personal.—Dr. William S. Stewart, Pine Bluff, secretary of the State Board of Medical Examiners, is reported to be critically ill with disease of the kidney at St. Joseph's Infirmary, Hot Springs.—Dr. John C. Davis, Harrisburg, has succeeded Dr. George B. Fletcher, Little Rock, as a member of the staff of the State Hospital for Nervous Diseases, Little Rock.

State Board Changes.—The governor has appointed Drs. Wells F. Smith, Little Rock; and Julius A. Bogart, Forrest City, members of the State Board of Medical Examiners, and has reappointed Dr. F. T. Isbell, Horatio, to the board. The governor has appointed Dr. St. Cloud Cooper, Fort Smith, a member of the State Board of Nurse Examiners.—J. B. Pond, Little Rock, has retired after twenty years of active service as president of the State Board of Pharmacists.

State Society Meeting.—The thirty-ninth annual meeting of the Arkansas Medical Society was held in Little Rock May 4 to 6, under the presidency of Dr. St. Cloud Cooper, Fort Smith. Dr. James C. Walles, Arkadelphia, was elected president; Dr. Clinton P. Meriwether, Little Rock, was reelected secretary, and Dr. William R. Bathurst, Little Rock, was reelected treasurer and editor of the *Journal of the Arkansas Medical Society*. Texarkana was selected as the place of meeting for 1916.

CALIFORNIA

Health Statistician Resigns.—Lewis Lee Loyle, deputy statistician of the State Board of Health, has resigned to take effect August 1.

Personal.—Dr. Stella M. Clarke, Los Angeles, has recovered after a long illness, and is on duty as house surgeon in the Hospital of the Good Samaritan, Los Angeles.—Dr. Shadworth O. Beasley, San Francisco, has been appointed assistant surgeon to the American Red Cross and has been assigned to duty in Belgrade, Serbia. He sailed from New York, May 1.—Dr. Ferdinand Stabel, Redding, who was attacked by a rabid dog, April 29, and started taking the Pasteur treatment in San Francisco two weeks later, is reported to be suffering from paralysis.—Dr. Jacob H. Parsegan, San Francisco, has returned after a visit of several months to Armenia.

Irregular Practitioners Convicted.—T. J. Pierce, San Francisco, is said to have plead guilty in the United States court to the charge of using the mails to advertise prohibited articles. He had conducted what is known as the Ramond Remedy Company in San Francisco. He was under investigation by the Board of Medical Examiners of the State of California and was convicted by that board, March 18, 1914. May 12, he was sentenced to imprisonment for six months in the county jail.—A jury in the United States court, San Francisco, is said to have brought in a verdict of guilty, May 7, in the case of Dr. Homer C. Edwards and Donald Harris, a student of medicine, on three counts of the joint indictment for fraudulent use of the mails. The jury recommended clemency in the case of Harris.

Appointments in Stanford Medical School.—The following appointments and promotions in the Stanford University Medical School are announced for the year 1915-1916: Dr. Charles Hervey Bailey, New York City, assistant professor of pathology; Dr. Henry Augustus Stephenson, Baltimore, assistant professor of obstetrics and gynecology; Dr. George de Forest Barnett, San Francisco, instructor in medicine; Dr. Jean Redman Oliver, San Francisco, instructor in pathology; Dr. George D. Lyman, San Francisco, clinical instructor in pediatrics; Dr. Shadworth Oldham Beasley, San Francisco, clinical instructor in obstetrics and gynecology; and Dr. Hans Barkan, San Francisco, clinical instructor in

surgery, assigned to ophthalmology; Dr. Howard Y. McNaught, San Francisco, clinical instructor in surgery, assigned to otology, rhinology and laryngology.

First-Aid Demonstration at Exposition.—The third annual joint field meet of the United States Bureau of Mines, the American Mine Safety Association and the California Metal Producers' Association will be held at the Panama-Pacific Exposition, September 23 and 24. The joint meet either precedes or follows the annual meetings of a number of institutions allied to the mining interests, such as the American Institute of Mining Engineers, September 17 and 18; the International Engineering Congress, September 20 to 25; the American Mining Congress, September 20 to 22; the California State Mine Rescue and First Aid Contest, September 22, and the National Safety Conference, under the joint auspices of the National Safety Council and the California Industrial Accidents Commission, September 27 to 30. On September 23, on the athletic field of the exposition grounds, there will be a mine-rescue demonstration at 10 o'clock; at 2 o'clock in the afternoon there will be a first-aid demonstration, and at 4 o'clock a demonstration of the explosibility of coal dust. On September 24, at 10 o'clock, will be held a first-aid contest for interstate supremacy; at 2 in the afternoon a rescue contest for interstate supremacy; at 4 in the afternoon a rock-drilling contest, and at 8 o'clock in the evening there will be an award of prizes and souvenirs at the Convention Hall. Many well-known mining men and physicians have been assigned to the various committees to have charge of and to judge the field contests.

CONNECTICUT

Personal.—Dr. J. Francis Calef, Middletown, has been elected president of the New England Confederation of Examining Boards.—Frank J. Born, for nine years medical examiner for the Yale University Gymnasium and Athletic Association, has resigned to become dean of the normal school of physical education, Battle Creek, Mich.

State Society Election.—The one hundred and twenty-third annual meeting of the Connecticut State Medical Society was held in Hartford, May 19 and 20, and the following officers were elected: president, Dr. Max Mailhouse, New Haven; vice presidents, Drs. Charles B. Graves, New London, and Cushman A. Sears, New London; secretary, Dr. Marvin M. Scarbrough, New Haven (reelected); and treasurer, Dr. Joseph H. Townsend, New Haven (reelected). On the evening of May 20, the memorial dinner for the late Dr. Oliver C. Smith, Hartford, president of the society, was held at the Hartford Club. Dr. Edward T. Bradstreet, Meriden, made the memorial address.

FLORIDA

Sanatoriums Opened.—The new sanatorium, Jacksonville, was formally opened, May 18.—The new Sunnybrook Sanatorium on Miami Avenue, Miami, was opened for inspection, May 17.

State Association Meeting.—The Florida State Medical Association held its forty-second annual meeting in De Land, May 12 to 14, under the presidency of Dr. F. Clifton Moor, Tallahassee, and the following officers were elected: president, Dr. Robert H. McGinnis, Jacksonville; vice presidents, Drs. William R. Stephens, De Land; Mary Freeman, Perrine, and Joseph H. Coffee, Fort Meade. Arcadia was selected as the next place of meeting.

Health Bills Passed.—The State Board of Health bills, Nos. 135, 136 and 171, which had already been passed by the house, were adopted by the senate, May 7. Of these bills, the first provides for screens on service closets, fruit and vegetables exposed for sale, meats and other eatables. The second requires all school buildings to be provided with adequate facilities by water carriage of service closets, properly screened and fly proofed. The last bill provides for the State Board of Health Exhibit Train and places this exhibit at the disposal of the state for educational purposes.

Personal.—The garage of Dr. Robert L. Bryans, Pensacola, containing two automobiles, was destroyed by fire, May 16.—A banquet was given by the Hillsboro County Medical Society at Tampa, April 22, in honor of Dr. Louis A. Bize, Tampa, who has retired from the practice of medicine to become president of the Citizens' Bank and Trust Company. Dr. Thomas Truelsen, Jr., acted as toastmaster.—A touring car containing Dr. Otis H. Johnson and his wife and two children, Jacksonville, plunged overboard from a ferry boat, May 9, and Dr. Johnson was the only one of the family saved.

ILLINOIS

Montgomery in Springfield.—Dr. Edward E. Montgomery, Philadelphia, was one of the guests of honor at the meeting of the Illinois State Medical Society and held a clinic in St. John's Hospital, Springfield, May 18.

Personal.—Dr. David S. Ray, mayor of Cuba, started May 19 on a trip to the Canal Zone.—Dr. James L. Reat, Tuscola, was thrown from his buggy, May 13, and painfully injured.—Dr. Jesse P. Simpson, Palmer, was painfully injured when an axle of his automobile broke near Palmer, May 13, overturning the car.

State Pays Claims for Stock.—The senate, on May 7, passed the bill appropriating about \$1,000,000 to cover the state's half of the loss of cattle due to the foot and mouth epidemic. The bill was signed by the governor, May 12, and vouchers are now being mailed to each owner of cattle killed on account of the prevalence of the disease.

Hospital News.—The new amusement hall erected on the grounds of the Peoria State Hospital was formally dedicated, May 20. The new building is to be used for the recreation of patients, moving-picture shows, dances, etc.—Dr. Joseph B. Holmes, Macomb, announces that he will enlarge the Annex Hospital, will change its name to the Holmes Hospital and will devote his entire attention to the institution.—Plans are being prepared for the new building for the Maplewood Sanitarium, Jacksonville, to be erected this summer by Dr. Frank P. Norbury and Dr. Albert H. Dollear. The new building will accommodate fifty patients.

State Board Indorses Criticism.—In reply to the criticism made by the Federal authorities of the health laws of the state, the State Board of Health has issued a statement that in practically every detail it agrees with the criticism; that the report supports and corroborates the statement made by the board to the governor and its recommendation to the state efficiency and economy commission in September, 1914. The board agrees that reorganization is necessary; that medical registration functions be divorced from purely public health work and that all state agencies having to do with public health be brought together in one department.

Chicago

Fly Week.—By authorization of the mayor, the week of June 7 to 12 is proclaimed as Fly Week, and during this time every means will be used for the abolition of the fly pest. A special poster calling attention to the crusade has been prepared.

Prevention of Rabies.—The Chicago Medical Society, at its meeting May 26, devoted its entire meeting to a discussion of hydrophobia. The protective measures which the society demands are, that all homeless or ownerless dogs be destroyed; that each dog owner be compelled to register his animal, the penalty being death of the animal; that the city start a registration fee sufficient to pay for veterinary examination before issue of license, and that a year-round muzzling ordinance be passed and enforced.

INDIANA

The New Department of Tuberculosis.—Dr. John N. Hurty, Indianapolis, secretary of the Indiana State Board of Health, announced the appointment of Mr. Walter D. Thurber as deputy state health commissioner in charge of the new department of tuberculosis created by the last legislature. Mr. Thurber is now serving his third year as executive secretary of the Indiana Society for the Study and Prevention of Tuberculosis.

Personal.—Dr. John N. Taylor and wife, Crawfordsville, were seriously injured when their automobile crashed into a telephone pole near Warsaw.—Dr. John N. Hurty, health officer of Indiana, has been elected president of the Indianapolis Literary Club.—Dr. Clint C. Sourwine, Brazil, underwent a third operation for septicemia, May 15.—Dr. Boston H. B. Grayston, Huntington, was operated on for appendicitis at the Huntington Hospital, May 12.—Dr. William T. Ferguson, Fort Wayne, suffered amputation of his left leg below the knee on account of gangrene, May 12.—Dr. Daniel S. Quickel, Anderson, while chopping wood, was struck in the eye by a piece of wood. The injury is said to be serious.—Dr. Edward P. Busse, Madison, formerly secretary of the Southwestern Indiana Insane Hospital, Madison, has opened a private hospital for the treatment of mental diseases at his old home in Evansville.—Dr. William A. Hollis, Hartford City, who has been ill with colon bacillus infection, is reported to be improving.

LOUISIANA

Freight Inspection Withdrawn.—Surg. Richard H. Creel, U. S. P. H. S., on duty at New Orleans, has ordered the discontinuance of the inspection of outgoing freight cars, which was inaugurated last summer during the active campaign against the bubonic plague.

Personal.—Dr. William T. O'Reilly has been elected president, and Dr. Sara T. Mayo, secretary, of the Sickles Board Fund.—The Italians of New Orleans gave a banquet in honor of Dr. Joseph A. Danna, May 8, in recognition of the work he has done in behalf of the poor of the city. At the banquet Chevalier Carlo di Papini, Italian vice consul, presented Dr. Danna with the decoration of Knight of the Crown of Italy.

Promotion of Mental Hygiene.—The first steps toward the organization of the Louisiana Society for the Promotion of Mental Hygiene were taken May 6, at a public conference in New Orleans, at which Clifford W. Beers explained the organization in other cities. Charles F. Fletchinger was elected temporary president and Dr. Maud Loebner, New Orleans, temporary secretary. The new organization is to be known as the Louisiana Society for Mental Hygiene.

Parish Society Condemns Nostrums.—The Vermilion Parish Medical Society, at its meeting May 20, adopted resolutions setting forth the evil of "patent medicines"; that these nostrums are pernicious and baneful; that benefits accruing from their sale are derived daily from the poor and unfortunate; that the society is in full sympathy with the efforts of the government in its attempts to expose the deception practiced in the manufacture, advertising and sale of the so-called remedies, such as wine of cardui, swamp root, syrup of figs, mothers' friend, vitalitas and the like, and is in hearty sympathy with the activities of the State Board of Health of Louisiana in its attack on these preparations and with its regulations requiring the printing of contents on the label; approving the campaign now in progress and pledging the earnest and active support of the society to their efforts toward the control and eventually the elimination of this evil.

MARYLAND

Psychopathic Building Opening.—The John Hubner Psychopathic Building at the Springfield State Hospital, Sykesville, will be formally opened on June 9. The speakers will be Governor Goldsborough and Drs. E. E. Southard of Boston, Hugh H. Young, Baltimore, president of the State Lunacy Commission, Henry M. Hurd and Edward N. Brush, Towson.

Polyglot Health Rules.—The health commissioner of Baltimore has had a pamphlet printed in English, Bohemian, Italian and Yiddish, of which ten thousand copies are to be distributed. This pamphlet teaches how to destroy flies and mosquitoes and tells tenants how to keep their premises in a clean and sanitary condition. The Poles of Baltimore have asked the commissioner of health to have this pamphlet translated into Polish.

Personal.—Dr. Arthur M. Shipley has been appointed acting dean of the medical school of the University of Maryland to fill the vacancy due to the death of Dr. R. Dorsey Coale.—Dr. Thomas S. Cullen, Baltimore, was operated on by Dr. John M. T. Finney, at Johns Hopkins Hospital, recently, for the removal of gallstones.—Dr. Alfred Whitehead, Baltimore, is under treatment at Johns Hopkins Hospital.—Dr. Richard H. Smith has been elected vice president of the board of directors of the Havre De Grace Hospital.—Assistant Surgeon-General Henry R. Carter, U. S. P. H. S., in charge of the United States Marine Hospital, Baltimore, who was operated on a short time ago, is reported to be convalescent.

Health Association for Colored People Organized.—The committee on public instruction of the Medical and Chirurgical Faculty of Maryland held a conference in Cambridge, May 17 to 19, under the auspices of the Dorchester County Sanitation League, and health officials in the campaign against the fly and mosquito and also to organize a colored county health association.—A colored health association which was recently organized in Annapolis, held its first public meeting, May 27, at which Dr. John S. Fulton, secretary of the State Board of Health; Mason Hawkins, principal of the colored high school of Baltimore, and president of the state colored association, Dr. Henry S. McCard, Baltimore; and Dr. Samuel J. Fort, secretary of the committee on public instruction, were the chief speakers. The subject for the evening was "The Relation of Tuberculosis and Typhoid Fever to the Colored Race."

MASSACHUSETTS

Industrial Accident Board.—The membership of the advisory committee of the Massachusetts Industrial Accident Board is as follows: Drs. Frederic J. Cotton, Boston; Francis W. Anthony, Haverhill; Samuel E. Fletcher, Chicopee; Samuel H. Calderwood, Roxbury; Francis D. Donoghue, Boston; Frank E. Allard, Boston; William H. Ruddick, Boston, and Walter P. Bowers, Clinton. Dr. Francis D. Donoghue has been selected by the board as its medical adviser.

Hospital Notes.—The establishment of a dispensary for tuberculosis has been delegated by the department of public health and charities at Lawrence, to the Antituberculosis League, Lawrence, and the dispensary will be open daily from 2 to 5, excepting on Wednesdays, when the hours are from 9 to 11 a. m., and also Thursday evenings, from 6:30 to 7:30. Dr. D. B. Sargent is medical adviser of the institution.—A series of receptions were held at the Lawrence General Hospital on May 18 to 20, when the entire plant, including the new children's ward and nurses' home, was opened for inspection.

State Society Meeting.—The one hundred and thirty-fourth annual meeting of the Massachusetts Medical Society will be held in Boston, June 8 and 9, under the presidency of Dr. Charles F. Withington, Boston. The annual dinner will be held at the Copley Plaza Hotel. On the first morning clinics and demonstrations will be held at the various hospitals. In the afternoon various sections will meet and in the evening the Shattuck lecture will be delivered by Dr. Joel E. Goldthwait, Boston, followed by the president's reception. On the second morning the informal exercises will take place. At noon the annual discourse will be delivered by Dr. Everett A. Bates, Springfield, whose topic will be "Some Perplexities in Modern Medicine," and in the afternoon there will be a joint meeting of sections with a symposium on Empyema. The annual dinner will be served on Wednesday evening at 7 o'clock.

MISSOURI

Missouri Declares Quarantine.—A provisional quarantine against all live stock from the states of Arizona, California, Nevada, Oregon, Utah and Washington was declared by the Missouri State Board of Agriculture, May 21.

Expedition to Honduras.—The St. Louis University will send an expedition to British Honduras this summer for the study of biology and preventive medicine with the object of establishing a permanent station for work in these specialties.

Dinner to Dr. Loeb.—A testimonial dinner was tendered to Dr. Leo Loeb at the University Club, St. Louis, May 25, by members of the medical profession of St. Louis, the scientific faculties of Washington University and St. Louis University and members of the Biological Society of St. Louis. Among the speakers were Profs. Robert J. Terry of Washington University, Ralph L. Thompson of St. Louis University, Augustus G. Pohlman and Walter E. Garrey; Dr. George Gellhorn and Messrs. Edwin Mallinckrodt, Jr., and Regis Chauvenet.

New Hospitals.—Dr. Halsey M. Lyle announces the opening of a hospital in Kansas City for the treatment of skin diseases and cancer.—Dr. Walter E. Cary has opened a hospital in Kansas City for the treatment of nervous and mental diseases.—The new Municipal Tuberculosis Hospital, Kansas City, at the Leeds Farm, is approaching completion and will be ready to receive patients in about sixty days. The building has cost \$150,000 and will accommodate about 150 patients.—An eye, ear, nose and throat clinic has been established by Father Dempsey at his day nursery, 1209 N. Sixth Street, St. Louis. The clinic is open on Saturdays and Mondays from 3 to 5 p. m.

Personal.—Dr. Carlos C. English, resident physician at the State Sanatorium for Tuberculosis, Mount Vernon, has been appointed superintendent succeeding Dr. Bondurant Hughes, resigned.—Dr. James Stewart, superintendent of hygiene of the public schools of St. Louis, has recovered after a surgical operation.—Dr. Horace T. Price has been appointed medical examiner of the Efficiency Board of St. Louis.—Dr. Hasbrouck De Lamater, until recently assistant health commissioner of Kansas City, has entered private practice.—Dr. Max C. Starkloff has been reappointed health commissioner of St. Louis.—Dr. Moyer S. Fleisher, who has been assistant in the department of pathology of the St. Louis Barnard Free Skin and Cancer Hospital, has been appointed assistant professor of bacteriology in the St. Louis University School of Medicine.

NEW YORK

Tribute to Anatomist.—The 1915 *Skull*, the annual of the student body of Albany Medical College, is dedicated to Dr. Joseph Davis Craig, for thirty years professor of anatomy in the college.

Addition to Hospital.—The State of New York has recently commenced the erection of a \$10,000 addition to the present General Hospital erected at a cost of \$15,000 at the State Agricultural and Industrial School, Industry. This addition is required to enable the school physician properly to care for the health and correction of physical defects in the 700 or more inmates of the institution.

Health Department and Occupational Diseases.—The Health Department has organized an Occupational Clinic at 49 Lafayette Street and in connection with the work of the clinic has prepared a clinical history card, which is of interest and may help to indicate lines along which investigation may yield clinical results. It is the belief of those interested in this subject that if some of the data included on this card were asked in the course of clinical examinations conducted in dispensaries, hospitals and in private practice, a number of obscure diseases whose causes lie in the occupation of the individual, would be brought to light. A factory survey card which a medical inspector fills out prior to the examination of a given group of working people in any particular factory is also used in connection with the data of the clinical history card of the Occupational Clinic, and together they give a comprehensive picture to the examiners at the Occupational Clinic of the various factors which operate to produce occupational diseases or to lower health.

New York City

Physician Leaves Large Estate.—The late Dr. Everett Herrick, who died April 1, 1914, left an estate of \$1,335,458.

Sails to Head Field Hospital.—Dr. Berkeley Sherwood-Dunn, physician and banker, sailed May 15 for France, where he will take command of a field hospital.

Beriberi Near New York.—A wireless message received May 26 by Health Officer O'Connell, states that the British steamer *Dewa* from Cienfuegos, Cuba, for New York, has twenty-five cases of beriberi among its crew of forty men, and that eight men have died from the disease since the vessel sailed.

The Arbuckle Memorial.—The north wing of the Long Island College Hospital, presented to the hospital in memory of John Arbuckle by his two sisters, was opened on May 24. It will house 171 male patients, and contains, besides the wards and private rooms, a clinical laboratory for 45 medical students and three research laboratories for the use of clinical research workers.

Dinner to Dr. Fuhs.—A farewell dinner was given to Dr. Jacob Fuhs by the visiting and assistant visiting staffs and the Alumni Association of St. Catherine's Hospital, Brooklyn. The occasion of the dinner was the resignation of Dr. Fuhs, after forty years of service as visiting physician to the hospital. Dr. Mathias Figueira presided as chairman. A set of resolutions laudatory of Dr. Fuhs was adopted and a copy bound in seal leather was presented to him.

Port Health Officer Opposes Federal Jurisdiction.—Dr. Joseph J. O'Connell, health officer of the port of New York, opposes the suggestion that his department be placed under federal control for the sake of economy. Dr. O'Connell claims that this change will impose a greater financial burden on the state than that entailed under the present plan of state control. At present the state pays 20 per cent. of the maintenance cost of this department. Under federal control, he claims, this amount would be increased to 27, or even 30 per cent.

New Diphtheria Hospital.—Bids for the construction of a new diphtheria hospital, Brooklyn, were advertised, May 22. The new hospital will be under the direction of the department of health and will be one of a group of buildings on Kingston Avenue, devoted to the treatment of communicable diseases. The building will be three stories in height, the central portion, 50 by 44, with a wing on either side, 58 by 28. The building will be fireproof throughout and will accommodate eighty patients under normal conditions. It will cost about \$100,000.

Opportunity to Study Occupational Diseases.—The health department announces that it desires to secure the assistance of competent clinical workers for its occupational clinic. In the budget a request will be made for a number of

positions for clinic physicians at \$300 per annum. The hours of work will be two and one-half hours three times a week. This will offer an unusual opportunity to do research work in the study of occupational diseases which, it is predicted, will in a short time assume a most important rôle in preventive medicine.

Survey of Disease Clinics.—The social hygiene division of the Charities and Correction Conference, at a meeting, May 17, presented the following report: Of twenty-seven venereal disease clinics in New York City, only seven have complied with the recommendations of the Associated Out-Patients' Clinics. The insanitary condition of the clinics must be improved and common standards for discharging patients must be followed. The remedies proposed include wider publicity of recommendations and better cooperation between dispensary authorities and clinic chiefs. Knowledge of conditions existing and the results accomplished is essential to the intelligent direction of a clinic. In the four venereal disease clinics studied this information had never been recorded. It was obtainable, though with great difficulty, in only two. Three-fourths of the patients "ceased treatment unimproved." One-half of the patients made too few visits to hope to be cured. Much of the time and money expended on these was wasted. The remedies proposed are: (1) Determine how much time and money is wasted; (2) get the patients to come back.

NORTH CAROLINA

State Society Meeting.—The Medical Society of the State of North Carolina will hold its annual meeting in Greensboro, June 14 to 17. In connection with this meeting will be held the annual meeting of the State Health Officers' Association.

Antityphoid Campaign.—Wake, Northampton and Edgecomb counties have decided to hold antityphoid immunization campaigns during the summer and have made appropriations for this work. In these campaigns the counties will provide for the local expenses of the dispensaries and the State Board of Health will furnish the antityphoid vaccine and literature, and will direct and assist at various dispensaries.

Convict Camps.—Dr. Watson S. Rankin, Raleigh, secretary of the State Board of Health, has made a report on the condition of the convict camps in Nash County. As the result of his investigation, he recommends that the State Board of Health be directed to make an inspection of the convict camps of ten counties in North Carolina, with the object of improving the sanitary condition in these camps.

Full Appropriation for Hospital.—After a conference between the governor, council of the state, legislative finance committee and directors of the Webster Hospital for the Insane, Morgantown, it was decided that the hospital is to have the full appropriation of \$200,000 for maintenance, without regard to the apparently mythical accumulated balance of \$76,000 which the legislative finance committee declared the institution to have.

Hospital News.—At a meeting of the Negro Medical and Pharmaceutical Association of Guilford County, held at High Point, May 10, a resolution was adopted that the association establish a hospital for the care of colored people of Guilford County, to be located at Greensboro.—The Charlotte Sanatorium Company has been incorporated by Dr. Robert L. Gibbon, Charlotte, and others, with a capital stock of \$125,000, to run and operate the Charlotte Sanatorium.

Decision of Supreme Court on Practicing Without License by Nondrug-Giving Physician.—An individual calling himself Dr. Siler was engaged in Greensboro, N. C., in the practice of "chiropractic and suggestotherapy." He was indicted for practicing without license, and on a special verdict the trial judge found him not guilty, and the ruling of the lower court was appealed to the supreme court for final action. Chief Justice Clark, in the decision, held that the act of 1913 amending the act of 1907 requires that all nondrug-giving physicians shall be licensed by the nondrug board before engaging in the practice of their profession. In the case in question it appeared that "Dr. Siler" was not, according to his contention, practicing osteopathy, but was engaged in the "practice of chiropractic and suggestotherapy" and received compensation therefor. Chiropractic, it was submitted to the court, "is a system of treating human diseases without the use of drugs by mental suggestion," and it was admitted that the defendant had not been licensed by the osteopathic board. The defense contended that the act of 1907, as amended by that of 1913, does not require nondrug-giving practitioners, other than osteopaths, to pass

examinations or take out license, and that if it did, such requirement would be unconstitutional. The court opinion, after reviewing the law applicable, says the act of 1913 simply extends the act of 1907 to require "the examination and licensing of all other nondrug-giving practitioners, by whatever name known," and makes those violating this statute "guilty of a misdemeanor to the same extent as those who practiced as osteopaths without complying with the requirements of the act of 1907." The chief justice ruled that the law of 1907, as amended in 1913, was for the protection of the public by requiring all nondrug-giving physicians to be regularly licensed, and that on the special verdict the court should have found the defendant guilty. This decision sets at rest a question that has been considered at different times in the state, at least by implication, and definitely adjudges the province of the State Board of Medical Examiners to be to examine and license physicians who give drugs, while it positively rules that all nondrug-giving physicians, of whatsoever name, shall be examined and licensed by the State Board of Examiners of Osteopathy.

PENNSYLVANIA

Personal.—Dr. Calvin L. Johnstonbaugh, Bethlehem, has been reappointed a member of the Board of Medical Education and Licensure.—Dr. Daniel R. McCormick, Lancaster, suffered a cerebral hemorrhage, May 21.—Dr. P. Joseph Faughnan, Locust Gap, was operated on at the Shamokin Hospital, recently, for strangulated hernia.—Dr. James Burns Amberson, Waynesboro, was given a silver loving-cup by the members of the Waynesboro Academy of Medicine, May 15, in honor of his seventieth birthday.—Dr. William F. Muhlenberg of Reading has been chosen president by the executive committee of the Pennsylvania German Society.—Dr. Edwin S. Dorworth, Bellefonte, who recently completed fifty years of practice of medicine in Center County, and also celebrated his eighty-first birthday anniversary, was accorded an informal reception and dinner by the Center County Medical Society.

Philadelphia

Club Reception.—The Medical Club of Philadelphia will give a reception in honor of Rear Admiral William S. Benson, U. S. Navy, at the Bellevue Stratford, June 11.

Graduating Exercises.—The sixty-third annual commencement exercises of the Woman's Medical College of Pennsylvania were held in the Garrick Theater, June 2, at 11 o'clock. The address was delivered by Dr. Richard C. Cabot, Boston. In the evening, a reception was given by the incorporators and faculty in honor of the graduating class.—The sixty-third annual commencement of Jefferson Medical College will be held at the Academy of Music, June 5, and Dr. Victor C. Vaughan of the University of Michigan medical faculty will deliver the valedictory, "A Doctor's Ideals."

In Spite of Difficulties.—James Keith of Shaffertown, Pa., a student at Jefferson Medical College, who was taken to the Jefferson Hospital in April, 1914, with his back broken as a result of a fall from the window of a fraternity house, and who has since had one leg amputated, has successfully passed his final senior examinations, and will receive the medical diploma.

Appeal for Free Bed.—The Alumni Association of Jefferson Medical College makes another appeal for contributions to the endowment fund for the establishment of a free bed in Jefferson Hospital for the care of poor graduates. At the present time about \$1,700 has been contributed. The past year's experience has taught that many men are in need and a room of this kind is a necessity.

Personal.—Dr. R. Tait McKenzie, director of the department of physical education at the University of Pennsylvania, sailed, May 29, for London, where he is to aid in "hardening up" British recruits. He will take charge of the new physical department established by the British government, will be posted outside of London with a staff of experts, and will look after the physical conditions of the men who are preparing to go to the front. It is reported that Dr. McKenzie has been granted a year's leave of absence from the university.—Howard B. Lewis, Ph.D., instructor in physiologic chemistry of the University of Pennsylvania, has been appointed to an associate professorship by the trustees of the University of Illinois.—Dr. Barton K. Thomas was operated on for tumor of the abdominal wall at Jefferson Hospital, May 17, and is reported to be doing well.—Dr. Joseph Pasceri has been called to the colors by the Italian consul.

Against Insanitary Barbers.—A campaign of education of the public against insanitary barbers has been started in Philadelphia. Bulletins on the subject were sent out, May 24, by the Department of Public Health. The public is warned not to employ barbers suffering from infectious diseases, and is told that boils, erysipelas, ringworm, barber's itch, conjunctivitis and virulent ophthalmia may be transmitted by uncleanness. For the barber's observance, the department urges rules which call for the sterilization of hair-brushes and combs by formaldehyd, and the sterilization of razors, shears, clippers and tweezers by immersion in boiling water or wiping with cotton moistened in acetone-alcohol or hydrogen peroxid. Individual towels should be used instead of powder puffs, sponges and finger bowls. The common cosmetic stick should be avoided. Bleeding should be stopped by applying cotton which has been dipped into a solution of epinephrin chlorid to the wound.

SOUTH DAKOTA

State Society Meeting.—The thirty-fourth annual meeting of the South Dakota State Medical Association was held in Sioux Falls, May 18 to 20, under the presidency of Dr. Fred Treon, Chamberlain, whose presidential address was on "Some Practical Considerations in the Diagnosis of Abdominal Conditions." The following officers were elected: president, Dr. James B. Vaughn, Castlewood; vice presidents, Drs. Francis M. Crain, Redfield, and Herman J. G. Koobs, Scotland, the secretary holding over until the next meeting. Dr. Leslie G. Hill, Watertown, was selected as delegate to the American Medical Association. Aberdeen was selected as the place of meeting for 1916.

WEST VIRGINIA

Health Survey Desired.—The Clarksburg Board of Trade has requested the Surgeon-General of the United States Public Health Service to make a field survey on health and sanitation in Harrison County.

Personal.—The residence of Dr. Willis St. Michael, Hendricks, was destroyed by fire to the extent of \$1,500, May 14.—Dr. Sylvanus L. S. Spragg, Wheeling, who has been ill with pneumonia, is reported to be convalescent.—Dr. Will S. Keever, Parkersburg, was injured in a railway accident in Baltimore, recently.

Higher Standard Adopted.—The new announcement of the West Virginia University, just received, states that on and after Sept. 1, 1917, two years of collegiate work (sixty-four credit hours), including courses in physics, chemistry, biology and French or German, will be required for admission to the medical school.

State Association Meets in Huntington.—The forty-eighth annual meeting of the West Virginia State Medical Association was held in Huntington, May 12 to 14, under the presidency of Dr. Henry P. Linsz, Wheeling, and the following officers were elected: president, Dr. Arthur P. Butt, Davis; vice presidents, Drs. Albert S. Bosworth, Elkins; George C. Schoolfield, Charleston, and Sidney B. Lawson, Logan; secretary, Dr. J. Howard Anderson, Marytown (reelected); treasurer, Dr. Hugh G. Nicholson, Charleston (reelected); editor of the association magazine, Dr. James R. Bloss, Huntington; and councilors, first district, Drs. James W. McDonald and Henry R. Johnson, both of Fairmont; second district, Dr. Theodore K. Oates, Martinsburg; Hoddie W. Daniels, Elkins; third district, Drs. Chester R. Ogden, Clarksburg, and Morgan T. Morrison, Sutton; fourth district, Drs. Joseph E. Rader, Huntington, and George D. Jeffers, Parkersburg; fifth district, Dr. Wade H. St. Clair, Bluefield, and Elbert F. Peters, Maybeury; and sixth district, Dr. Peter A. Haley, Charleston, and Benjamin B. Wheeler, McKendree. Dr. John L. Dickey, Wheeling, was elected delegate to the American Medical Association, and Dr. Frank LeMoyné Hupp, Wheeling, alternate. Wheeling was selected as the next place of meeting.

CANADA

Gift to Dalhousie.—Investments to the value of \$30,000 have been given to Dalhousie University, Halifax, N. S., to go toward the endowment of a chair of anatomy, and announcement has been made that in the near future, the sum will be doubled.

New Quarters for Medical School.—The Faculty of Medicine of Dalhousie University, Halifax, is to be moved this

summer into the large brick and stone building heretofore occupied by the Faculty of Arts and Sciences, and the latter department will move into new buildings which have just been completed.

University of Toronto Base Hospital Arrives in England.—The University of Toronto Base Hospital, under command of Lieut.-Col. James A. Roberts, arrived at Plymouth safely May 27. It is understood that it will proceed to France at once and most likely be located at Dieppe. All the members of the staff were well.

Care of Feeble-minded in Ontario.—Mr. Justice Osler, Toronto, and Dr. Helen MacMurchy, Toronto, have been appointed chairman and secretary, respectively, of the newly appointed committee in Toronto, to consider the care of the feeble-minded in that city. Dr. MacMurchy represents the Ontario government, and Dr. Charles J. C. O. Hastings, M.O.H., Toronto, has been appointed on the committee to represent the city council.

Western University Convocation.—Convocation was held at the Western University, London, Ont., May 28. Dr. Hugh A. MacCallum, on behalf of the board of governors, announced that Dr. Hibbert W. Hill would return from Minnesota to take up again his office as superintendent of the Hygienic Institute, for whom a worthy successor had been sought but not found. Dr. Hill will remain with the Institute until it has demonstrated its usefulness to western Ontario. Four new professors will be secured for the next college year.

Ontario Government to Donate Hospital for War.—The Ontario government has decided to establish and maintain in England a hospital of 1,000 beds for the treatment of Canadian wounded. The idea is to have ten cottages with 100 beds in each, the cost of construction of which will be about \$100,000. The government will also provide immediately six motor ambulances. Sir Adam Beck, who has just returned from England, laid before the government the great need for hospital accommodation. The government has been in communication with Col. George A. S. Ryerson, Toronto, president of the Canadian Red Cross Society. Lieut.-Col. Arthur E. Ross, M.D., M.P.P., Kingston, who is at the front, has advised the government that these ambulances are urgently needed.

Ontario Medical Association.—The annual meetings of the Ontario Medical Association and the Association of Health Officers of Ontario was held in Peterboro, May 25-27. Dr. D. J. Gibbs, Wishart, Toronto, delivered the presidential address, speaking on the part the medical profession had done in Ontario for the war, and instancing the University of Toronto Base Hospital, Queen's Base Hospital, Peterboro Base Hospital of 200 beds, which have been accepted, and the offer of Lambton County for a similar hospital. The main part of his address dealt with specialism in medicine. Dr. Francis J. Shepherd, Montreal, delivered the address in surgery. A resolution was adopted calling on medical men to educate the public in the matter of cancer. Another was adopted pledging members of the profession to preserve the practices of those who had gone abroad to serve their country until their return. The following officers were elected: president, Dr. Harry B. Anderson, Toronto; vice presidents, Drs. George S. Cameron, Peterboro; Edward B. Oliver, Fort William; William Colbeck, Welland; Arthur T. Emmerson, Goderich; general secretary, Dr. F. Arnold Clarkson, Toronto; assistant secretary, Dr. Frederick C. Harrison, Toronto, and treasurer, Dr. Jabez H. Elliott, Toronto.

GENERAL

Santa Fe Surgeons to Meet in San Francisco.—The Santa Fe Medical and Surgical Society announces that it will hold its annual meeting in San Francisco, June 20 to 25.

Anesthetists to Meet.—The third annual meeting of the American Association of Anesthetists will be held in San Francisco, June 21, under the presidency of Dr. Charles K. Teter, Cleveland.

School Hygiene to Meet in San Francisco.—The eighth congress of the American School Hygiene Association will be held in the Civic Auditorium, San Francisco, June 25 and 26, under the presidency of Dr. Henry M. Bracken, St. Paul.

Fraternity Meeting Announced.—The annual convention of the Grand Chapter of the Omega Upsilon Phi will be held in San Francisco, June 25 to 26. Further information regarding this meeting may be obtained from Dr. Calvin A. Walker, 292 Third Street, San Francisco.

Pediatricists Elect Officers.—At the twenty-seventh annual meeting of the American Pediatric Society held at Lakewood, N. J., May 25 to 27, the following officers were elected: president, Dr. Rowland G. Freeman, New York City; vice president, Dr. John C. Gittings, Philadelphia; secretary, Dr. Samuel S. Adams, Washington, D. C. (reelected); treasurer, Dr. Charles Hunter Dunn, Boston, and editor and recorder, Dr. Linnalus E. LaFetra, New York City.

Red Cross Appeals for Mexicans.—The American Red Cross has made an appeal to the American people and has sent a telegram to the governor of each state and a letter to each State Board of Health, conveying the information that there are a large number of unfortunate people in Mexico facing death by starvation, and the president of the United States and the American Red Cross make an appeal for money and food supplies. Gifts of corn, beans, rice and flour will be accepted at any point in the United States and forwarded by the Red Cross to Mexico through the most practicable routes to reach the people in distress. Money may be sent to local Red Cross treasurers or to Red Cross headquarters at Washington. Before donated supplies are sent from any point instructions from Washington will be furnished for routing. The most practicable gateways into Mexico at the present time and under present conditions are Vera Cruz (via Galveston), Brownsville, Laredo, Eagle Pass and El Paso, Texas; and Nogales, Ariz.

Bequests and Donations.—The following bequests and donations have recently been announced:

University and Episcopal hospitals, Philadelphia, each \$25,000, contingent bequests, and a direct bequest of \$1,000 to the Home for Crippled Children, by the will of Josephine Lewis.

Johns Hopkins University, bonds to the value of \$100,000, by an anonymous donor, subject to a life interest.

Medical and Chirurgical Faculty of Maryland, sixty shares of stock in the National Bank of Elkton, Md., by the will of the late Dr. Charles M. Ellis, Elkton.

Boehne Tuberculosis Camp near Evansville, an additional donation of \$12,000, by Mr. John W. Boehne.

Daviess County Hospital Association, Washington, Ind., property valued at \$8,000, by the will of Mrs. Matilda L. Wilson.

St. Francis' Hospital, Hartford, Conn., nearly \$5,000, the proceeds of a play given by local talent.

New York Academy of Medicine, \$50,000, one half for the library fund and one half for the permanent fund; New York Skin and Cancer Hospital, \$25,000, and Society for the Relief of the Ruptured and Crippled, and Association for Improving the Condition of the Poor, each \$10,000 by the will of Dr. Everett Herrick, New York City.

General hospitals of New York City, \$58,355; special hospitals, \$18,931; hospitals for women and children, \$18,749; hospitals for incurables, \$13,963; making it altogether \$110,000, distributed among the Associated hospitals by the Hospital Saturday and Sunday Association.

White Plains (N. Y.) Hospital; St. Luke's Hospital, New York City; German Hospital and Dispensary, New York, and White Plains Nurses' Association, each \$1,000 by the will of Henry Ungrish, Jr.

Dr. William G. Choate, Hot Springs, Ark., \$57,000 for the purpose of establishing at that place a hospital for the poor by the will of Patrick Fenton, Knoxville, Tenn.

Pittsfield (Mass.) Antituberculosis Association, \$15,000, and House of Mercy Hospital, Pittsfield, \$5,000 by the will of Dr. Frederick S. Coolidge.

New York Homeopathic and Flower Hospital, \$1,000 for the students endowment fund and \$5,000 for the establishment of a bed, by the will of Miss Thena M. Mills.

WAR NOTES

Roumanian Decorations for Behring and Ehrlich.—The *Klinisch-therapeutische Wochenschrift* of May 17 states that the Royal Roumanian cross of the first class for Sanitätsverdienst—which may be translated “for merit in sanitary service”—has been conferred on von Behring and Ehrlich.

Typhus in Turkey.—Dr. Stapleton, writing from Erzeroum, asks urgently for equipment for 200 beds. Typhus fever is reported to be raging in Turkey and is present in epidemic form in Sivas.—In Konia Dr. Dodd has removed its patients to a special building about a mile from the city proper, and has thus been able to prevent the spread of the disease in the hospital.

Red Cross Reinforcements for Austria.—The American Red Cross personnel, which started for Austria, via Genoa, early in May, left Genoa, May 29, for Vienna, by way of Switzerland. The party consisted of Dr. Walpole C. Brewer, Atlanta, Ga., and seventeen nurses. At Vienna the nurses will be divided between the Red Cross hospitals at Vienna and Budapest.

Only Trained Nurses Accepted for German Base Hospitals.—According to a recent regulation of the war department in Germany, only trained nurses are to be accepted for the

Reservelazaretten and volunteer nurses only when they belong to some recognized organization. Under exceptional circumstances the physician in chief is empowered to retain especially efficient nurses.

Russian Women Medical Students Called on for Professional Services in the Field Hospitals.—A German exchange mentions that in Russia the minister for public instruction has notified the medical colleges which have women in their classes that women students who have studied for six semesters or more are liable to be called on for service in the hospitals at the front.

Woman Appointed Army Surgeon.—The wife of the orthopedic surgeon, Professor Helbing of Berlin, is a registered physician and specializes also in orthopedic surgery. She has been for several months at work among the wounded soldiers, and recently she has been given an official position. As our German exchanges remark, Frau Grete Schüler-Helbing is thus the first German *Militärärztin*.

War Notes from The Journal for the Belligerent Countries.—The *Policlinico* of Rome, Italy, publishes a number of "war notes" regarding happenings in the medical world across the border in Austria and Germany, but adds that the information was all derived from THE JOURNAL. It also prints news about its neighbors to the east in Greece and numbers of items of news from France, all taken from THE JOURNAL.

Red Cross Work in Turkey.—The Constantinople Chapter of the American Red Cross has taken charge of the British and French hospitals in that city. In these two hospitals 150 soldiers can be accommodated. The Red Cross has also arranged to take over the American Mission hospitals at Konia, Cesarea, Marsovan, Erzeroum, Sivas, Harpoot, Aintab, Latakia, Adana, Mersin, Mardin, Diarbekir and Van for similar purposes. These will provide accommodations for 1,000 sick and wounded soldiers in fifteen well-manned and equipped hospitals without cost to the government.

District Maternities.—The public hospitals in Berlin are making special provisions for the large number of obstetric cases expected shortly. Bumm suggests the establishing of small maternities, of ten to twenty beds, in the different districts of the city, so that they can be reached easily by the women. The public should be widely informed of the nearest maternities, and some beds should be kept free for each night. The authorities were spurred to action recently when a woman in labor was turned away by the leading public maternity. The socialist newspaper wrote up the case roundly denouncing the Universitäts-Frauenklinik, the institution in question.

Aid for Belgian Physicians.—The report of the treasurer of the committee of American physicians for the aid of the Belgian profession, for the week ending May 29, 1915, lists the following contributions:

Dr. J. E. Talley, Philadelphia, Pa.....	\$ 10.00
Dr. Leonard W. Ely, Palo Alto, Calif.....	5.00
Receipts for the week ending May 29.....	\$ 15.00
Previously reported receipts.....	6,993.50
Total receipts	\$7,008.50
Previously reported disbursements:	
1,625 standard boxes of food at \$2.20.....	\$3,575.00
1,274 standard boxes of food at 2.30.....	2,930.00
213 standard boxes of food at 2.28.....	485.64
Total disbursements	6,990.84
Balance	\$ 17.66

F. F. SIMPSON, M.D., Treasurer,
5 Jenkins Arcade Bldg., Pittsburgh, Pa.

Hygiene and Prophylaxis in the Field.—During the last few weeks, courses of lectures have been delivered at various points in Italy to instruct soldiers in prophylaxis of disease and hygiene at the front in general. For several months series of lectures to prepare medical men for work at the front have been held in some of the large cities. Conferences have also been held under the auspices of local medical societies, as at Ferrara, where special efforts were made to bring up to date the knowledge of the physicians in respect to typhus, epidemic meningitis, tetanus, bayonet wounds, traumatic neuroses, etc. Everywhere physicians have flocked to these conferences. The nonmedical ones were arranged by an organization formed for this purpose, the Associazione nazionale per l'istruzione del soldato e del popolo, and the Comitato nazionale femminile per l'intervento italiano. The date for the final examinations for the medical schools was advanced to bring them mostly into May.

Campaign in France Against Alcohol.—The prefects of police of five departments of Normandie, in northern France,

recently summoned a conference to discuss ways and means to restrict the use of liquor, and voted a number of what they state are merely palliative measures until legislative restrictions can be imposed. For the latter they urge that the sale of spirits be suppressed entirely during the course of the war, and that the number of saloons should be restricted and no liquor be sold to soldiers, women or minors under 18, and that debts for purchasing liquor should rank with gambling debts. The prefect of the Eure department summarily prohibited the sale of alcohol throughout his department during the war, his decree being signed August 26. He specifies as "alcohol," rum, cognac, calvados, kirsch and brandy. The general in charge of the Rouen department issued a similar decree in May, only he specified that wine, cider and beer were not included in the prohibition, and that the sale of liquor was forbidden only to soldiers, French, British or Belgian, to women, to minors under 18, and to refugees and others receiving state aid. The decrees are given in full in the *Bulletin de l'Académie de Médecine*, May 4, and hailed as great progress as they emanate from laymen.

BERLIN LETTER

BERLIN, May 3, 1915.

Personal

The Cancer Research Institute connected with the Charité Hospital at Berlin has been in charge of Professor Klemperer until recently. His duties calling him elsewhere, Prof. F. Blumenthal, formerly Leyden's assistant, has been made director of the institute during Klemperer's absence at the front.

The chief of the military medical service in the eastern area of war, Obergeneralarzt von Kern, has been advanced to the rank of a general lieutenant, with the title of Excellency. Hitherto no military medical officer, with the exception of the chief of the entire service, von Schjerning, has ever had the title of Excellenz conferred on him. It is regarded as a further token of the appreciation by the kaiser of the achievements of the medical department, the Sanitätskorps, in the war.

The War

EXCHANGE OF PRISONERS

The exchange of severely wounded soldiers is being continued with France and has been begun with Russia. This is a humanitarian measure which meets the greatest approval of all involved. The hard fate of the permanently invalided can certainly be borne better in their home surroundings than in the enemy's country.

PARTIAL REMOVAL OF RESTRICTIONS TO BREAD

New decrees have been issued by the department of the interior, based on the advice of prominent experts summoned for the purpose from medical circles. Continued investigation as to the supply of wheat on hand led to the gratifying discovery that there is a larger supply available than had been supposed. Consequently larger proportions of wheat flour can now be used in making bread, so that conditions approximate normal once more. The supply of oatmeal is so extensive that it can be obtained without a "bread ticket."

FOUR HOSPITAL TRAINS

The number of hospital trains is constantly being added to, and has already reached almost 200.

HEADQUARTERS OF SUPPLIES FOR THE MILITARY MEDICAL DEPARTMENT

The central headquarters for the supplies for the entire sanitary service of the army and navy are installed in the Kaiser Wilhelm Military-Medical Academy at Berlin. The new goods as received are stored in the broad entrance hall. After they have been carefully inspected and approved, they are then arranged on rows of shelving which are installed through the rooms on the various stories. On these ranges of shelving are arranged all the apparatus, instruments, dressing materials and other things required for the medical and surgical work, everything stored in such a way that it is instantly available. During the winter the trucks were loaded with supplies in a heated shed to avoid injury of articles that might have been damaged by the cold. The shed was also lighted with electricity, as at times some of the work had to be done at night. The new methods of warfare have brought new requirements for the equipment of the medical service. For example, there are now special first-aid packages for aviators, and special litters for trench work. These litters

are made so narrow that they can be easily carried through the narrow trenches. They have handles on all sides, and can be strapped on the back, so that a single person can thus carry a wounded soldier on his litter. Knapsacks fitted with surgical supplies are also provided. The drugs used are in tablet form or in sterilized solutions in small fused vials.

RAILROAD EQUIPMENT FOR PROPHYLAXIS OF CONTAGIOUS DISEASES

In Prussia, two hospital trains have been transformed into *Seuchenzüge* to aid in warding off epidemic diseases. Each train consists of a "clean" part, in which there is no fear of contagion, and a "contaminated" part. In one of the trains the first part has thirteen cars, the second, twenty-five. On one platform of twelve of the last cars stands an arrangement for sterilizing the clothing. These platforms are placarded on both sides to warn the brakemen to keep off. The brake handles further are painted red to warn against touching these brakes on the "contaminated" part of the train. None of the brakemen, conductors, engineers or others of the crew are allowed to pass through the "contaminated" part of the train. Any directions or orders they wish to give for the heating, lighting, etc., of the contaminated part of the train must be called from without to the persons in this part of the train. The latter are taught beforehand how to manage the heating and lighting apparatus in their part of the train. If it becomes necessary for others of the crew to enter the contaminated portion, they are required to wear an overgarment and to disinfect themselves under the medical officer's directions before they can pass to the "clean" part.

Car No. 14 is the intermediate link between the clean and the contaminated departments of the train. Here the baths and other special measures considered necessary are enforced before any one is allowed to pass from the rear to the front end of the train. In the "contaminated" part of the train, the platforms are kept wet with a solution of mercuric chlorid, and the brakemen have to scrape their shoes on a cloth wet with the solution and provided for the purpose as they leave the platform. They also have to wash their hands in a similar solution under the physician's orders. In the second train of the kind, the sterilizing boxes are inside the cars, so that the brakemen are free to attend to the brakes at either end of the car.

Women Students During the War

The conditions during the war have not greatly affected the number of women taking university courses. In the winter semester 3,914 women students were registered in German universities, which is an increase of 225 over the previous year. Of this increase, about 100 are in medical courses (944 as compared with 859) and 34 in dentistry (66 as compared with 32). About 25 per cent. of the women are in the Berlin University.

LONDON LETTER

LONDON, May 18, 1915.

The Campaign Against Tuberculosis

A government report shows that up to the end of March, 1914, local authorities had submitted schemes for the treatment of tuberculosis relating to over 95 per cent. of the total population of England. Only five of the fifty county councils and six of the seventy-six county borough councils had not then prepared schemes. March 31 last, 7,898 insured and 14,201 uninsured persons were receiving dispensary treatment, and, in addition, 8,166 insured and 11,445 uninsured persons were under observation by the medical officers of approved dispensaries. On the same date, 4,555 insured and 1,231 uninsured patients (including dependents of the former), were receiving treatment provided in residential institutions by local authorities or at the cost of insurance committees. Up to June 20 last, 259 sanatoriums, hospitals and other residential institutions, containing at least 9,200 beds available for tuberculous cases, had been approved by the board. Approval was also granted to 255 dispensaries in England and seventy-three in Wales, while the appointment of 177 tuberculosis officers was sanctioned. In 1913 the number of cases of pulmonary tuberculosis notified in England and Wales was 96,553, representing 2.64 per thousand of the population, compared with 110,551, or 3.03 per thousand in 1912.

THE ALCOHOL PROBLEM

The drastic proposals of the chancellor of the exchequer for dealing with intemperance among a section of the men engaged in producing munitions of war (described in a previous letter), have been abandoned, as the opposition to them was too great. It was generally felt that to meet a local evil

the chancellor was penalizing every one who consumed spirits or wine even in moderation. Moreover, our French allies, who are cut off from the rest of their European market, naturally objected to a measure which would restrict their trade with their one remaining important customer. A suggestion, made some weeks ago in the columns of the *Lancet* has been adopted in principle. This was that the sale of immature spirits, to the consumption of which by working men much of the evil was attributed, should be forbidden. It is now proposed that spirits under 2 years of age shall be compulsory bonded and a surtax levied on all spirits taken out of bond between 2 and 3 years of age. There is to be state control of all saloons in the munition area by a central board composed of representatives of the admiralty, war office and home office.

Libel Action Against the British Medical Association

I have reported in previous letters two actions against the British Medical Association by Stevens, the proprietor of a "cure for consumption," which was exposed in the defendant's publication, "Secret Remedies." In the first action the jury disagreed. In the second they gave a verdict for the association. Stevens has now appealed against this verdict on the ground that it was against the weight of evidence. The appeal has been dismissed.

The Shortage of Physicians

The shortage of physicians in civil practice is increasing in consequence of the demands of the army. The effects are shown in many ways. In the advertisements for resident physicians of hospitals and institutions, which used to be almost confined to males, the words "male or female" are now inserted. In some hospitals American physicians engaged in graduate study have been appointed to the resident posts—an entirely new departure. The remuneration of locum tenens some years ago was about \$15 a week. After the passing of the insurance act it rose to from \$25 to \$35. Since the war it has further increased from \$40 to \$50, as the demand has far outrun the supply.

PARIS LETTER

PARIS, May 13, 1915.

The War

THE WAR AND PUBLISHING

The breaking out of war last July caused great disturbance during the last five months of 1914 in the industries which have to do with the manufacture of books. The statistics published by the *Bibliographie de la France* furnish interesting indications as to the classes of books which have been most affected. As far as the medical sciences are concerned, there is a reduction during 1914 of about 176 publications. This difference between normal times and the present has been reduced to 133 by slight increases during the first seven months of the year in publications on clinical medicine, surgery, practical instruction in medicine, mineral waters and climatic stations. In the last subject the increase is due to more numerous editions of the *Gazette des Eaux*.

CARDIAC WOUND CAUSED BY A FRAGMENT OF A GRENADE WITH EXTRACTION OF THE PROJECTILE

During a recent session of the Académie de médecine, Dr. Beausse, surgeon of the national asylums, showed a patient, a young sergeant, who had been operated on for a cardiac wound and whose history seems unique. Oct. 1, 1914, the soldier was wounded by a fragment of a hand grenade which pierced the diaphragm, the pericardium and the entire thickness of the cardiac muscle, lodging in the right ventricle. The fragment was extracted February 17 last (that is to say, four months and a half after its introduction) and the heart was then sutured. Three days of intense dyspnea and imminent syncope were followed by a slight fever on the fourth, fifth and sixth day, and this was accompanied and followed by pulmonary complications which rapidly disappeared. A month after the operation, the wounded man could be regarded as completely recovered. At present, the heart functions normally.

The prolonged tolerance by the heart of a metallic foreign body had already been shown by two cases, reports of which have been published. In one case the wounded man lived for four months and a half; the second patient did not die until the end of the seventh month after the wound. In neither case, however, was an operation performed and the foreign bodies were not discovered until necropsy. The

case reported by Beaussenat proves that exploratory cardiotomy is justified under such circumstances and that success may be hoped for.

PREVENTIVE TREATMENT OF PERITONITIS COMPLICATING TYPHOID FEVERS IN WAR

At one of the last sessions of the Société médicale des hôpitaux de Paris, Dr. V. Courtellemont called attention to the fact that in war time typhoid fever peritoneal complications are especially frequent because of the exceptional fatigue to which the patients are subjected and the unsatisfactory diet which they receive during their removal. The prevention of these cases of peritonitis is imperative because they are almost invariably fatal; appropriate preventive treatment, however, has very good chance of success. During this period the peritoneal reaction manifests itself by three signs: abdominal distention, vomiting and abdominal pains. The most frequent of these signs is the abdominal distention. As soon as the preperitonitic condition is recognized, the following treatment should be instituted: (1) immobilization on the back (no baths, lotions or wrappings; no lateral movements; no trunk movements); (2) the permanent application to the abdomen of an icebag wrapped in flannel; (3) complete withholding of liquids from the patient; (4) nourishment by means of subcutaneous injections of serum 1 liter per day (500 c.c. in the morning and the same amount in the evening). This treatment should be continued in most cases for three days.

MEASURES AGAINST CONTAGIOUS DISEASES

In response to a question of Dr. Vaillant, deputy from the department of the Seine, the minister of war has explained that orders have been issued to the armies that all prisoners shall undergo a summary medical examination as soon as possible after their capture. Before being removed to the interior of the country, the men and their clothes are to be cleaned and freed from lice and other parasites. Every prisoner whose condition of health is suspicious is to be isolated and kept under observation in a hospital for contagious diseases. All quarters which are occupied by our troops after abandonment by the enemy are to be cleaned and disinfected, if necessary.

A GIFT FROM HAVANA PHYSICIANS

The minister of war has just received a letter from a group of Havana physicians, former pupils of the Faculté de médecine de Paris, "desirous of showing in a practical manner the affection and gratitude felt for their teachers and numerous colleagues who are giving their services in the hospitals of the Red Cross and on the fields of battle." This letter, which bears the signatures of Drs. Francisco Dominguez, Agustin Varona y Gonzales del Valle, Jose A. Presno, J. B. Landeta, Gabriel Casuso, Diego Tamayo, F. Mendez Capote, Eusebio Hernandez, Pedro Lamotte, Julio Irtiz Cano, Octavio Ortiz Coffigny, M. Sanchez Toledo, Antonio Diaz Albertini and Louis Montane, accompanies a gift of 7,000 pounds of tobacco, 14,000 cigars, 25,000 packages of cigarettes, 7,000 liters of white rum, 50,000 pounds of sugar, 4 sacks of coffee, etc., to be distributed among the hospitals of the Red Cross. Dr. F. Dominguez wrote on behalf of the donors, expressing their good will toward their Paris teachers and comrades.

The Osiris Prize

The Osiris prize, which amounts to 100,000 francs (\$20,000), is given every three years for "the most remarkable discovery in sciences, letters, arts, industry and in general any subject which concerns the public welfare." This year the committee of award has had to indicate the disposal not only of the prize for the current year, but also of the arrears of the prize of 1912, which was not given out at that time. After a very long deliberation (over two hours and a half), the committee decided to propose the following disposition of the prizes for the ratification of the general assembly of the five academies composing the Institut de France:

1. The Osiris prize for the year 1915 to be given as a reward for the discovery and application of the antityphoid vaccination, 50,000 francs being shared between Professors Chantemesse and Widal and 50,000 francs being given to Professor Vincent of the Ecole d'application de médecine et de pharmacie militaires du Val-de-Grâce.

2. Out of the unawarded prize of 1912, the sum of 60,000 francs (\$12,000) to be devoted to the military works of the institute and the remainder to be held in reserve.

It is interesting to recall that the Osiris prize was awarded for the first time, in 1903, to Dr. Roux, director of the Pasteur Institute, for his work on diphtheria.

Marriages

ALFRED ERVAN CHESLEY, M.D., to Miss Geneva M. James, both of Lawrence, Mass., at Plaistow, N. H., May 20.

LAWRENCE KIRBY LUNT, M.D., Boston, to Mrs. M. H. Donaldson of Scotland, at Brookline, Mass., May 17.

CHARLES WILSON FREY, M.D., Dallastown, Pa., to Miss Virginia D. Billet of North York, Pa., May 19.

JOHN L. FOXTON, M.D., to Miss Mabel Fuller, both of Huron, S. D., at Laurel, Neb., May 19.

PAUL HENRY RINGER, M.D., to Miss Eleanor Varick Morrison, both of Asheville, N. C., May 1.

R. M. SHAW, M.D., Alex, Okla., to Mrs. Myrtle Norman of Oklahoma City, recently.

WILLIAM F. SIRAK, M.D., Cleveland, to Miss Lottie Greenberg of Bay City, Mich., May 2.

ROBERT HURKA, M.D., to Miss Helen Conover, both of Verdon, Neb., May 15.

Deaths

George Wilkeston Guthrie, M.D., one of the best-known and most esteemed practitioners of Pennsylvania; died after a long illness, of bronchopneumonia followed by pleural effusion, at his home in Wilkes-Barre, May 31, aged 70. He was born in Guthrieville, Pa., and was graduated from the University of Pennsylvania, Philadelphia, in 1873. A year later he was elected secretary of the Luzerne County Medical Society and served the organization in this capacity for sixteen years when he was elected president. He was a member of the Medical Society of the State of Pennsylvania, and served as councilor and trustee for a long term, was president of this constituent association about 1900. He was a Fellow of the American Medical Association and from the time of the organization of the House of Delegates in 1902, until 1913, inclusive, he was continuously a member of that body; in 1912 he was made a member of the Judicial Council of the Association. He was also a Fellow of the American Surgical Association; and for many years surgeon to the Wilkes-Barre City Hospital and consulting surgeon to the Pittston Hospital. He was for a long time a member of the Wilkes-Barre Board of Education. Dr. Guthrie, both as a physician and a citizen, was one of the leading men in Pennsylvania. A man of integrity, a man of definite and strong opinion, but one who never lost sight of justice, Dr. Guthrie was a worthy and dependable councilor.

John Threadgill, M.D. University of Alabama, Mobile, 1874; a Confederate veteran; for several years proprietor of a sanatorium at Norman, Okla.; president of the Oklahoma Bank and Trust Company; organizer and president of the Oklahoma National Life Insurance Company; for two terms a member and for one term president of the State Board of Education; president of the Oklahoma City School Board in 1903; for two terms a member of the Oklahoma legislature and a member of the State Pension Board; died at his home in Oklahoma City, May 15, from heart disease, aged 67.

George Gustave Lempe, M.D. Albany (N. Y.) Medical College, 1888; a Fellow of the American Medical Association, and a member of the American Association of Anatomists; president of the Albany County Medical Society in 1910; lecturer on surgery and anatomy in his alma mater; assistant attending surgeon to Albany Hospital and consulting surgeon to the Benedictine Hospital, Kingston, N. Y.; surgeon of the Third Cavalry Squadron, N. G., N. Y., and detailed to duty with B Troop; died at his home in Albany, May 17, from myocarditis, aged 49.

Amos Walker Barber, M.D. University of Pennsylvania, Philadelphia, 1883; of Cheyenne, Wyo.; president of the Wyoming State Medical Society; governor of Wyoming in 1892, during the famous range war which was known as "The Cowmen's Invasion" when his wise counsel is said to have prevented interstate strife; in 1885, on duty at the Military Hospital at Fort Fetterman; said to have been the originator of the treatment of snake-bite by permanganate of potassium; died in Rochester, Minn., May 18, aged 54.

John Steele Mabon, M.D. University of Pennsylvania, Philadelphia, 1880; a Fellow of the American Medical Association and American Laryngological, Rhinological and Otological Society; for a time a member of the faculty of the

Western Pennsylvania Medical College; a specialist on diseases of the nose, throat and ear, of Pittsburgh, and formerly president of the Allegheny County Medical Society; one of the most prominent specialists of Pennsylvania; died at his home in West View, Pittsburgh, May 20, aged 58.

J. Guy McCandless, M.D. Jefferson Medical College, 1863; a Fellow of the American Medical Association and a widely known physician of Pittsburgh; for many years a member and president of the common and select councils and for one term director of public works of Pittsburgh, and for three terms a member of the State Board of Medical Examiners; surgeon of the One Hundred and Fifty-Second Pennsylvania Volunteer Infantry throughout the Civil War; died at his home in Pittsburgh, May 23, aged 75.

William Dougall, M.D. Northwestern University Medical School, Chicago, 1868; a Fellow of the American Medical Association; once president and later secretary of the Will County (Ill.) Medical Society; president of the Illinois Pure Aluminum Company, Lemont, and for a time chief surgeon of the Illinois and Michigan Canal; from 1879 to 1883, postmaster of Joliet; a veteran of the Civil War; died at his home in Joliet, May 18, from heart disease, aged 73.

George A. Stark, M.D. McGill University, Montreal, 1872; assistant surgeon of the Northern Pacific Railway at Mandan, N. D., and assistant physician at the North Dakota State Reform School; from 1883 to 1889, justice of the peace of Glen Ullin; for twenty-five years health officer of Morton County and for two terms county physician; died at his home in Mandan, N. D., May 6, from cerebral hemorrhage, aged 71.

Mark Delimon Stevenson, M.D. Rush Medical College, 1897; a Fellow of the American Medical Association and a member of the American Academy of Ophthalmology and Oto-Laryngology; vice president of the Summit County (Ohio) Medical Society in 1907, and president in 1908; co-editor of *Ophthalmology*; died at his home in Akron, Ohio, May 21, from septicemia, aged 39.

Hewlitt Whitty Oakley, M.D. University and Bellevue Hospital Medical College, 1904; a Fellow of the American Medical Association and one of the organizers of the Tulare County Medical Association; at one time connected with the medical staff of the S. R. Smith Infirmary, Staten Island, New York; died at his home in Portersville, Calif., May 21, from dysentery, aged 35.

R. Dorsey Coale, M.D. University of Maryland, 1912; Ph.D. Johns Hopkins University; for many years dean of the medical school of the University of Maryland; colonel of the Fifth Infantry, Md. N. G., during the Spanish-American War, and from 1886 to 1909, an officer of that regiment; died in University Hospital, Baltimore, May 17, from cerebral hemorrhage, aged 58.

Thomas H. Maxedon, M.D. Hospital College of Medicine, Louisville, 1887; a member of the Indiana State Medical Association and one of the best-known surgeons of Indiana; local surgeon to the Baltimore and Ohio Southwestern Railway; president of the Metropolitan Police Board of Vincennes; died at his home in that city, May 19, from cerebral hemorrhage, aged 53.

James S. McDonough, M.D. Atlanta (Ga.) Medical College, 1860; one of the oldest citizens of Knoxville, Tenn.; a member of the State Board of Medical Examiners of Tennessee since 1893; surgeon of the Sixty-Third Tennessee Infantry, C. S. A., throughout the Civil War; died at his home in Knoxville, May 16, aged 84.

Alfred C. Clark, M.D. Jefferson Medical College, 1869; a member of the Medical Society of the State of Pennsylvania; for eighteen years medical inspector of Northumberland County, Pa., for the State Board of Health and local surgeon for the Pennsylvania system at Sunbury; died at his home in Sunbury, May 16, aged 70.

William Richard Bevan, M.D. Marion-Sims-Beaumont College of Medicine, St. Louis, 1906; professor of pathology, histology and bacteriology in Epworth University, Oklahoma City; instructor and assistant professor of obstetrics in the University of Oklahoma, Oklahoma City; died recently from tuberculosis, aged 34.

George Clarence Gliddon, M.D. University of Toronto, 1914; of Union, Ont.; captain, Canadian army medical corps and R. M. O. tenth battalion, second brigade, first Canadian expeditionary force; who was seriously wounded at the battle of Langemarck in Flanders; died from his wounds, May 14, aged 26.

James M. McMasters, M.D. Rush Medical College, 1866; of Sauk Center, Minn.; assistant surgeon of Minnesota

Volunteers during the Civil War, and acting assistant surgeon, U. S. Army, in 1867 to 1868, with duty at Fort Ridgley; died at the home of his daughter in Valparaiso, Ind., May 8, aged 73.

Edward McVicker Hamaker, M.D. Medico-Chirurgical College of Philadelphia, 1913; who after completion of his internship in the Philadelphia General Hospital, located in Muskegon, Mich., May 20, was found dead in his room in a hotel in that city, May 21, from heart disease, aged 24.

Charles Jewett Lincoln, M.D. Dartmouth Medical School, Hanover, N. H., 1895; a Fellow of the American Medical Association; physician to the Augusta (Me.) City Hospital, and supreme physician to the American Royal Circle; died at his home in Augusta, Me., March 14, aged 45.

Sigismund Cohn, M.D. University of Berlin, Germany, 1888; a Fellow of the American Medical Association and a member of the American Electrotherapeutic Association, and the German Medical Society; died at his home in New York City, May 18, from heart disease, aged 53.

William Jeff. Armstrong, M.D. Bellevue Hospital Medical College, 1883; a member of the Medical Society of the State of Pennsylvania; at one time a member of the Board of Education of Kane, Pa.; died at his home in that place, May 13, from heart disease, aged 61.

James Perry Walters, M.D. Miami Medical College, Cincinnati, 1876; formerly a member of the Illinois State Medical Society and secretary of the Wayne County Medical Society; a veteran of the Civil War; died at his home in Fairfield, Ill., May 9, aged 66.

Michael Freebern Gavin, M.D. Harvard Medical School, 1864; a Fellow of the American Medical Association; surgeon of the Fifty-Seventh Infantry, Mass. V. M., during the Civil War; died at his home in South Boston, May 20, from cerebral hemorrhage, aged 71.

William P. Dillon, M.D. McGill University, Montreal, 1904; of Ottawa, Ont.; major in the Canadian army medical corps and on duty with the Canadian contingent in France; died in General Hospital No. 2, in rear of the British lines near Ypres, France, May 13.

Frank Mills Douglass, M.D. Tulane University, New Orleans, 1905; a member of the State Medical Association of Texas, and formerly president of the Hill County (Tex.) Medical Society; died at his home in Itasca, Tex., May 17, from nephritis, aged 37.

Henry William Muller, M.D. New York University, New York City, 1898; formerly a member of the Medical Society of the State of New York and physical director of the Y. M. C. A.; died at his home in New York City, May 21, from nephritis, aged 44.

James Arthur Robinson, M.D. University of Pennsylvania, Philadelphia, 1882; a practitioner of Taunton, Mass.; who left on a trip to the Pacific coast on May 11; was found dead from heart disease in his room in the Rosslyn Hotel, San Francisco, May 22.

James M. Stevens, M.D. Medical College of the State of South Carolina, Charleston, 1852; surgeon of the Forty-Seventh N. C. Infantry, C. S. A., throughout the Civil War; died at his home near Leicester, N. C., May 17, from heart disease, aged 87.

John George Layton, M.D. Cleveland Homeopathic Medical College, 1895; of Independence, Ohio; died in the Cleveland State Hospital, April 15, from general paresis, aged 50.

Charles H. Jones, M.D. Tulane University, New Orleans, 1876; formerly of Greenville, Miss.; died at his home in Memphis, Tenn., May 6, aged 70.

Patrick H. Thompson, M.D. Tulane University, New Orleans, 1878; of Bluffton, Ga.; died in a sanatorium in Atlanta, Ga., May 10, aged 63.

John W. McMurray, M.D. Homeopathic Medical College, Cleveland, 1890; died at his home in Marion, Ohio, May 11, from arteriosclerosis, aged 75.

George A. Hibbert, M.D. College of Physicians and Surgeons, Chicago, 1893; died at his home in Chicago, May 15, from angina pectoris, aged 48.

Edna Thompson Mathews, M.D. Eclectic Medical Institute, Cincinnati, 1892; died at her home in Dayton, Ohio, May 5, aged 57.

Otto Henry Hund, M.D. New York University, New York City, 1880; died at his home in San Francisco, May 4.

George Nixon Fish, M.D. Trinity Medical College, Toronto, 1898; died at his home in Toronto, May 1.

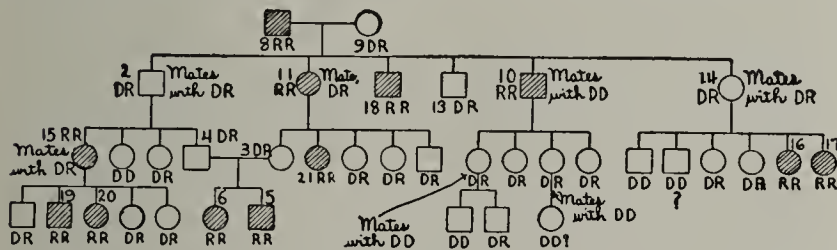
1914, the newspapers of Lexington, Ky., recorded the arrest of L. T. Cooper in connection with his method of exploiting his nostrum. There were several indictments against him to one of which he pleaded guilty, the others being filed. It now seems that Dr. A. T. McCormack, Secretary of the State Board of Health of Kentucky, is asking that these other indictments be revived and the case against this quack be reopened. It is possible that this may result in some restriction of the sale of this alcoholic tonic in the state of Kentucky. There is no doubt that other southern states whose sick are being mulcted by this concern could give equal protection to the public.

Correspondence

Polydactylism as a Hereditary Character

To the Editor:—In his paper on this subject (THE JOURNAL, May 15, 1915, p. 1640), Dr. Brandeis, while by no means deciding the question whether polydactylism is a dominant or a recessive characteristic, seems to assume that the mendelian dominance of either polydactylism or five-fingeredness is an irregular or an imperfect dominance. It does not appear—on carefully considering the family history with which he deals or the other family trees quoted—that such an assumption is really necessary.

Prima facie, I should be more apt to assume from these tables that polydactylism is a truly recessive trait; perhaps also venturing the suggestion that a proportion of the human race, larger than one would at first suppose, may have received from their parents factors that, under proper mating conditions, might bring this recessive trait to light.



Squares indicate males, circles, females. Shaded areas indicate affected persons (polydactyls).

Assuming these things, let us suppose that Individual 8 in Dr. Brandeis' tree is really RR in composition, and mates with 9, an apparently normal woman, but really DR in make-up. Obviously their offspring must be either DR or RR in kind: 10, 11 and 18, being polydactyl, are evidently RR; 2, 13 and 14 we must assume to be DR. Since one of Q's children is evidently RR, we must assume that Q's wife is also DR in make-up; of their three other children, one is likely to be DD, the others, including Individual 4, may reasonably be assumed to be DR. Individual 11, by our original assumption, is RR, and the polydactylism of her daughter, 21, proves that her husband is not DD, but presumably DR. (Digressing for a moment, it appears probable that 10, also RR, has mated with a DD, since his offspring are free from the recessive trait.) Returning to Individual 11 (RR as stated, and mated with DR), her daughter, 3, can only be DR: this daughter, 3, weds 4, her cousin, also probably DR, and their two children unite the R germ cells of each parent. If a larger family had sprung from the union of 3 and 4, it might have been anticipated that only one child out of four could have been a polydactyl: the fact that both their children are recessives is paralleled in an opposite way by the progeny of 11: here, instead of the mating of RR with DR giving equal numbers of RR and DR, we find in fact out of five children only one recessive, and that slightly. ("Six fingers left hand [the sixth] very rudimentary.") Dr. Brandeis' tree may then perhaps be amplified as above, symbols DR, RR, etc., being attached, and suggestions interpolated as to probable matings of individuals: the same explanations apply as in the original figure.

W. R. TYMMS, M.D., Gig Harbor, Wash.

Factors in Appendicitis

To the Editor:—In THE JOURNAL, May 8, 1915, p. 1584, a quotation is made from Rosenow to the effect that Heyde, Aschoff and others have called attention to the fact that the anatomy of the appendix favors strangulation of its circulation. These two authors are probably chosen for quotation because they are "made in Germany." One of them published his theory in 1911 and the other published his theory in 1912. Among "the others" one will find a complete description of this mechanical theory in a book entitled "Lectures on Appendicitis" by an American author, published in 1896. This book is to be found in medical libraries. It contains the statement that the serious complications of acute infective appendicitis are dependent on swelling of the internal coats of the appendix within the outer constricting sheath of peritoneum. When, for any reason, the inner coats of the appendix become compressed within the less resilient outer sheath of peritoneum, compression anemia follows. Tissues subjected to compression lose their natural degree of resistance to enteric bacteria, which promptly attack any such anemic tissues. Furthermore, proliferating endarteritis of the vessels of the appendix occurs as a result of toxic influence, and still further disables that organ. This American opinion was published fifteen years in advance of that of German authors who are chosen for quotation.

ROBERT T. MORRIS, M.D., New York.

Rigidity of the Right External Oblique in Appendicitis

To the Editor:—Textbooks and literature on appendicitis have laid so much emphasis on rigidity of the right rectus muscle as a symptom, that many cases of appendicitis have been neglected, because of lack of rigidity of the right rectus muscle. Rigidity of the right rectus, we all agree, is the most reliable of the symptoms which we have in appendicitis. There are a few cases, however, in which rigidity of the right rectus is lacking, but if looked for, there will be found rigidity of the right external oblique muscle. The cases of rigidity of the right external oblique muscle, and absence of rigidity of the right rectus, pursue a peculiar course. All cases are considered mild, many patients are up and around, some attending to business, and only a high polynuclear count shows the seriousness of the disease. In over twenty cases seen the past year, in which there was rigidity of the right external oblique, and not of the right rectus, the appendix has been retrocolic or retrocecal in every case. This is a point to which the attention of the medical profession should be drawn, to avoid serious neglect and carelessness.

H. E. RANDALL, M.D., Flint, Mich.

The Country Doctor

To the Editor:—May I carry a little further the comparison made by Dr. Flancher (THE JOURNAL, March 27, 1915, p. 1095), between city physicians and country physicians?

I practice in the country and go 20 miles to set a broken leg, attend a confinement, or treat a child for some common ailment. Like others in my situation, I often have to do without needed help, which a city man could procure. I have to be a "specialist" in everything. How many city doctors would manage all kinds of cases more successfully than we country "hayseeds" do? This is something they seldom think of. The city man writes the books but the country man has so much to study he seldom has time to write. Doctors are like trees. In the city they grow tall and straight, like trees in a thick forest, and reach a height we country doctors cannot attain to. The country doctors are like trees growing alone, where there is plenty of light and air, and where the winds have a full sweep. They grow thick and rugged. Not so much lumber can be cut from their bodies as from the tall, straight ones in the forest, but they have the strength to resist the fiercest storms.

A. C. AMES, M.D., Mountain Grove, Mo.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

POISONING FROM SODIUM CHLORID

To the Editor:—I have just heard of a case of sodium chlorid poisoning caused by the ordinary amount of sodium chlorid which is taken with food. Have you records of any cases of sodium chlorid poisoning? Are you able to cite literature on such cases.

EDWARD B. MARKEY, M.D., Hamilton, Ohio.

ANSWER.—Excessive doses of common salt may produce death, and, ordinarily speaking, this may be said to be the result of poisoning. It is, of course, possible that a patient may be hypersusceptible to sodium chlorid. In THE JOURNAL, Oct. 5, 1912, p. 1290, a case of poisoning with common salt is reported by O. H. Campbell, and an editorial in the same issue, p. 1297, refers to five other cases. In Queries and Minor Notes, Oct. 26, 1912, p. 1560, there is a consideration of poisoning from sodium chlorid when used in large doses as a drug.

LITERATURE ON PELLAGRA

To the Editor:—Please cite recent literature on pellagra to be used in the preparation of a paper on that subject.

O. M. BOURLAND, M.D., Van Buren, Ark.

ANSWER.—The following refer to articles which have appeared within the last year:

- Italian Research on Pellagra, Foreign News, THE JOURNAL, May 22, 1915, p. 1776.
Cencelli, A.: New Theories and Investigations Concerning Pellagra, *Lancet*, London, April 17, 1915; abstr., THE JOURNAL, May 15, 1915, p. 1687.
Palmer, E. E., and Secor, S. L.: Treatment of Pellagra by Auto-serotherapy, THE JOURNAL, May 8, 1915, p. 1566.
Fossier, A. E.: Case of Pellagra Treated Successfully with Trisodium Citrate, *New Orleans Med. and Surg. Jour.*, May, 1915; abstr., THE JOURNAL, May 29, 1915, p. 1879.
Sanders, T. E.: Organism Probably Causing Pellagra, *Southern Med. Jour.*, March, 1915; abstr., THE JOURNAL, April 3, 1915, p. 1194.
Page, B. W.: Etiology and Treatment of Pellagra, *Southern Med. Jour.*, February, 1915.
Singer, H. D.: Mental and Nervous Disorders Associated with Pellagra, *Arch. Int. Med.*, January, 1915, p. 121; abstr., THE JOURNAL, Feb. 6, 1915, p. 539.
Blosser, R.: Observations Further Incriminating Sugar-Cane Products as Main Cause of Pellagra in South, *Southern Med. Jour.*, January, 1915; abstr., THE JOURNAL, Feb. 6, 1915, p. 543.
Page, B. W.: Etiology of Pellagra, *Med. Rec.*, New York, Jan. 2, 1915; abstr., THE JOURNAL, Feb. 6, 1915, p. 542.
Beeson, C. F.: The Thyroid Gland in Pellagra, THE JOURNAL, Oct. 12, 1914, p. 2129.
Siler, J. F.; Garrison, P. E., and MacNeal, W. J.: Relation of Methods of Disposal of Sewage to Spread of Pellagra, *Arch. Int. Med.*, October, 1914, p. 453; abstr., THE JOURNAL, Nov. 7, 1914, p. 1695.
Jennings, A. H.: Two Years' Study of Insects in Relation to Pellagra, *Jour. Parasitol.*, September, 1914; abstr., THE JOURNAL, Oct. 17, 1914, p. 1424.
Goldberger, J.: Beans for Prevention of Pellagra, Correspondence, THE JOURNAL, Oct. 10, 1914, p. 1314.
Voegtlin, C.: Treatment of Pellagra, THE JOURNAL, Sept. 26, 1914, p. 1094.
Lavinder, C. H.; Francis, E.; Grimm, R. M., and Lorenz, W. F.: Attempts to Transmit Pellagra to Monkeys, THE JOURNAL, Sept. 26, 1914, p. 1093.
Etiology of Pellagra, Editorial, THE JOURNAL, Sept. 26, 1914, p. 1114.
Pellagra and Potable Waters, Editorial, THE JOURNAL, Sept. 5, 1914, p. 868.
Dyer, I.: Treatment of Pellagra, *Texas State Jour. Med.*, July, 1914; abstr., THE JOURNAL, Aug. 15, 1914, p. 608.

Child Federation Bulletin Service.—The Child Federation of Philadelphia, May 1, began the demonstration of a new idea in publicity work when it placed in 300 locations in the congested districts of the city, bulletins, 17 by 22 inches, on the "Prevention of the Fly." The bulletin boards are made of sheet iron and are so constructed that the bulletins printed on cardboard, may be placed in them without the use of paste, tacks or other holding means. Twenty social agencies were approached and each was asked to install a certain number of bulletin boards. The location of the boards was selected after a thorough survey of the city. The bulletins to be placed during the coming year number seventeen, and will treat of the general sanitary measures regarding the home, the hygiene of the family, care of the baby, etc.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

- ALABAMA: Montgomery, July 6. Chairman, Dr. W. H. Sanders, Montgomery.
ALASKA: Juneau, July 6. Sec., Dr. Harry C. DeVigne, Juneau.
ARIZONA: Phoenix, July 6-7. Sec., Dr. John Wix Thomas, Phoenix.
CALIFORNIA: San Francisco, June 15-18. Sec., Dr. Charles B. Pinkham, 727 Butler Bldg., San Francisco.
CONNECTICUT: New Haven, July 13. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven; Eclectic: New Haven, July 13. Sec., Dr. T. S. Hodge, 19 Main St., Torrington; Homeopathic: New Haven, July 13. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.
DELAWARE: Dover and Wilmington, June 15-17. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.
DISTRICT OF COLUMBIA: Washington, July 13. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.
FLORIDA: Jacksonville, June 15-16. Sec., Dr. E. W. Warren, 102 Front St., Palatka.
ILLINOIS: Chicago, June 24-26. Sec., Dr. C. St. Clair Drake, Springfield.
INDIANA: Indianapolis, July 13-15. Sec., Dr. W. T. Gott, 120 State House, Indianapolis.
IOWA: Iowa City, June 10-12. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.
KANSAS: Kansas City, June 8-10. Sec., Dr. H. A. Dykes, Lebanon.
KENTUCKY: Louisville, June 8-10. Sec., Dr. A. T. McCormack, Bowling Green.
MAINE: Augusta, July 6-7. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.
MARYLAND: Baltimore, June 21. Sec., Dr. J. McP. Scott, Hagerstown.
MARYLAND: Homeopathic, Baltimore, June 15-16. Sec., Dr. O. N. Duvall, 1817 N. Fulton Ave., Baltimore.
MASSACHUSETTS: Boston, July 13-15. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.
MICHIGAN: Ann Arbor, June 8-10. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.
MISSISSIPPI: Jackson, June 15-16. Sec., Dr. E. H. Galloway, Jackson.
MISSOURI: St. Louis, June 21-23. Sec., Dr. J. A. B. Adcock, State House, Jefferson City.
NEBRASKA: Lincoln, June 10-11. Sec., Dr. H. B. Cummins, Seward.
NEW HAMPSHIRE: Concord, July 6-7. Regent, Mr. H. C. Morrison, Concord.
NEW JERSEY: Trenton, June 22-23. Sec., Dr. H. G. Norton, 429 E. State St., Trenton.
NEW MEXICO: Santa Fe, July 12. Sec., Dr. W. E. Kaser, East Las Vegas.
NEW YORK: Albany, Buffalo, New York and Syracuse, June 29-July 2. Mr. Harlan H. Horner, Chief, Examination Division, State Education Bldg., Albany.
NORTH CAROLINA: Greensboro, June 8. Sec., Dr. H. A. Royster, Raleigh.
NORTH DAKOTA: Grand Forks, July 6-9. Sec., Dr. G. M. Williamson, Grand Forks.
OHIO: Columbus, June 8-11. Sec., Dr. George H. Matson, Columbus.
OKLAHOMA: Oklahoma City, July 13. Sec., Dr. Ralph B. Smith, 502 Daniel Bldg., Tulsa.
OREGON: Portland, July 5. Sec., Dr. L. H. Hamilton, Medical Bldg., Portland.
RHODE ISLAND: Providence, July 1. Sec., Dr. Gardner T. Swaris, State House, Providence.
SOUTH CAROLINA: Columbia, June 8. Sec., Dr. A. Earle Boozar, 1806 Hampton St., Columbia.
SOUTH DAKOTA: Pierre, July 12. Sec., Dr. Park B. Jenkins, Waubay.
TENNESSEE: Memphis and Nashville, June 25, 26. Sec., Dr. A. B. De Loach, 426 Scimitar Bldg., Memphis.
TEXAS: Austin, June 22-24. Sec., Dr. M. P. McElhannon, Belton.
UTAH: Salt Lake City, July 5. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.
VERMONT: Burlington, July 1-3. Sec., Dr. W. Scott Nay, Underhill.
VIRGINIA: Richmond, June 22-25. Sec., Dr. J. N. Barney, Fredericksburg.
WASHINGTON: Seattle, July 6. Sec., Dr. G. N. Suttner, Baker Bldg., Walla Walla.
WISCONSIN: Milwaukee, June 29-30—July 1. Sec., Dr. J. M. Beffel, 3200 Clybourn St., Milwaukee.

Florida Homeopathic March Report

Dr. J. Burnie Griffin, secretary of the Florida Homeopathic Board of Medical Examiners, reports the written examination held at Jacksonville, March 5-6, 1915. The total number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 14, all of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Chicago Homeopathic Medical College (1886)	80;	(1887) 88;	(1896) 90;
	90;	(1900) 86.	
Hahnemann Medical College and Hospital, Chicago (1894)	91;	(1896) 90;	
	(1906) 89;	(1913) 85;	(1914) 89.
University of Michigan, Homeopathic Medical College..	(1899)		92
Pulte Medical College.....	(1900)		82
Hahnemann Medical College and Hospital, Philadelphia (1893)			85
Woman's Medical College of Pennsylvania.....	(1892)		81

Book Notices

THE MODERN FACTORY. Safety, Sanitation and Welfare. By George M. Price, M.D., Director, Joint Board of Sanitary Control in Cloak, Suit and Skirt and Dress and Waist Industries, New York City. Cloth. Price, \$4 net. Pp. 574, with 257 illustrations. New York: John Wiley & Sons, 1914.

This volume shows evidence of careful, systematic preparation. It considers first the history of the factory and the legal definitions of the term "factory." The growth of the factory system is shown as it has occurred in various nations. The types of modern factories are illustrated, the poor contrasted with the good, and numerous suggestions given as to methods of construction. In a section on factory fires and their prevention, a history of important fires is given and the conditions are analyzed to show the possibility of prevention. An important chapter is that concerned with factory accidents and safety. Of recent years great attention has been given to these points. The author gives many illustrations showing methods of preventing contact with belts, cog-wheels, vats, moving saws and punches. Chapter V considers light and illumination, the prevention of glare, the regulation of light, and closes with a discussion of the standards of the Wisconsin Industrial Commission.

Under Factory Sanitation the chief points concerned are washing and toilet facilities, and the provision of a safe drinking supply. A chapter on welfare work discusses the various means of establishing accident and sickness insurance, profit sharing, old age pensions, food inspection, educational work, etc. Other chapters concern air and ventilation in factories, industrial poisons, gases and fumes, and a summary of factory legislation and factory inspection.

The list of appendixes includes a selected bibliography for further study, a partial list of the more important investigations authorized by federal and state legislatures, and suggestions for the organization and execution of exit drills. There is an adequate index, the book is beautifully illustrated, is printed on good paper and seems to be wholly complete and authoritative.

BODILY CHANGES IN PAIN, HUNGER, FEAR AND RAGE. An Account of Recent Researches into the Function of Emotional Excitement. By Walter B. Cannon, George Higginson Professor of Physiology in Harvard University. Cloth. Price, \$2 net. Pp. 311, with 39 illustrations. New York: D. Appleton & Co., 1915.

"Fear, rage, pain and the pangs of hunger," says Dr. Cannon, "are all primitive experiences which human beings share with the lower animals. These experiences are properly classed as among the most powerful that determine the action of man and beasts. A knowledge of the conditions which attend these experiences, therefore, is of general and fundamental importance in the interpretation of behavior."

In this book Dr. Cannon has compiled a number of original articles which have appeared in current medical literature during the past year, and which represent work by himself and his associates in the Harvard Physiological Laboratory. An attempt has been made to arrange the discussions in a consecutive manner, and to explain technical terms so that the book may be understood by any intelligent reader.

PATHOLOGICAL TECHNIQUE. A Practical Manual for Workers in Pathological Histology and Bacteriology, Including Directions for the Performance of Autopsies and for Clinical Diagnosis by Laboratory Methods. By Frank Burr Mallory, A.M., M.D., Associate Professor of Pathology, Harvard University Medical School, and James Homer Wright, A.M., M.D., S.D., Pathologist to the Massachusetts General Hospital. Sixth Edition. Cloth. Price, \$3. Pp. 536, with 174 illustrations. Philadelphia: W. B. Saunders Company, 1915.

Rapidly appearing modern advances in pathologic methods require the issuing of new editions of standard texts at frequent intervals. The sixth edition of Mallory and Wright is extended by the inclusion of many such methods; for example, Lange's colloidal gold test, the complement fixation test for gonorrhea, and Bielschowsky's silver impregnation stain for nerve fibers. The authors do not attempt to give all the available methods, but merely such as have proved practical and efficient in their experience.

THE CHEMISTRY OF COLLOIDS AND SOME TECHNICAL APPLICATIONS. By W. W. Taylor, M.A., B.Sc., Lecturer in Chemistry at the University of Edinburgh. Cloth. Price, \$2 net. Pp. 328. New York: Longmans, Green & Co., 1915.

This book is based on a series of lectures to advanced students in chemistry, and therefore discusses the subject from the standpoint of the chemist. There is, to be sure, a brief final chapter on the applications of colloid chemistry to biology, but it covers little of the great amount of work that has been accomplished in this field. Physicians who read German will be able to learn more from the books of Ostwald and Bechhold that will interest them, but, lacking facility in reading scientific German literature, they can at least secure the fundamental principles from this work. It is brief and clear.

Miscellany

Ben Franklin's Views

At my first admission into this printing-house I took to working at press, imagining I felt a want of the bodily exercise I had been used to in America, where press work is mix'd with composing. I drank only water; the other workmen, near fifty in number, were great guzzlers of beer. On occasion, I carried up and down stairs a large form of types in each hand, when others carried but one in both hands. They wondered to see, from this and several instances, that the Water-American, as they called me, was stronger than themselves, who drank strong beer! We had an alehouse boy who attended always in the house to supply the workmen. My companion at the press drank every day a pint before breakfast, a pint at breakfast with his bread and cheese, a pint between breakfast and dinner, a pint at dinner, a pint in the afternoon about six o'clock, and another when he had done his day's work. I thought it a detestable custom; but it was necessary, he suppos'd, to drink strong beer, that he might be strong to labor. I endeavored to convince him that the bodily strength afforded by beer could only be in proportion to the grain or flour of the barley dissolved in the water of which it was made; and there was more flour in a pennyworth of bread; and therefore, if he would eat that with a pint of water, it would give him more strength than a quart of beer. He drank on, however, and had four or five shillings to pay out of his wages every Saturday night for that muddling liquor; an expense I was free from. And thus these poor devils keep themselves always under.—*Autobiography of Benjamin Franklin.*

Neither Are We

It is with some interest we learn that there has been formed in some American cities a league of women for the purpose of compelling medical men to adopt a certain method of treatment. These good ladies have heard of the bliss of "twilight sleep" and of the case of "painless labour," and while willing to produce children they are determined to do it with as little trouble to themselves as possible. This is so far a reasonable attitude, and one with which we do not quarrel. But the further step to the insistence on the rendering of labour painless by the use of scopolamin and morphin takes too many things for granted. It assumes, for instance, that scopolamin and morphin invariably produce the desired effect, and that they do so without appreciable danger. Unfortunately, neither of these propositions has yet been established. We are far from decrying the use of these drugs under suitable conditions and with the necessary care. But all our experience of them goes to show that their employment needs very careful attention—attention which it is not always possible to give in the conditions of ordinary obstetric practice. Whether these conditions will be modified in the future so as to permit of a wider use of these drugs remains to be decided, but their haphazard use at present is greatly to be deprecated. However, the ladies of the "Pain-

less Labour League" have made up their minds. They are going to have their labours painless, and they are, as a first step, setting themselves to classify practitioners according to whether they use scopolamin or do not. The names of those who do not use the drug are to be put on the black list, and women are to be warned against employing them. We are glad to say that in these countries we are not yet used to having our therapeutic judgment compelled in this way.—*Medical Press and Circular*, May, 1915.

Statistics of Appendicitis in the Prussian Hospitals in 1912

Appendicitis seems to have greatly increased in recent years. Up to the year 1905 in the various hospitals of Prussia these cases were included in the group of peritonitis, of which the total number had increased from 896 (399 men, 497 women in 1877, to 15,918 (8,402 men, 7,516 women) in 1905. From 1906 on, the cases of appendicitis and peritonitis were tabulated separately, and it was found that while the former increased greatly, the latter did not increase in any noticeable quantity. The statistics from 1906 to 1912 showed that the cases of appendicitis in this period were 16,781, 19,285, 22,813, 25,689, 31,425, 38,555 and 41,503, whereas the statistics for peritonitis were 2,390, 2,498, 2,512, 3,710, 4,401, 3,459 and 3,628. In 1906 there were 9,184, or 54.73 per cent., men, and 7,597, or 45.27 per cent., women. In 1912 there were 21,225 men, or 51.14 per cent., and 20,278 women, or 48.86 per cent. The death rate in this disease was 7.7 per cent. in 1906 as compared with 5.45 per cent. in 1912 for men, and 5.45, as compared with 3.61, for women. The number of operations was much greater among the young than among the adult, and the mortality proportionately greater according to the youth of the patient. There seems to be no definite increase in mortality among the adults as related to increasing age.

Medicolegal

Damages for Injuries Causing Epilepsy

(*Louisville & N. R. Co. vs. Winkler (Ky.)*, 173 S. W. R. 151; *Galveston, H. & S. A. Ry. Co. vs. Roemer (Tex.)*, 173 S. W. R. 229)

The Court of Appeals of Kentucky affirms, in the first case, a judgment for \$2,500 damages in favor of the plaintiff, Winkler, for personal injuries he received in an accident on a freight train on which he was serving as a conductor. The court says that while Winkler was seated in the caboose he was pitched forward about 10 feet, and his head struck the water cooler in the front end of the car. A gash was cut to the bone on the right side of his head, and he suffered other injuries which at the time he thought were of a minor nature. It was contended that the damages were excessive because, before this injury, Winkler was suffering serious consequences from an accident which happened to him about five years before. The cause of that accident was not explained, but it appeared that he received a blow on the left side of his head, and he admitted that he had one spell of epilepsy apparently traceable to it. Other witnesses testified to having seen him have as many as a dozen epileptic fits during the five years preceding, but the evidence showed that they were not frequent, were of short duration, and, with perhaps one exception, there was no interference with the performance of his duties as conductor. In the injury here complained of he received a depressed fracture of the skull on the right side of his head. From January 3, the time of the accident, to January 26, when he returned to work, he was under the care of a physician most of the time, and from then until October he worked most of the time. He then had to give up his work entirely because of the increasing frequency and severity of the epilepsy. Medical testimony showed that after this last injury each spell would affect him for several days; that he became extremely nervous, and lost weight; that he had a twitching and jerking of the muscles in his face and jaws, and impediment in his speech, and the neck

muscles had a certain amount of paralysis numbness; that his sight and hearing were impaired, and that his mentality had become very weak. A physician who examined him a few months before the accident, and again in December following, attributed the origin of the epilepsy to the old injury on the left side of the head, but said that the last injury on the right side had greatly accentuated the trouble. Under all the evidence, the court is unwilling to say that the verdict was excessive.

In the second case, wherein the plaintiff Roemer, in attempting to descend from the top of a freight car, was precipitated to the ground by a handhold giving way, the Court of Civil Appeals of Texas says that the case was peculiar, and there was presented to the jury a great mass of testimony pro and con on the question of whether plaintiff Roemer feigned the symptoms of epilepsy or whether he really suffered from terrible convulsions. This question was solved in his favor, and the court must take it for granted that he was afflicted as he claimed to be. If the testimony in his favor was true, at the age of 27 he received injuries which made him an invalid for life, and his affliction was such as to cause him constant dread, mental depression and much suffering. The court cannot say that a verdict of \$20,000 in his favor was excessive, and a judgment for that amount is affirmed. The testimony of a physician was admissible, although he had great difficulty in determining whether he merely suspected that the plaintiff's fall and injury caused the condition in which he found him, or whether it was his opinion that such was the case, but finally stated that it was his opinion.

Hospital Not Liable for Death from Smallpox

(*Jones vs. Sisters of Charity of the Incarnate Word (Tex.)*, 173 S. W. R. 639)

The Court of Civil Appeals of Texas affirms a judgment in favor of the defendants, whom the plaintiff had sued for damages for the death of his wife, who died from smallpox after she had been placed in the defendants' hospital to have an operation performed on her. The court says that, among the facts established by the undisputed evidence, it appeared that a physician had advised that it was necessary to have the operation, whereupon Mrs. Jones' son asked the physician to make arrangements to take his mother to the defendants' hospital. This the physician did, and notified the son, who then took his mother to the hospital, where they were met by one of the Sisters, and Mrs. Jones was given a room in a new building which had been recently added to the hospital, with which it was connected. At that time there was a smallpox patient on the opposite side of the hospital, and on a different floor from that on which Mrs. Jones was placed. The Sister who received Mrs. Jones did not inform her or her son that there was a case of smallpox in the hospital, and they were both ignorant of that fact; but the physician, who acted for Mrs. Jones and her son in making the arrangement with the hospital authorities, knew when he made the arrangements of the existence of the case of smallpox in the hospital. Other cases of smallpox thereafter developed, and, on the fourteenth day after Mrs. Jones was operated on, and when she was fully convalescent from the operation, she was stricken with smallpox, and died from that disease in a few days. However, there had never been a case of smallpox in the room, or in the portion of the hospital in which Mrs. Jones was placed, and no case except hers developed in that portion of the building. The court agrees with the trial judge that the facts were not sufficient to require the submission to the jury of the question of the defendants' liability for damages for the death of Mrs. Jones. There was no evidence of any intentional concealment on the part of the hospital authorities of the existence of the case of smallpox. Mrs. Jones' physician, who knew of the existence of the smallpox therein when he made the arrangements for her to enter the hospital, evidently thought it perfectly safe for her to go there, or he would have advised her to go elsewhere to be operated on. The health officer of the city, who gave directions as to the quarantine of the first patient, did not prohibit the reception of other patients in the hospital. The

court cannot see how the Sisters could be held negligent for doing that which the most eminent medical authorities, with a full knowledge of the situation, regarded as safe. The plaintiff's wife in some unaccountable way may have contracted the disease from cases which occurred in the hospital, but the hospital authorities could not, in the circumstances, have reasonably anticipated that she would contract the disease, and could not therefore be held to have been guilty of negligence in failing to inform her when she applied for admission that there was a case of smallpox in the hospital. The trial court instructed the jury to find a verdict for the defendants, and rendered judgment in accordance therewith, which judgment should be affirmed.

A Rupture Caused by Strain is an Accident or Untoward Event

(*Poccardi vs. Public Service Commission (W. Va.)*, 84 S. E. R. 242)

The Supreme Court of Appeals of West Virginia holds that a rupture caused by a strain while at work is an accident or untoward event, arising in the course of employment, and compensable under the workmen's compensation act. Proof of apparent previous good health, a heavy and unusual lift in the course of work, discovery of the rupture on the second day thereafter, death from surgical operation for relief thereof, and opinion of the operating surgeon that the rupture was caused by the lifting, is sufficient to establish accidental injury in the course of employment, within the meaning of said act. The court says that, responding to medical criticism of the theory of rupture by strain or exertion, the Washington Industrial Insurance Commission has adopted rules requiring proof, in cases of claims predicated on hernia: (1) That its origin was recent; (2) that it was accompanied by pain; (3) that it was immediately preceded by accidental strain in hazardous employment; and (4) that it did not previously exist. Similar rules have been adopted by the commission. Notwithstanding the criticism calling forth these rules, they impliedly admit possibility and probability of rupture from a strain, when the strain and rupture are in close relation. So does an article by the attorney for the Michigan compensation board, published in the National Compensation Journal, brought to the attention of the court by the brief for the commission. Both the rules and the thesis admit the English proposition that an internal injury, resulting from a strain while at work, is an accident, within the meaning of the act, and their limitations or restrictions on proof of the fact have not been judicially approved.

May Inquire About Angle at Which Roentgenograms Have Been Taken

(*Baltimore & Ohio Railroad Co. vs. Whitacre (Md.)*, 92 Atl. R. 1060)

The Court of Appeals of Maryland, in affirming a judgment for damages for personal injuries in favor of plaintiff Whitacre, says that several exceptions were taken relating to the taking of a roentgenogram of the hip bone, which was claimed to have been fractured—whether the angle at which taken would or would not tend to disclose or conceal any such fracture. Evidence had been given by physicians of the fact of fracture, discovered by manipulation; but the use of photography in cases of this character is now so universally recognized that it is properly regarded as evidence of the strongest sort in any such case, and yet, as is well known, the lights or shadows produced by the angle of light may make a material difference in the appearance. It was therefore entirely proper that the witness should be fully examined on this point.

Mistakes.—The cynical philosopher laments the pity that in life we only get our lessons when they are of no use to us. It is worth while, nevertheless, to keep burning brightly that purifying fire, the fear of making a mistake, remembering in all humility that most mistakes are in reality avoidable, avoidable simply by method, the harness without which only the horses of genius can travel.—Adolphe Abrahams, *Practitioner*, London, March, 1915.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, SAN FRANCISCO, JUNE 21-25.

American Academy of Medicine, San Francisco, June 25-28.

American Association of Anesthetists, San Francisco, June 21.

American Climatological and Clin. Association, San Francisco, June 18-19.

American Laryn., Rhin. and Otol. Society, Chicago, June 15-16.

American Ophthalmological Society, New London, Conn., July 6-7.

American Society of Tropical Medicine, San Francisco, June 14-16.

American Surgical Association, Rochester, Minn., June 9-11.

Arizona Medical Association, Prescott, June 17-18.

Maine Medical Association, Poland Springs, June 9-10.

Massachusetts Medical Society, Boston, June 8-9.

Montana State Medical Association, Bozeman, July 14-15.

Nat'l Assn. for the Study and Prev. of Tuberculosis, Seattle, June 14-16.

Nevada State Medical Association, Reno, June 17-19.

New Jersey Medical Society, Spring Lake, June 22-24.

North Carolina State Medical Society, Greensboro, June 16.

Washington State Medical Association, Tacoma, July 20-22.

AMERICAN NEUROLOGICAL ASSOCIATION

Forty-First Annual Meeting held at New York, May 6-8, 1915

The President, DR. GEORGE W. JACOBY, in the Chair

Postnatal Growth of the Brain Under Experimental Conditions

DRS. H. H. DONALDSON, S. HATAI and KING, Philadelphia: The general results of studies on the rat's brain are applicable to the human brain. Postnasal increase in the weight of the brain is due almost entirely to the enlargement of cell elements already present at birth. The increase in brain weight between birth and maturity is, in the rat, about ninefold. This corresponds to a doubling on the average of the initial diameters of the cells. Increase in size is most evident in the cell bodies of the neurons, but the formation of the myelin contributes more than any other single process to the increase in weight. Under all experimental conditions, the proportional weights of the divisions of the encephalon remain the same (except in the case of the bulbi olfactorii and flocculi). The conditions under which studies have been made are here grouped in accordance with their general effects on brain weight: 1. Unfavorable conditions. Domestication; some defective diets; disease (lung disease). 2. Indifferent conditions. Quantitative underfeeding with wholesome diets; some defective diets; inbreeding; gonadectomy. 3. Favorable conditions. Highly varied diets; exercise. Conclusions and applications.

Relation of Structure and Function in the Nervous System

DR. STEWART PATON, Princeton, N. J.: The first period of life is that preceding the incidence of the nervous system as an active factor in the mechanism of adjustment. It is characterized by a few responses which are primitive in character. Only in the lower vertebrates do we find that any movements of the body take place during this primitive period of embryonic life. We have a very delicate and fairly defined proof that the nervous system is beginning to play its rôle. We have another important sign in the incidence of neurofibrillation. The appearance of the neurofibrils is probably one of the finest indications that we have of the incidence of function of the nervous system. The heart beats have begun and very probably are initiated without the interference of the nervous system. The heart may be looked on as an elaboration of a function which exists in chemical functions. As soon as the nervous system comes in, a great change takes place. What do we find in the nervous system at this time? We find something very striking indeed, and I believe something that throws great light on practical neurologic problems. In the first place, we find that an enormous preparation has gone on in the whole system preceding the incidence of function. It is really almost startling when one sees the great preparation in the spinal cord, the middle and the upper part of the medulla which has taken place in the differentiation of tissue. The most striking sections you will find in the region of the development and persistence of the ancestral

type and enormous development of the cranial nerves. Undoubtedly these developments of the cranial nerves are transmitted to us from our ancestors lower down in the scale. Then if we go a little higher up in the medulla there is a very great development of the trigeminus, and in the embryo at this stage you can readily trace three branches coming off from the trigeminus. If we go one step higher in the medulla we come to the third nerve, which has no possible use at this stage of the life of the embryo, and yet is fully developed. What does this mean? The other point is that if we take this embryo just before the responses have begun, we find some very interesting conditions that I think will interest you practical neurologists. We find that such organs as the heart are definitely supplied with neurofibrils. You can trace out the whole cardiac mechanism. In addition to that you will find that an organ like the thymus has an enormous nerve supply. At an early stage, before the reactions of the body begin, the thymus has a definite and really an enormous nerve supply.

DISCUSSION

DR. JAMES J. PUTNAM, Boston: I would ask Dr. Paton whether he would be willing to accept all the conclusions to which the view that structure does really and truly precede function would logically lead. It is doubtful whether he would be willing to accept the conclusion that everything we know, learn and think as human beings, love of justice, honor and truth, are really nothing but the expression of structure, which itself is nothing but the expression of a rhythmic chemical process taken in the usual meaning of that term. It seems to me that is the conclusion to which we must come. Either structure precedes function or function precedes structure. From our own observation of ourselves, of thoughts and wills, we would think that function precedes structure. These researches of Dr. Paton's seem to indicate the reverse.

DR. PHILIP COOMBS KNAPP, Boston: One simple illustration that structure must necessarily precede function can be brought out from this fact: We are conscious of our functions. We are by no means conscious of the structure. The absolute necessity of the structure preceding function is shown by the fact that unless we have a proper visual apparatus, the person remains blind and never can see. But any one who has experience in teaching ought fully to realize that it is not the vague transcendental desire to know which accomplishes the acquisition of knowledge, but rather the ability of the student to grasp the idea and to develop his knowledge. Experience in teaching shows that in spite of the best-developed schemes of instruction, in spite of every desire on the part of the pupil to learn and in spite of every effort of the teacher, a certain percentage of the pupils, by reason probably of a defect of structure, are going to remain hopelessly stupid, a condition against which one regards oneself as powerless.

DR. STEWART PATON, Princeton, N. J.: So far as guinea-pigs are concerned, my statements are true. The criticism was very well taken about the possibility of function pre-existing. Of course I had only a few simple reactions in mind. As to the other higher reactions, I think it will be a long time before we get to them. I hope my hearers will not take what I have said dogmatically as applied to the human being, and think of me only as an enthusiast in regard to the guinea-pig.

Ventricular Hemorrhage

DR. ALFRED GORDON, Philadelphia: I have seen seven cases of extraventricular hemorrhage and five cases of primary intraventricular hemorrhage. Erosions of the walls of the ventricles, rupture of the vessels of the choroid plexus and miliary aneurysms were found in the five cases. In all the cases, profound changes of all layers of the walls of the vessels and especially in the intima were present. I would call special attention to the following symptoms: sudden onset without premonitory symptoms, profound coma at the outset and continuing for several days without improvement, absence of genuine paralysis, absence of rigidity and contracture during the days following the seizure,

and absence of the toe phenomenon. All these symptoms were so uniformly present in every one of the five cases of primary ventricular hemorrhage that pathognomonic inferences are permissible. In three cases there was a displacement of the brain tissue on the side opposite the hemorrhage. It is possible that the profound comatose state was due to this factor, and hence a decompression on the sound side may be of benefit. Accordingly, an operation was performed in one case, and considerable amelioration of the comatose state was obtained. Unfortunately, the other patients did not give their consent for surgical intervention.

DISCUSSION

DR. PHILIP C. KNAPP, Boston: I have seen a number of cases of intraventricular hemorrhage, most of them, however, of the secondary variety. I can hardly agree with the symptomatology which Dr. Gordon has given. In the ordinary symptomatology of the case, it has differed very little from that of an ordinary case of ventricular hemorrhage, excepting that the coma has been a little more sudden perhaps, and naturally distinctly more profound. In practically every case there have been distinct signs of hemiplegia as we ordinarily detect them in a person who is comatose. The one striking feature, however, in all the cases of ventricular hemorrhage has been that, although the duration of life is too short for contracture to develop, there has been a distinct rigidity of both sides. In no case have there been generalized convulsions. In a number of cases confirmed by necropsy I have felt that the rigidity and twitchings of the limbs are so characteristic as to warrant the diagnosis of intraventricular hemorrhage.

DR. ALFRED R. ALLEN, Philadelphia: At Dr. Spiller's instance a number of years ago, I studied in his laboratory the cases of ventricular hemorrhage with particular reference to the rigidity and twitchings. As I remember the specimens, in Dr. Spiller's cases they did not bear out the theory that of necessity there was any relation between rigidity and twitchings and ventricular hemorrhage.

DR. ERNEST SACHS, St. Louis: It is essential to recognize these cases, and if they are recognized, it seems that it is misdirected effort to do anything but try to approach the hemorrhage itself. To try merely to relieve pressure without trying to remove the extensive hemorrhage which is present seems unwise. I did not hear Dr. Gordon mention one symptom which has been described as rather characteristic of ventricular hemorrhage, and that is excessive temperature. I have been rather interested in this point from the physiologic point of view. It has been asserted by a number of experimental physiologists that this symptom is due to irritation of the fine fibers that lie along the floor of the ventricle. I have never been able to substantiate that, and am rather anxious to hear whether these cases, if they are pure ventricular hemorrhages, show that symptom.

DR. E. E. SOUTHARD, Boston: Relative to the hyperpyrexia in ventricular hemorrhage, there are sequestered cases in which the rupture of the vessel is of infectious origin. About ten years ago I had occasion to report two cases of bacterial apoplexy in which the organism of the streptococcus was found; these hemorrhages were from erosions in the wall.

DR. ALFRED GORDON, Philadelphia: In reply to Dr. Knapp's remarks with reference to hemorrhage, I would state that, as Dr. Knapp saw only secondary hemorrhages, his remarks in reference to this have no bearing on the subject discussed by me because I spoke particularly of primary hemorrhage. The five cases of the lateral ventricles alone were all uniformly accompanied by paralysis, no toe phenomenon and marked patellar reflex on the paralyzed side. In reference to the question of temperature, the primary case has at first no rise of temperature.

Intracranial Telangiectasis

DR. ERNEST SACHS, St. Louis: I report two cases, both having jacksonian convulsions, but no other evidence of intracranial pressure. The eyegrounds were normal and the Wassermann reaction negative. In the one case, on the

opening of the dura, a huge bluish mass of vessels protruded, which were so dense in places that the underlying cortex could not be seen. This mass lay over the motor area. There were no branches connecting with the dural vessels. In the second case the process was entirely confined to the dura, there being connections, however, between these vessels and the cortical vessels. Ligation of all these vessels relieved the symptoms and resulted in a cure. There are a number of cases in the literature which resemble one or the other of these cases, but they have usually been called angioma. A study of these cases, however, has led me to believe that these are not true angiomas but congenital tumors—telangiectasis. It seems essential to distinguish between true angioma, a neoplasm, and these congenital conditions. When reclassified they constitute a group which must be kept in mind in every case of jacksonian epilepsy. The clinical picture is quite a definite one: 1. Attacks of jacksonian epilepsy occurring at long intervals in nonsyphilitic young persons. 2. Unconsciousness of long duration. 3. No evidence of increased intracranial pressure. 4. A very slow progression of symptoms. 5. Telangiectases on the head or face. For this condition I suggest the name "intracranial telangiectasis."

DISCUSSION

DR. M. ALLAN STARR, New York: The distinction Dr. Sachs has made is an exceedingly important one and should by all means be adopted. I erroneously, as I now see, reported some years ago as an angioma a case quite similar to the second case of Dr. Sachs. That was a wrong classification; it was a case of telangiectasis. The case was an interesting one clinically. It came to operation and Dr. McCosh tied off these vessels. The patient was a boy of 17 who was brought to me from Charleston, S. C., to the Presbyterian Hospital because he was suffering from very peculiar attacks. These attacks had occurred for a year. They had begun at the age of 15. They were characterized by a sudden severe, intense pain in the pyramidal region on the left side. The pain was located over an area the size of a half dollar. The attack would begin gradually, and for three days he was in the most intense agony, and the agony was so great that by the end of the second day he was in a state of acute mania. He was entirely uncontrollable, fighting every one who came near him, and these attacks of mania had been increasing up to the time he was brought to New York. He suffered from these attacks at two weeks' intervals. No diagnosis had been made; there were no localizing signs. Between the attacks he was entirely normal in every way. There was no choked disk, and the condition was quite a mysterious one. The attacks appeared to resemble in a way attacks of cortical epilepsy, although there was absolutely no spasm. There was an area of tenderness over the skull where he felt pain, which remained between the attacks. McCosh decided it was worth while to make an exploratory trephining operation. He was trephined over the area of tenderness, and the dura was apparently normal; but on cutting through the dura there was found one of these conditions of telangiectasis. There was a mass of veins on the surface, and they resembled more a mass of fishworms than anything I could think of. The mass was tied off. The boy made a prompt recovery. He had temporarily a condition of complete astereognosis with ataxia of the right hand which, after three days, passed away. I heard from him two and three years after the operation, and he had been perfectly well up to that time.

DR. ALFRED GORDON, Philadelphia: In the proceedings of the Neurological Society of Philadelphia, published in the *Journal of Nervous and Mental Diseases* several years ago, you will find a description of a case almost identical with that of Dr. Sachs. It was that of a young man of 30, who for fourteen years, if not more, had attacks of convulsions in the right leg alone; never in the arm. The attacks were accompanied by loss of consciousness. Dr. DaCosta opened his skull on the opposite side in the upper portion and in the area corresponding to the center, and he found a square shaped appearance of the vein, surrounded by four veins as large as a little finger. The veins were ligated, and

the patient made a good surgical recovery. He developed a mild astereognosis in the right arm, and the convulsions ceased for a while. About six weeks later the convulsions returned. The patient later on came to see me again, and said that on exceedingly rare occasions he would have an attack.

DR. E. B. ANGELL, Rochester, N. Y.: I had a case of jacksonian epilepsy develop in a youth of 16 or 17. The attacks were so characteristic that it was easy to locate the lesion. The boy was operated on by Dr. Zimmer of Rochester very successfully. In this case we found the same condition as that described by the speakers. This patient recovered and has stayed well for fifteen years.

DR. J. RAMSAY HUNT, New York: Since Cushing's paper of a few years ago, I have been on the lookout for such cases with intracranial complications. I recall three cases. One was an old infantile hemiplegia in which there was a contralateral hemiplegia with epilepsy. The other case was that of a man who had a trigeminal nevus and who in his fiftieth year developed epilepsy. The epilepsy, however, was not of the jacksonian type. It was interesting, however, that always before the attack of epilepsy he would have a period, sometimes several hours, of severe pain directly beneath the trigeminal nevus, so there may have been in such a case a connection between his epilepsy, which was generalized, and the vascular lesion of the dura. One man I saw had a congenital bunch of veins, and all through his life had been subject to periodical headaches somewhat suggesting migraine. He states that before these headaches these veins would always begin to swell. Of course the relationship between the veins and the headaches is obscure, but I thought it always well to bear in mind the possibility of intracranial complications in these cases of trigeminal nevi.

Mental Disturbances in the Feeble-minded

DR. WILLIAM N. BULLARD, Boston: The character of attacks of mental disturbance in the feeble-minded is quite distinctive. In a person who shows only the ordinary conditions of feeble-mindedness or idiocy, there occurs without any exciting cause sufficient under ordinary conditions to produce such an effect a sudden outburst of violence or temper. They scream, strike, kick, bite, destroy clothing and furniture and often require forcible restraint; they are obscene and profane. The attack lasts only one or a few days. There are usually prodromal symptoms such as listlessness, indifference and unusual actions.

Case of Wilson's Disease—Progressive Lenticular Degeneration

DR. FREDERICK TILNEY, Brooklyn: This case presented a typical syndrome of progressive lenticular degeneration, as described by Wilson. It ran a moderately acute course, terminating in death in fifteen months. The outstanding clinical features were the marked hypertonicity of the somatic musculature and the evidence of extreme toxicity. A preliminary report of the pathologic findings in the brain is given, and with this the histologic findings of the spinal cord, liver, spleen, kidney, thymic remains, thyroid, heart, lungs and suprarenal bodies.

DISCUSSION

DR. H. H. HOPPE, Cincinnati: I had a case in a woman of 45 which presented quite a number of the features of Wilson's disease. There was hypertonicity associated with constant athetoid movements. The legs were constantly in a state of motion and the feet inverted. There are no pathologic changes in the reflexes, excepting that they are increased. The woman's mental state is practically normal, excepting that she is constantly in a state of rather pleasant frame of mind.

DR. A. R. ALLEN, Philadelphia: Wilson has so limited his disease, so exactly described what it is pathologically as well as clinically, that it is very difficult to make a diagnosis of Wilson's disease pure and simple, outside of the necropsy room.

(To be continued)

ASSOCIATION OF AMERICAN PHYSICIANS

Thirtieth Annual Meeting held at Washington, D. C., May 11-13, 1915

The President, DR. S. J. MELTZER, presiding

SYMPOSIUM ON CIRCULATION

Important Contributions to Clinical Medicine During
the Past Thirty Years from the Study of
Human Blood Pressure

DR. THEODORE C. JANEWAY, Baltimore: In Flint's "Practice of Medicine," published in 1886, there is a passage referring to an increase of blood pressure in cases of small granular kidney and in cases of apoplexy. This showed an appreciation of the problem from facts learned by the unaided senses. A little later, Delafield, in this association, spoke of cases with arterial narrowing, with increased intravascular tension, but no measurements of pressure were referred to. In 1889, Stengel read a paper on athletics, but there was no mention made of blood pressure observations. In 1903, Cabot presented observations on blood pressure in man, and in 1904, there was a second paper by Cabot on observations of blood pressure by the sphygmomanometer. Since then the programs have always contained some titles bearing on this subject. What has been the real gain? There has been developed an easily available method by which any physician can gain by measurement essentially accurate information concerning both the systolic and diastolic pressures in the arteries. It has made a clinical entity of essential hypertension, of cardiovascular disease. It has disclosed the high pressure of the eclamptic state, and the low pressure of amyloid kidney. It has revealed the curious fact that in aortic regurgitation the pressure is higher in the leg than in the arm.

The study of average human blood pressure in connection with life insurance statistics has constituted an important and distinctively American line of research; Fisher's statistics are most important and indicate the normal increase of blood pressure with age. The tendency is to agree with Lauder Brunton and Cooke that 135 mm. to midlife and 145 mm. thereafter mark the limits of normal maximum variations in man. We have learned, in individual cases, however, not to view hypertension with so serious a prognostic eye. From the therapeutic standpoint, the recognition of the greater importance of cardiac conservation and adequate circulation than reduction of abnormally high pressure has been a very important contribution to our knowledge. The beneficial effect of digitalis in maintaining compensation in these states is also a valuable contribution. The study of the effects of caffeine, strychnin and other allied heart stimulants in connection with observations of the blood pressure has resulted in disillusionment with respect to the value of these agents. Perhaps the most important of all the contributions to clinical medicine growing out of the study of human blood pressure have been the theoretical considerations having to do with the origin and explanation of the degenerative cardiovascular diseases, and these considerations must continue to be the basis of further study.

Dyspnea in Cardiac Diseases

DR. FRANCIS W. PEABODY, Boston: Acidosis plays an insignificant part in the dyspnea of simple cardiac diseases. Acidosis is a more important factor in the dyspnea of cardiorenal disease. The second conclusion might be expected from the facts that acidosis is often present in cardiorenal disease and that dyspnea is often present in the absence of cyanosis. To these facts may be opposed the objections that the acidosis is usually slight and that the dyspnea is clinically different from the hypnea of diabetes; in cardiorenal disease the dyspnea can be compared with exercise dyspnea.

In making our observations, a respirator was used and by rebreathing the carbon dioxide content of the respired air was increased. The respiratory products were measured and the stimulating effect of carbon dioxide was noted. Respiration in most persons is increased so that pulmonary ventila-

tion is doubled when the carbon dioxide reaches 4.5 or 5 per cent. In mild cardiac valvular disease, subjects behave in precisely the same way; in cardiorenal subjects, however, pulmonary ventilation is doubled when the carbon dioxide reaches 2.5 or 3 per cent. This difference in behavior is explainable on the basis that the reaction of the blood is more easily disturbed in cardiorenal disease on account of the high acidity induced by the acidosis. The experiments were further carried on to note the influence of alkalies in controlling the dyspnea.

Stokes-Adams Syndrome, with a Remarkable Delay in the
A-V Conduction Time

DR. W. S. THAYER, Baltimore: The woman on whom the observations were made was 50 or 55 years of age, the mother of several children. She had suffered with attacks of dyspnea for several years. After a series of attacks characterized by intermittent pulse, she became unconscious and the pulse became very slow. When I saw her she had a perfectly regular heart beat, rate 35 per minute. Examination with polygraph indicated that she was suffering from a total bradycardia with the A-V wave 0.7 second in duration. Electrocardiograms were made which upheld the suspicions excited by the polygraphic tracings, namely, that the heart was beating with one auricular to each ventricular contraction, and with the most remarkably prolonged p-r period of 0.68 second. After exercise, the pulse rate fell from 35 to 28 per minute, and by polygraphic tracings the A-V wave was now found to be 0.8 second, and later the A-V wave reached the unprecedented duration of nearly 0.9 second. It was desired to ascertain the effect of atropin, but the patient was hypersensitive to the drug, and its use had to be abandoned. There have been a number of similar seizures since, but the patient has utterly refused to allow further study. This case at first glance would seem to be one of ordinary heart block with dissociation; but on study it was found to be one of total bradycardia. So far as known, there is on record no other case with such a long pause between the auricular and ventricular contractions. Two polygraphic tracings taken six weeks apart with identical curves could hardly be a coincidence.

Present Status of the Electrocardiographic Method in
Clinical Medicine

DR. ALFRED E. COHN, New York: The electrocardiographic method has been used in clinical medicine for only ten years. It records the electrical discharges of the heart during its activity. The form of the curve remains constant through the greater portion of life. Any change in it represents a change in the heart or in its position. The normal curve depends on the orderly performance of four chief functions: (1) On the orderly spread of electrically excited states; (2) on the orderly sequence of auricles and ventricles; (3) on the orderly coordination of the muscular mass of each pair of cavities; (4) on the usual disposition and volume of the muscular mass of each pair of cavities. The abnormal electrocardiogram depends on a disturbance of one or more of these functions. Under the first head are grouped both auricular and ventricular extrasystoles, paroxysms of tachycardia, and changes in the T wave; under the second head, heart-blocks of various kinds; under the third head, the split P wave when there is auricular asynchronism in mitral stenosis, auricular fibrillation and flutter, ventricular asynchronism, and ventricular fibrillation; under the fourth head, the changes due to hypertrophy and dilatation and dextrocardia.

DISCUSSION OF SYMPOSIUM

DR. L. F. BARKER, Baltimore: The papers show very clearly the revolution in our ideas concerning the pathology of the circulatory apparatus. Electrocardiography is a method of investigation which has been so illuminating as almost to render the phlebogram and cardiogram merely historical. The arrhythmias by this method of study have been cleared up; the heart blocks are now well understood because of information derived from it; we have come also to understand auricular fibrillation—the 'delirium cordis' of

older writers. By the method we have come to understand also that condition known as auricular flutter, the senile tachycardia, and we have had elucidated the controlling influence of digitalis on it. The electrocardiograph owes its greatest value perhaps to the fact that any unusual curve recorded by it from the human heart may be reproduced experimentally in animals, and thus our ideas may be cleared by demonstrable facts and we no longer need to depend on theory.

DR. JAMES B. HERRICK, Chicago: I wish to ask Dr. Cohn if there is any definite explanation of inversion of the T wave in Leads 1 and 2? There may often be seen such an inversion in various pathologic conditions, and its occurrence is usually regarded as of bad prognostic omen; why should this be so? I wish to ask also if the split P wave, seen in cases of mitral stenosis, might not at times be seen in curves from normal hearts? May it not be due to asynchronism of the ventricles?

DR. ALFRED E. COHN, New York: The T wave is sometimes inverted in Leads 1 and 2 without necessarily being very significant; but it is seen so regularly in so many very serious lesions that it is usually regarded as a bad prognostic sign. It may not invariably be a bad sign, however, because it may appear in a tracing from a case in which, if many tracings were taken, the majority would not show the inversion.

SYMPOSIUM ON THE DUODENUM

Physiology and Pathology of Duodenal Mucous Membrane

DR. THOMAS R. BROWN, Baltimore: The various problems which must be solved in studying the mucosa of the duodenum may be inferred by considering the events that here go on, depending on the simultaneous presence of three juices, all necessary and all secured by intricate reflex secretion. The extreme complexity of the physical and chemical events going on makes the problem important and difficult. Atony and spasm of the duodenum may both be functional. The hypothetic secretory function of the duodenum is explanatory of the stormy symptoms seen in high intestinal obstruction. The probable immediate cause of duodenal ulcer is the digestive action on the mucosa of trypsin and other proteolytic ferments; but what accident befalls the mucosa to account for this invasion? This has not been demonstrated. Hyperacidity may account for the accident or the action of some vagatonin in psychoneurotic individuals; or some infectious process may underly the event.

Use of the Duodenal Tube for Diagnosis and Treatment

DR. FRANKLIN W. WHITE, Boston: The clinical use of the duodenal tube (introduced by Einhorn and by Gross in 1909-1910) has proved its value in a limited field. I used the tube in eighty-six cases, in sixty-six for diagnosis; in twenty for treatment. A fluoroscopic study of the technic of the introduction of the duodenal tube showed that by placing the fasting patient successively in simple postures, the tube may be introduced into the duodenum within half an hour in a majority of cases in which organic stenosis is not present. Spasm of the pylorus, and atonic and hook-shaped stomachs may delay the tube. A heavy (Gross) tube tip enters the duodenum more rapidly than a light (Einhorn) tube tip. A small tube No. 8 French with a heavy tip of at least 100 grains' weight (Palefski) is best of all for diagnostic work. It is not difficult to tell the position of the end of the tube. It is as safe as an ordinary stomach tube.

In diagnosis, examination of the duodenal contents was most useful in diseases of the pancreas and in cases of chronic jaundice. It is the only method of directly obtaining the secretions of the pancreas and liver. There is considerable normal variation in the pancreatic ferments; only absence or marked diminution has much value in diagnosis. Examination of the feces in some cases was almost equally valuable and simpler; in others the examination of the duodenal contents was much more valuable. In treatment the duodenal tube (Einhorn) was useful in a limited group

of cases of peptic ulcer. (It was used only in cases without organic obstruction and in cases resisting ordinary medical treatment.) It may be used to improve the patient's condition before operation, in ptosis and atony with delay in emptying the stomach and vomiting, and it has considerable value in cases of persistent vomiting of nervous and toxic type. Here an unusually long tube is desirable to prevent regurgitation into the stomach. It was used in two cases of cancer of the esophagus (stomach feeding). Almost every case was improved by duodenal feeding, and in a considerable number the symptoms stopped. It is superior to rectal feeding, as patients keep their weight or gain. A vacuum bottle as reservoir and the Murphy drop method is preferred to a syringe for introducing food.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Albany (N. Y.) Medical Annals

May, XXXVI, No. 5, pp. 201-266

- 1 Diagnosis of Cerebral Tumor. L. Archambault, Albany.
- 2 Pathology of Brain Tumors. W. D. Ayer, Albany.
- 3 Treatment of Brain Tumors. D. Baker, Albany.

American Journal of Insanity, Baltimore

April, LXXI, No. 4, pp. 685-839

- 4 *Two Cases of Typhoid with Permanent Memory Defect. D. K. Henderson, Baltimore.
- 5 Psychic Factors in Mental Disorder. M. A. Harrington, White Plains, N. Y.
- 6 *Thymus and Pituitary in Dementia Praecox. S. D. W. Ludlum and E. P. Corson-White, Philadelphia.
- 7 *So-Called Mixed States and Atypical Forms of Manic-Depressive Insanity. H. D. Singer, Kankakee, Ill.
- 8 Behavior Chart in Mental Diseases. E. J. Kempf, Baltimore.
- 9 *Colloidal Gold and Other Tests Applied to Spinal Fluid in Psychiatry. P. G. Weston, I. A. Darling and P. B. Newcomb, Warren, Pa.

4. Typhoid with Permanent Memory Defect.—One of Henderson's patients had typhoid in 1910, followed by an indifferent placid state, with outbreaks of irritability, and a marked persistent memory reduction for recent events. The other patient had typhoid in 1903, followed by a marked defect in memory for recent events, which has been persistent, and followed later by an unstable, variable, emotional condition with vague ideas of persecution.

6. Thymus and Pituitary in Dementia Praecox.—In a group of cases of dementia praecox examined by Ludlum and Corson-White, Abderhalden reactions were obtained in some instances to testicle and pancreas; and in others to testicle and thyroid; while in still others no reaction could be secured. In the individuals that gave the reactions to testicle and pancreas, there were observed physiologic symptoms of the same type as those found in animals from which the thymus had been removed. In examining the blood of animals whose thymus had been removed, the same reactions were obtained as in the cases of a certain group of patients, indicating that in this group there exists a disease entity. With regard to the pituitary, there were a considerable number of cases with the symptoms of dyspituitarism that improved with pituitary extract. There were also a group of cases of hyperpituitarism that improved with the opposite organic extract, which is the Brown-Séquard fluid.

From a comparatively large number of examinations in cases of pregnancy, cancer, sarcoma, mental disease and experimental animals (examinations carefully repeated and doubly controlled), the authors feel that the Abderhalden reaction is specific; that is, that it represents a definite specific phenomenon. Whatever the ultimate explanation of the phenomenon may be, whether as Abderhalden suggests, it is due to the presence of a specific protective ferment, or, as Bronfenbrenner and Schwartz suggest, that it is an auto-

digestion of the serum by the specific removal of a normal inhibiting substance, probably the antitrypsin allowing the normal protease to act—it is the expression of a specific phenomenon.

7. Forms of Manic-Depressive Insanity.—The essence of the manic-depressive reactions, according to Singer, is the occurrence of some appropriate affective attitude of the organism as a whole which is of purposeful character, abnormal because of its severity and duration and because there is no apparent external cause of its adoption. The so-called mixed states and atypical forms are not mixtures simply of certain traits, but represent affective oscillations colored by peculiarities in the make-up of the individual patient. Such modes of adjustment must be carefully studied and weighed in rendering a prognosis in any individual case.

9. Tests Applied to Spinal Fluid in Psychiatry.—This report is based on a study of 198 individuals suffering from different psychoses. In all 239 separate punctures and examinations of the spinal fluid, which, in addition to the "goldsol" test, were also subjected to the scrutiny of the Wassermann reaction, estimation of the globulin content by the Noguchi butyric acid method, cell count and volumetric approximation of albumin. In the cases (3) diagnosed clinically as cerebrospinal syphilis the Wassermann reaction on the spinal fluid was always positive and the colloidal gold test showed a reaction in the paretic zone. In paresis (34 cases) the colloidal gold test was always found positive in cases in which the spinal fluid showed a similar reaction to the Wassermann test, in addition to which one instance is noted in which the fluid Wassermann was negative, but a reaction in the luetic zone was obtained by the gold solution. In dementia praecox (98 cases), manic-depressive insanity (25 cases), arterio-sclerotic dementia (17 cases), and epilepsy (12 cases), there was no positive Wassermann reactions on the fluid, and likewise no response to the gold solution in the typical "paretic zone." However, the latter reagent did furnish, in 8 cases of the 152 examined, a reaction within the minor limits of the "luetic zone."

In the unclassified psychoses (9 cases), the colloidal gold and the Wassermann reactions on the fluid ran a parallel course, except in one case, which showed a negative response to the Wassermann test on the fluid, but gave a gold reaction in the "paretic zone." This instance is clinically a possible case of paresis. The opinion is given by the authors that the colloidal gold reaction forms a useful adjuvant to the Wassermann, is apparently as reliable, and, in some instances, by reason of positive response in the absence of the Wassermann in clinically luetic cases, has seemed to point toward the possible appearance of a later positive Wassermann in the suspected individuals.

Annals of Ophthalmology, St. Louis

April, XXIV, No. 2, pp. 217-442

- 10 Question of Spontaneous Sympathizing Inflammation. J. Meller, Vienna.
- 11 Report of Series of Fifteen Hundred Cases of Errors of Refraction and Brief Analytic Consideration of Symptoms Presented. J. R. Newcomb, Indianapolis.
- 12 Case of Alternating Transient Monocular Blindness Ending in Complete Loss of Vision in Left Eye. H. M. Langdon, Philadelphia.
- 13 Resumé of Trachoma Bodies as Etiologic Factor in Trachoma and in So-Called Inclusion Blepharitis. F. W. Alter and W. O. Bonser, Toledo.
- 14 Routine Refraction Problems. H. Woods, Baltimore.
- 15 Smith Intracapsular Operation: Answer to F. B. Tiffany. F. E. Auten, Belleville, Ill.

Annals of Surgery, Philadelphia

May, LXI, No. 5, pp. 513-640

- 16 Blastomycosis; Report of Four Cases. F. E. McKenty and D. Morgan, Montreal, Canada.
- 17 *Operative Treatment of Arterial Thrombosis and Embolism; Report of Three Cases. F. T. Stewart, Philadelphia.
- 18 *Gallstones. J. C. Hubbard and A. R. Kimpton, Boston.
- 19 Surgical Treatment of Gastrocoloptosis. J. Douglas, New York.
- 20 *Rôle of Gastro-Enterostomy in Treatment of Ulcers. F. Martin and A. H. Carroll, Baltimore.
- 21 Pathogenesis of Umbilical Hernia. A. V. Moschcowitz, New York.
- 22 *Cystic Dilatation of Vermiform Appendix; Report of Case. O. L. Castle, Kansas City, Mo.

- 23 Pylephlebitis Complicating Appendicitis; Report of Three Cases. E. A. Babler, St. Louis.
- 24 *New Method of Lateral Anastomosis of Blood Vessels and Operation for Cure of Arteriovenous Aneurysm. J. S. Horsley, Richmond, Va.
- 25 *Tongue-Depressor Gastro-Enterostomy Clamp. C. L. Gibson, New York.
- 26 *Prevention of Keloids in Scars by Underlining of Incisions with Strips of Fascia Lata. L. Freeman, Denver.
- 27 Rupture of Biceps Flexor Cubiti; Report of Eight Cases. E. G. Alexander, Philadelphia.
- 28 *Usefulness of Ventral Decubitus in Some Leg Amputations. R. Finochietto, Buenos Aires, Argentina.

17. Operative Treatment of Arterial Thrombosis and Embolism.—In one case cited by Stewart a diagnosis was made of an embolus in the abdominal aorta at the origin of the left common iliac artery. Pulsation of the abdominal aorta could be made out by palpation. Pulsation could not be felt in the external iliacs, or in any of the arteries in the lower limbs. The right foot was black and shriveled, the lower two-thirds of the right leg purplish, with loosening of the epidermis and bleb formation. The left leg was painful, tender, useless, warm (because of the presence of external heat) and pale, except over an indurated area, about 2 inches in diameter, just external to the middle of the tibia, in which the skin was reddened and edematous.

The abdomen was opened in the median line below the umbilicus, the small intestine segregated in the right side of the abdomen, and the sigmoid pressed to the left. The iliacs were motionless; the aorta pulsated to a point near the bifurcation, at which point it was hard. The posterior parietal peritoneum was incised, and a silk ligature passed beneath the aorta at a point $1\frac{1}{2}$ inches above the bifurcation. This ligature was not tied, but it was placed so that it could be tied in the event of bleeding that could not be controlled otherwise. While an assistant compressed the aorta with a finger, a longitudinal incision extending upward from the bifurcation for three-fourths of an inch, was made in the anterior wall of the aorta. After removing, in several pieces, a dark friable clot, evidently of recent formation, which lay beneath the incision and protruded into the left common iliac artery, the embolus itself was uncovered, and easily forced through the wound by pressure, from below upward, on the right common iliac artery into the orifice of which the lower end of the embolus had been driven. There were apparently no firm adhesions between the obstructing mass and the intima, which appeared to be smooth and undamaged.

After milking several more small fragments of clot from the left common iliac, pressure on the aorta was relaxed for an instant, in order to wash any remaining coagula through the wound, and the aorta closed with a continuous through-and-through silk suture, over which a second continuous suture, including the outer coats only, were inserted. The posterior parietal peritoneum was drawn together with a continuous suture of catgut, the abdominal wall with interrupted stitches of silkworm-gut. The operation, which lasted about an hour, had little immediate effect on the patient's general condition. On the third day after the operation death occurred from cardiac weakness and pulmonary edema. A necropsy could not be obtained.

18. Gallstones.—A study of 400 cases of gallstones entering the surgical wards of the Boston City Hospital in the years 1907 to 1913 (six years) was made by Hubbard and Kimpton. Only such cases were used in this study in which stones were found at operation, 226 cases, 55 males and 182 females. Pain of severe type was practically always the prominent symptom, occurring in 212 cases. The second prominent symptom was vomiting, present in 137 cases, or 62 per cent., varying from mild to severe, persistent and most distressing. Jaundice varying from a yellow discoloration in the eyes to a definite yellow tinge to the whole body is mentioned in 107 cases, or 48 per cent. The site of the stones is of special interest in these cases of jaundice. Of the 107 jaundiced persons 70 had stones in the gallbladder only; 25 had stones in the common duct only or in addition to stones in other portions of the biliary tract; 9 in the cystic duct alone, or in conjunction with stones elsewhere, and in 3 the stones are described as being in the "ducts." Chills occurred only 9 times.

The character of the stools was mentioned in but a few of the cases, in 14 clay or white, in 2 light colored. A mass in the abdomen was present in 49 cases with a questionable mass in 6 additional. Pus was present in the gallbladder in 28 cases. It was found in both contracted and distended bladders. A contracted bladder occurred in connection with a stone in the common duct more frequently than a distended bladder. Cholecystostomy was performed in 177 and cholecystectomy, complete or partial, in 24 cases. Pulmonary complications developed in 14 cases, and in a majority of these caused death. Thirty-one patients died in the hospital as a result, or in spite of operation. The end-results, not including those patients who died in the hospital, have been learned in 91 cases. Seventy-four, or 81 per cent., consider themselves well, cured by the original operation. Of this number, 5 qualify this statement by saying that they still have some indigestion. Four patients are having trouble, not apparently due to gallbladder disease. Three still have attacks of pain, etc., suggestive of gallstones, and one is "not well."

20. Gastro-Enterostomy in Ulcers.—According to Martin and Carroll, it can be shown roentgenographically that in man, as well as experimentally in animals, a patent pylorus tends to functionate notwithstanding the presence of a patent stoma; that gastric contents will leave via the stoma, and at first in large quantity, but that it is not a fact that the egress continues rapidly later.

22. Cystic Dilatation of Vermiform Appendix.—This is a rare form of appendix disease, available postmortem records showing it to be present in about 0.2 per cent. of cases. It is usually symptomless and benign, but may, on rupture, produce pseudomyxoma peritonei in every way similar to that of ovarian cyst origin.

24. Abstracted in *THE JOURNAL*, Jan. 23, 1915, p. 365.

25. Tongue-Depressor Gastro-Enterostomy Clamp.—Gibson uses three small pieces of wood, the ordinary wooden tongue-depressors, bound together by any suitable method, such as a strong artery clamp, or, if more convenient, a sterile rubber band. The tongue-depressors might be replaced by strips of cigar boxes. Both in experimental and clinical work, it has proved much more satisfactory than the Roosevelt, Bartlett and other clamps used for this purpose. Gibson has found it particularly satisfactory in doing a gastro-enterostomy, when it is desired to release the clamp in putting in the last mucous muscular suture and the final peritoneal suture. Removing the rubber band allowed the tongue-depressors to fall apart without further manipulation. By this method injury to the viscera is less likely to be produced. Two gastro-enterostomies and one entero-anastomosis have been successfully done with the aid of these clamps.

26. Prevention of Keloids in Scars.—A young woman consulted Freeman regarding the removal of a disfiguring scar resulting from an operation for tuberculous lymph nodes of the left side of the neck. It extended from the mastoid to the center of the clavicle and was as wide and as thick as one's thumb. It was fiery red and formed a conspicuous and mortifying deformity, as it stretched across the neck like a great "flying buttress." A strip of fascia lata was procured from the thigh, long enough to reach from the mastoid almost to the clavicle, with the head in the median position, and about as broad as one's finger. After thoroughly extirpating the scar and undermining the edges of the wound, the strip was spread lengthwise beneath the incision. It was then fastened to the under surface of the skin and fascia on one side, and to the deeper tissues on the other side, with a few sutures of fine catgut, thus permitting the union above it of the integument and cervical fascia without danger of displacement. Primary union was obtained. Posterior to the longer scar described above was a much shorter one, which was also hypertrophied and red. This was likewise excised, but for various reasons was not underlined with fascia lata, although the deep fascia was carefully sutured. Hence this second scar became a sort of "control experiment."

At the end of over twelve months the results of the procedure are as follows: When an attempt is made to incline the head to the opposite side, this movement is checked by the strip of fascia lata, which stands out plainly beneath the skin. This does not inconvenience the patient, because the same check was produced to even a greater extent by the false keloid. There is absolutely no pull on the new scar, which is soft and freely movable on the surface of the underlying graft. There is little tendency to hypertrophy or redness, except near the clavicle, to which the fascial strip did not quite extend. In other words, the new scar is relatively inconspicuous and "normal." The smaller posterior scar, the "control experiment," which was not underlined, has become markedly red and elevated, in spite of its being relieved from a certain amount of strain by the anterior fascial graft; while the longitudinal scar on the thigh from which the graft was obtained is fiery red and almost as broad and thick as one's little finger. In a second case the disfigurement was not so great as in the preceding case, but it was sufficient to justify an energetic attempt at its removal. The result, at the end of four months, is eminently satisfactory, the scar being small, soft, not red and freely movable over the fascial graft.

28. Amputations of Leg.—In cases of amputation through the upper two-thirds of the leg, Finochietto says, examinations, operations and dressings should be done while the patient is in the ventral decubitus. All classes of anesthetics can be administered and will be perfectly tolerated in that position. While in this position flaps of any form can be raised and one may employ at will subperiosteal, periosteal, anaperiosteal and osteoplastic methods. Any method of amputation can be performed more easily while the patient is in the ventral decubitus. Equally well, in the same position, any condition which involves all or a greater part of the leg circumference, as ulcer, lymphangiomata, cirroid aneurysms, etc., may be examined and operated.

Boston Medical and Surgical Journal

May 20, CLXXII, No. 20, pp. 731-768

- 29 "Do's" and "Don'ts" in Diagnosis of Early Pulmonary Tuberculosis in Adults and Children. J. B. Hawes, 2d, Boston.
- 30 Study of Two Hundred and Sixty Cases of Acute Appendicitis at Massachusetts General Hospital. L. Davis, Boston.
- 31 Obesity and Malnutrition. W. E. Preble, Boston.
- 32 Relation of Alcohol to Accidents. W. J. Brickley, Boston.
- 33 Acidosis in Children. A. A. Howard, Boston.
- 34 Parenteral Administration of Horse Serum in Cases of Horse Asthma. J. L. Goodale, Boston.
- 35 Gangrenous Epiploic Appendix; Report of Case. A. R. Kimpton, Boston.

California State Journal of Medicine, San Francisco

May, XIII, No. 5, pp. 169-210

- 36 Diagnosis of Gastro-Intestinal Disease. C. W. Lippman, San Francisco.
- 37 General Paresis and Its Relation to Syphilis, with Report of Pathologist of Napa State Hospital. A. W. Hoisholt, Napa.
- 38 Laboratory Report, Napa State Hospital. W. T. Harrison, Napa.
- 39 Harrison Antinarcotic Act. F. Lengfeld, San Francisco.
- 40 Functional Defects of Thyroid in Relation to Neurotic Conditions. H. W. Wright, San Francisco.
- 41 Successful Methods of Attack on Malaria in California. W. B. Herms, San Francisco.
- 42 Drug Anaphylaxis. A. J. Scott, Jr., Los Angeles.
- 43 Report of Three Years' Rectal Work at County Hospital. W. H. Kiger, Los Angeles.
- 44 Consideration of Relative Merits of Albee Operation and Hibbs Operation. E. H. Smith, San Francisco.
- 45 Water-Borne Typhoid Epidemic. W. A. Sawyer, Berkeley.

Canadian Medical Association Journal, Toronto

May, V, No. 5, pp. 373-468

- 46 Artificial Pneumothorax in Treatment of Tuberculosis. C. D. Parfitt and D. W. Crombie, Gravenhurst.
- 47 *Uterine Hemorrhage at and after Menopause. F. A. Cleland, Toronto.
- 48 *Some Sequelae of Antityphoid Inoculation. W. Boyd, Winnipeg, Manitoba.
- 49 Juvenile Delinquency. G. S. Mundie, Victoria, B. C.

47. Uterine Hemorrhage at and After Menopause.—Cleland summarizes his paper as follows: The menopause is probably induced by retrogressive changes in the ovary. The

menopause is subsidence of the flow of blood, an increase in the flow is always pathologic. The menopause may occur during a period of thirty years or more. A local examination should always be made in cases in which hemorrhage occurs near the menopause. Professional and public education regarding the early symptoms of cancer of the uterus is necessary. In severe cases of uterine hemorrhage which have resisted all medicinal treatment and in which the patient is becoming progressively worse, hysterectomy is indicated. There seems to be no connection between hyperplasia and hypertrophy of the endometrium and hemorrhage from the uterus. At or near the menopause the curet is of little service except for diagnostic purposes. No palliative measures should be tried till malignant disease is excluded. General conditions may be the cause of hemorrhage, and syphilis should not be overlooked. Organotherapy is of little value in hemorrhage at or after the menopause. Blood transfusion is a possibility in treatment of severe cases.

48. Sequelae of Antityphoid Inoculation.—The effects of prophylactic inoculation were observed by Boyd on the 18,000 men composing the North Midland Division of the Territorial Force. In quite a number of cases definite evidence was observed of a considerable increase of intestinal activity. In one case inoculation bore a close causal relationship to an attack of typhoid. In four cases jaundice developed a few days after inoculation. In two cases inoculation was closely followed by an attack of pneumonia. Three cases of severe urticaria came under Boyd's observation. In one of these the color was of a remarkably vivid hue; it was as if the patient had been steeped in some anilin dye, such as eosin. In no case did the condition last for more than forty-eight hours. None of the cases showed any rise of temperature. The author concludes that in the great majority of cases inoculation is a harmless procedure, involving at the most a certain degree of temporary discomfort, and those constitutional symptoms comprised under the term "inoculation fever." In a few cases the sequelae are of a more serious character, and in some instances inoculation may be followed by such conditions as pneumonia, appendicitis (two cases) and severe gastro-intestinal catarrh.

Iowa State Medical Society Journal, Des Moines

April, V, No. 4, pp. 129-168

- 50 Myocarditis. H. C. Eschbach, Albia.
- 51 Shock. C. B. Taylor, What Cheer.
- 52 Cholelithiasis, Like Appendicitis Should be Treated by Early Operation. J. L. Augustine, Ladora.
- 53 Laboratory Observations. C. W. McClure, Iowa City.
- 54 Defensive Ferments of Abderhalden. M. W. Hall, Des Moines.
- 55 Heliotherapy in Treatment of Tuberculosis. J. W. Kime, Fort Dodge.
- 56 Some Problems in Obstetrics. J. C. Powers, Hampton.

May, No. 5, pp. 169-214

- 57 Leukoplakia Buccalis. R. Levy, Denver.
- 58 Ophthalmology, Otology and Rhinolaryngology. J. C. Beck, Chicago.
- 59 Colon Bacillus Infection. M. Emmert, Atlantic.
- 60 Conservation of Middle Aged. J. F. Herrick, Ottumwa.
- 61 Use of Pituitary Extract in Labor. N. Noble, Des Moines.
- 62 Diagnostic Technic in Pulmonary Tuberculosis. J. W. Shuman, Sioux City.
- 63 Trichiniasis; Report of Epidemic. C. W. McClure, Iowa City, and M. Ware, New Liberty.
- 64 Accidental Trauma to Abdominal Viscera, Requiring Immediate Section. C. E. Conn, Battle Creek.
- 65 Therapeutics. F. N. Mead, Cedar Falls.

Journal of Abnormal Psychology, Boston

April-May, X, No. 1, pp. 1-79

- 66 Hysteria as Weapon in Marital Conflicts. A. Myerson, Taunton.
- 67 Analysis of Nightmare. R. Bellamy, Emory, Va.
- 68 Analysis of Single Dream as Means of Unearthing Genesis of Psychopathic Affections. M. Solomon, Chicago.
- 69 Act of Everyday Life Treated as Pretended Dream and Interpreted by Psychoanalysis. R. Bellamy, Emory, Va.
- 70 Freud and His School. A. W. Van Renterghem, Amsterdam.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

May, VI, No. 5, pp. 533-621

- 71 Influence of Temperature and Concentration on Quantitative Reaction of Heart to Ouabain. T. Sollmann, W. L. Mendenhall and J. L. Stingel, Cleveland.

- 72 Signal-Magnet Controller. C. S. Chase and B. H. Schlomovitz, Iowa City, Iowa.
- 73 *Toxicity of Rattlesnake Serum and Bile with Note on Effect of Bile on Toxicity of Venom. W. H. Welker and J. Marshall, Philadelphia.
- 74 *Some Vasomotor Reactions of Liver, with Special Reference to Presence of Vasomotor Nerves to Portal Vein. C. W. Edmunds, Ann Arbor, Mich.
- 75 *Demonstration by Use of Arterial Rings of Inhibitory Action of Certain Drugs on Vasoconstriction Produced by Epinephrin. D. I. Macht, Baltimore.

73. Toxicity of Rattlesnake Serum.—According to Welker and Marshall, rattlesnake venom injected intramuscularly into the same rattlesnake or into another rattlesnake is not toxic. Injected intraperitoneally into guinea-pigs and intramuscularly into pigeons, it appears to be less toxic than rabbit serum. Captivity of the rattlesnake seems to produce an abnormal condition of the blood that is unfavorable to blood clotting. The bile of the rattlesnake is not highly toxic for pigeons, nor has it any antitoxic action for rattlesnake venom.

74. Some Vasomotor Reactions of Liver.—It was noted by Edmunds that under the action of epinephrin the liver volume changes are not the same in all animals, even in those of the same species. In the dog the usual effect of the injection of epinephrin is a constriction of the liver which continues during the time that the general blood pressure is reaching its maximum and returning to normal again. In the cat the usual type encountered is an increase in volume dependent on the increased efficiency of the heart. Variations from both types are frequently seen. When the hepatic artery is tied, all the types resolve into one. In this type there is no marked change in volume during the early portion of the curve, but later there is a marked increase. This increase is the result of the backing back of the blood in the vena cava, and it is therefore entirely passive. Injected into the intact animal epinephrin gives no proof of the presence of vasomotor nerves in the portal vein. These, however, can be demonstrated by the perfusion of the portal system with epinephrin solutions and by the action of these solutions on isolated pieces of portal vein, and finally by the study of the volume changes in the liver in relation to the vena cava and portal pressures when the splanchnic nerves are stimulated.

75. Action of Certain Drugs on Vasoconstriction.—Macht found that Dale's vasomotor paradox can be demonstrated in vitro or outside the body in a simple and effective manner, by the use of excised arteries. One or more rings of a freshly excised artery are suspended in a small glass chamber filled with warm Locke's solution at the temperature of 37 C. (98.6 F.), through which a constant stream of oxygen is kept bubbling. One end of the preparation is fixed to the bottom of the chamber, while the other is connected to the short arm of a lever, the long arm carrying a point for recording on a very slowly moving kymograph. The glass chamber is immersed in a water bath or a jacket for regulating the temperature. The temperature and flow of oxygen must be kept very constant. When the artery is excised it is in a state of permanent contracture or "tonus," which tonus must be overcome before its reaction to drugs can be studied. This is done by a method of so-called "weighting," originally introduced by O. B. Meyer, and was described by Voegtlin and Macht in their work on the coronary and pulmonary arteries.

When the tonus of the artery has been overcome and the lever is writing at a constant level, small quantities of ergotoxin solution are introduced into the small chamber. The effect of this drug is usually to cause a moderate but long lasting contraction of the arterial rings. If now the Locke solution is quickly removed, and fresh solution of epinephrin in warm Locke (37 C.) is introduced in its place, or if some strong solution of epinephrin is mixed directly with the original Locke solution, instead of the ordinary sharp rise due to epinephrin, as seen in normal rings, no constriction occurs, and indeed very often there is a relaxation noted. Macht says that the original contraction of the arterial ring is due to the direct action of the ergotoxin on the artery. While causing a constriction of the ring, the ergotoxin at the same time paralyzes the motor endings in

the vessel wall, giving an exactly similar paradoxical reaction to epinephrin as that observed in blood-pressure experiments in the intact animal.

Kansas Medical Society Journal, Topeka*April, XV, No. 4, pp. 105-138*

- 76 Uncinaria Disease. L. E. Mock, St. John.
- 77 Surgery of Gallbladder and Ducts. R. C. Dugan, Ottawa.
- 78 Social End of Clinical Tour in France. P. S. Mitchell, Iola.
- 79 Thyroid Gland. J. Sundwall, Lawrence.

Kentucky Medical Journal, Bowling Green*April, XIII, No. 5, pp. 167-212*

- 80 Old Time Physician. C. T. Grayson, Washington, D. C.
- 81 Chloroform and Ether Anesthesia. C. E. Vidt, Russell.
- 82 Case of Rabies. B. J. Neary, Waverly.
- 83 Duties of Health Officer. J. B. Scholl, Jabez.
- 84 Case of Tetanus. B. J. Bolin, Glenfork.
- 85 Transposition of Viscera. L. L. Solomon, Louisville.
- 86 Petrosal Abscess. D. S. Reynolds, Louisville.
- 87 Calomel, Its Uses and Abuses. W. E. Allen, Shelbyville.
- 88 Postoperative Insanity with Special Reference to Ophthalmic Cases. A. O. Pfingst, Louisville.
- 89 Sciatic Neuritis, from Personal Experience. M. C. Kash, Salyersville.
- 90 Syphilis of Lung; Report of Case. C. G. Hoffman, Louisville.

Maine Medical Association Journal, Portland*May, V, No. 10, pp. 363-394*

- 91 Salvarsan. H. K. Tuttle, Boston.
- 92 Surgery of Kidney; Report of Case. J. Sturgis, Auburn.

Medical Record, New York*May 22, LXXXVII, No. 21, pp. 841-882*

- 93 Freud from Surgeon's Viewpoint. R. T. Morris, New York.
- 94 *Diagnosis and Treatment of Cancer of Stomach. J. Meyers, Albany.
- 95 Case of Conjugal Syphilis. E. L. Hunt, New York.
- 96 Alopecias. L. B. Mount, Albany.
- 97 Role of Physician in Industrial Medical Insurance. A. C. Burnham, New York.
- 98 Hematuria. C. J. Drueck, Chicago.
- 99 *Homograde Thermometer. F. E. Aspinwall, La Grange, Ky.

94. **Diagnosis and Treatment of Cancer of Stomach.**—Meyers suggests that if there are any antibodies or special resistance passed from the parents to the children, the offspring may benefit in the way of immunity to disease, and thus the race is guarded. This is not so in cancer, for even if the host of cancer does elaborate any antibodies against his or her disease, yet through age or shortened life he or she does not transmit them to any descendants. And it may be for this reason that cancer is on the increase because we have more people in the world today only a few of whom can possibly be the sons or daughters of cancer fathers or mothers. If the cancer patients could produce or bear children there might come a time, perhaps very distant, when the human being would develop more resistance against cancer than he now possesses. As it is now, cancer cases serve no general purpose of immunization. In the face of a situation so serious and baffling it would seem advisable to Meyers to urge men and women with cancer to produce children before they die. If they do not marry it would be well for the state to sanction and provide for marriage so that all cancer material could be employed to produce children who might be immune through transmitted resistance.

99. **Homograde Thermometer.**—In the Homograde thermometer the normal blood heat at or near the surface of the body in which sensation mostly exists is the unit of value, and every degree in the scale equals 1 per cent. of that unit. The scale begins with 0 at the freezing point, 270 represents the boiling point of water, and 100 the normal blood heat within the radius of sensation. In the Homograde scale 100 represents the human normal and all variations therefrom are expressed in percentages of that normal; 95 H. expresses 95 per cent. of that heat, a 5 per cent. deficiency; 105 H. expresses a 5 per cent. increase of heat, a moderate and usually not dangerous fever, while 110 H. expresses a 10 per cent. increase of heat, which is high and proportionately dangerous. To change Fahrenheit figures to Homograde find the exact number of degrees above or below freezing and increase that number one-half. The result will be the Homograde equivalent. Throughout the Homograde scale

there are exactly 3 degrees instead of 2 degrees in the Fahrenheit scale. The shorter degrees of the Homograde thermometer necessitate a less frequent use of fractions.

Military Surgeon, Chicago*May, XXXVI, No. 5, pp. 405-504*

- 100 How Can Hospital Ship Best Serve Needs of Fleet? T. W. Raison, U. S. Navy.
- 101 Leprosy. G. W. McCoy, U. S. P. H. Service.
- 102 Is Volunteer Medical Officer of To-Day a Soldier? G. M. Blech, Illinois National Guard.
- 103 How Can Full Complement of Qualified Physicians for Medical Corps of Navy be Best Achieved and Maintained? J. D. Manchester, U. S. Navy.
- 104 Two Non-Military Tours of Duty of Indiana Ambulance Company No. 1. A. G. Chittick, Indiana National Guard.

Missouri State Medical Association Journal*May, XII, No. 5, pp. 197-248*

- 105 Insidious Mastoiditis. J. B. Shapleigh, St. Louis.
- 106 Otitic Brain Abscess. W. E. Sauer, St. Louis.
- 107 Functional Testing in Ear Disease. V. W. McCarty, Kansas City.
- 108 Surgical Lesions as Etiologic Factors in Gastric Symptoms. C. Smith, St. Louis.
- 109 Chronic Focal Infection of Nose, Throat and Ear as Cause of General Infection. W. M. Reed, Kansas City.
- 110 Functions of Board of Censors. S. P. Child, Kansas City.
- 111 Does Insanity Increase? Review of First Two Thousand Cases at State Hospital No. 4, Farmington. F. L. Long, Farmington.
- 112 Poliomyelitis; Report of Cases. D. E. Shy, Knob Noster.

New Orleans Medical and Surgical Journal*April, LXVII, No. 10, pp. 823-894*

- 113 Some of Modern Problems in Exophthalmic Goiter. T. E. Satterthwaite, New York.
- 114 Importance of Diagnosis of Early Syphilis. W. H. Harris, New Orleans.
- 115 *Experiences with Swift-Ellis Treatment. S. C. Jamison, New Orleans.
- 116 Headaches. L. Sexton, New Orleans.

115. **Experiences with Swift-Ellis Treatment.**—It is Jamison's belief that (1) improvement is likely to follow the Swift-Ellis treatment, if the patient's spinal fluid shows pathologic changes; (2) this treatment is hopeless unless the fluid does show such changes; (3) the danger of this treatment is not great, and has been exaggerated in certain reports.

New York Medical Journal*May 22, CI, No. 21, pp. 1033-1088*

- 117 Duty of Medical Profession in Regard to Street Conditions. B. Sachs, New York.
- 118 One Hundred Years Ago. J. M. Swan, Rochester.
- 119 *Whooping Cough. P. Luttinger, New York.
- 120 Optic Neuritis Concurrent with Whooping Cough. E. S. Clouting, Philadelphia.
- 121 Forceps. S. S. Arluck and J. Girsdansky, New York.
- 122 Rectal Polyp in Childhood. H. Neuhof, New York.
- 123 One Thousand Submucous Resections of Nasal Septum. L. Fisher, Philadelphia.
- 124 Military Surgeon on Firing Line. P. J. H. Farrell, Chicago.
- 125 *Case of Infantile Facial Eczema Cured by Reduction of Carbohydrates. C. N. Sturtevant, Philadelphia.
- 126 Congenital Diverticulum of Urinary Bladder in Infants and Children. J. M. Wallfield, New York.
- 127 Water as Physiologic Tonic. A. C. Geyser, New York.

119. **Whooping Cough.**—Pertussis stock vaccines as prepared by the New York Health Department Bureau of Laboratories, according to Luttinger, seem to have a prophylactic value when given in high doses. In the treatment of pertussis, these vaccines seem to have shortened the duration and severity of the paroxysmal stage; the average duration of the whoop being twenty-five days, compared to forty days of those treated with drugs.

125. **Eczema Cured by Reduction of Carbohydrates.**—Concluding that the sugar must be at fault in his case, Sturtevant omitted all carbohydrates from the formula. Improvement was immediate; the next day the temperature fell, and daily the eczema could be seen to improve. In six days the face was entirely clear. The baby lost about 8 ounces in weight, however, in the six days. The addition of a half dram of dextramaltose to each feeding (6 ounces every fourth hour) was followed by a regain of the weight lost, but no more. After a few days of stationary weight, the sugar was increased suddenly to 5 per cent. There was an immediate

return of the eczema, more mucus in the stools, and a slight but persistent elevation of temperature again, Sturtevant omitted all sugar. As before, all symptoms disappeared in a few days. Beginning now with small additions of sugar each few days, gradually developing an increased tolerance for this food element, he succeeded in getting small gains in weight and discharged the patient apparently cured. Observation in the dispensary and social service department recorded continued improvement.

Northwest Medicine, Seattle

May, VII, No. 5, pp. 137-168

- 128 Technic of Pus-Tube Operations. E. F. Tucker, Portland, Ore.
- 129 Wandering Spleen. J. H. O'Shea, Spokane.
- 130 Volvulus of Ileum. O. B. Wight, Portland, Ore.
- 131 *Effusion into Bowel Wall Simulating Appendicitis. H. W. Riggs, Vancouver, B. C.
- 132 Renal Diagnosis in Relation to Renal Surgery. G. S. Whiteside, Portland, Ore.
- 133 Ectopic Pregnancy. C. B. Ford, Seattle.
- 134 Artery Blocking Versus Nerve Blocking in Prevention of Shock. P. W. Willis, Seattle.
- 135 Operation for Cleft-Palate. D. K. Thyng, Tacoma.
- 136 As Surgical Assistant is Anesthetist Sufficiently Trained? S. F. Wiltzie, Seattle.

131. **Effusion into Bowel Wall.**—The four cases cited by Riggs in their history resemble the symptoms of appendix trouble more or less acute. The central abdominal pain, shifting to the right lower quadrant, with tenderness on pressure over this area, the slight rigidity of the right rectus, vomiting, temperature ranging from 99 to 103, make the clinical picture of inflammation of the appendix. The doughy mass felt in several cases, gave the impression of a possible abscess. The pathology is more or less uncertain. The site of the lesion is constant, occurring at the lower few inches of the ileum and sometimes involving a contiguous portion of the cecum. It is to be noted that this area is supplied by the ileocolic artery. The congestion varied from a slight reddening to a dark red color. There was great thickening of the bowel wall and of the mesentery. This is not of the edematous type which pits on pressure, but has more of the brawny feel of an inflammatory infiltration. The area affected is usually quite sharply defined and does not shade gradually to the normal. In one case there were petechial hemorrhages in the mucous membrane of the appendix, while in another there was apparently blood in the stool. A bacteriologic examination in the only appendix involved gave only *B. coli* and pyocyanus.

Riggs believes that this may be regarded as a manifestation of a toxemic condition which has for its outward sign erythema, urticaria, angioneurotic edema and purpura. The abdominal pain, the vomiting, the temperature and the site of the lesion correspond to the description given by Henoeh of abdominal purpura. In the cases Riggs reports, the question of hemorrhage is almost negligible. One had petechial hemorrhages, another presumably had blood in the stool, but there was no marked hemorrhage from any part of the alimentary tract. The other case showed absolutely no sign whatever of a purpuric nature.

Ohio State Medical Journal, Columbus

May, XI, No. 5, pp. 293-360

- 137 Cerebellar Surgery. S. P. Kramer, Cincinnati.
- 138 Would it Be Expedient to Eliminate Alcohol from Pharmacopeia? S. B. McGavran, Cadiz.
- 139 Intestinal Stasis. E. A. Murbach, Archbold.
- 140 New Plan of Collecting Vital Statistics in Ohio; How Physician Can Aid in Health Campaign. F. G. Boudreau, Columbus.
- 141 Importance of Eyesight and Its Conservation in Movement for Prevention of Accidents. M. D. Stevenson, Akron.
- 142 Value of Tuberculin in Treatment of Pulmonary Tuberculosis. S. A. Douglass, Mount Vernon.

Ophthalmology, Seattle

April, XI, No. 3, pp. 437-639

- 143 Importance of Eyesight and Its Conservation in Movement for Prevention of Accidents. M. D. Stevenson, Akron, Ohio.
- 144 Significance of Increased Tension of Eyeball. S. D. Risley, Philadelphia.
- 145 Treatment of Glaucoma Simplex. F. E. Cheney, Boston.
- 146 West Intranasal Partial Resection of Tear Sac for Dacryocystitis, Dacryostenosis, Phlegmon or Epiphora. J. S. Clark, Freeport, Ill.

- 147 Eye Symptoms of Hypophyseal Diseases. H. V. Würdemann, Seattle.
- 148 Hyoscin and Morphin as Preliminary to Local Anesthetics. L. M. Hurd, New York.
- 149 Case of Expulsive Retrochoroidal Hemorrhage Following Cataract Extraction. H. M. Starkey, Rockford, Ill.
- 150 Subperiosteal Blood Cyst (?) of Orbit Simulating Osteosarcoma. R. S. Lamb, Washington, D. C.
- 151 Sudden Changes of Refraction in Diabetes. C. Zimmermann, Milwaukee, Wis.
- 152 Causes of Second Sight. S. B. Muncaster, Washington, D. C.
- 153 Strabismus. F. Valk, New York.
- 154 Pupillary Phenomenon. U. S. Bird, Tampa, Fla.
- 155 Chronic Prostatitis Probable Factor in Iritis. P. H. Dernehl, Milwaukee, Wis.
- 156 Economics of Eye, Ear, Nose and Throat, Together with Economics of Entire Body (Physical Economics). (To be continued.) E. E. Holt, Portland, Me.
- 157 Early Diagnosis of Cancer. W. H. B. Aikins, Toronto.

Public Health Journal, Toronto

May, VI, No. 5, pp. 203-250

- 158 German Immigration and Anglo-Saxon. P. H. Bryce, Ottawa.
- 159 Can Insurance Experience Be Applied to Lengthen Life? A. Hunter.
- 160 Recent Australian Epidemic of Smallpox. W. E. Home, Victoria, B. C.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

May, XII, No. 137, pp. 129-160

- 1 Montessori Education for Children with Defective Sight. L. Paton.
- 2 Case of Infantile Hemiplegia Affecting Left Half of Body, with Considerable Under-Development of Left Upper Extremity; Jacksonian Convulsions Affecting Paralyzed Upper Extremity; Petit Mal. E. G. Fearnside.
- 3 Suppurative Parotitis Following Pneumonia. J. P. Parkinson.
- 4 *Case of Myelitis in Child. H. T. Ashby.

4. **Myelitis in Child.**—The patient was a boy, aged 5½ years, who first complained of vague pains in the chest. The parents also noticed that he was slowly losing the use of his legs. The family history was good, and previous to the onset of the illness he had always been healthy. He had not had any of the infectious fevers. When sent by his physician there was complete paralysis of both legs and back, with anesthesia extending from the toes up to a line drawn round the chest just below the nipples. The knee jerks were much exaggerated, and there was a Babinski sign present on both sides. The abdominal reflexes were absent. There was no optic neuritis and no impairment of the mental power. The upper extremities and neck were unaffected. The urine was normal, but continually dribbling away, and there was also incontinence of feces during his stay in the hospital, and up to the time of death he complained of vague pains in the chest and in the upper abdomen, but his general condition remained the same till just before he died.

There was only a slight rise of temperature on and off throughout the illness, but just before death he had hyperpyrexia. He had a small bed-sore on admission to the hospital, which, however, soon healed. The heart and lungs were normal. After three weeks, the anesthesia, which had remained at the same level, began to increase upward and he became rapidly worse, no doubt due to the vital centers becoming affected. There was no improvement with potassium iodid, no family history of syphilis, and the Wassermann test was negative. There was no spinal caries nor injury, and the case was quite unlike anterior poliomyelitis or a spinal growth. The disease seemed to spread up the cord quickly at first, became stationary for a time, and then advanced till the vital centers were affected.

British Medical Journal, London

May 1, I, No. 2835, pp. 749-788

- 5 Post-Graduate Teaching of Surgery. R. Morison.
- 6 Epidemic Cerebrospinal Meningitis. A. G. Gullan.
- 7 Mixed Typhoid + Paratyphoid A + Paratyphoid B Vaccine. A. Castellani.
- 8 Comparison between some Physiologic and Pathologic Conditions. J. Barcroft.
- 9 Wound Infections; Some Methods in Their Treatment. A. E. Wright.

May 8, I, No. 2836, pp. 789-832

- 10 Sterilization of Water by Chlorin. J. J. H. Nelson.
- 11 Birth Palsy. H. Platt.
- 12 *Decortication for Traumatic Empyema with Complete Collapse of Lung. W. G. Spencer.
- 13 Insects and War; Mosquito. A. E. Shipley.
- 14 Curve of Epidemic. J. Brownlee.
- 15 Foreign Body (Glass-Headed Pin) Impacted at Bifurcation of Trachea Extracted by Aid of Bronchoscope. S. Jones.

12. **Decortication for Traumatic Empyema.**—For recent cases of empyema the essential thing, Spencer says, is to sponge the cavity free from fibrin and pus, and then by the finger, aided by sponges on holders, to seize portions of the capsule with forceps in order to free the lung. This can safely be done if the patient is given nitrous oxid gas with oxygen or air; as the lung is being freed a little ether will induce cough with which the lung will expand. The difficulty in children may be the occurrence of bronchopneumonia with the empyema. Then, after the pleural cavity has been cleared, the lung may be found free, but it cannot expand owing to consolidation. If the base of the lung is then drawn into the wound and fixed there by suture with a tube beside it leading into the cavity, healing will soon occur.

Journal of Laryngology, Rhinology and Otology, London

May, XXX, No. 5, pp. 177-208

- 16 Bilateral Lesion of Auditory Center. T. Guthrie.
- 17 What Factor Determines Ear to Be First Attacked in Chronic Middle-Ear Catarrh? M. Yearsley.

Lancet, London

May 1, I, No. 4783, pp. 897-948

- 18 Wound Infections; Some Methods in Their Treatment. A. E. Wright.
- 19 *Ileus Duplex. (Inflammatory Enterocolic Ileus.) W. S. Handley.
- 20 Roentgenoscopy with Third French Army. A. W. Mayo-Robson.
- 21 Blackwater Fever. R. W. Burkitt.
- 22 *Theory of Telephone Probe. R. G. Canti.
- 23 Significance of Nuclear Variations of Neutrophil Leukocytes (Arneth Counts) in West Africa. J. W. S. Macfie.
- 24 Facial Plastic Surgery, Laryngology and Stomatology in French Military Hospitals. J. D. Grant.

May 8, I, No. 4784, pp. 949-1008

- 25 *Arteriovenous Aneurysm. W. Osler.
- 26 *Etiology of Rickets. L. Findlay.
- 27 Treatment of Wounds in War. W. W. Cheyne.
- 28 Treatment of Wounded on Board H. M. S. "Tiger" During Naval Action of January Twenty-Four. J. C. Kelly.
- 29 Epidemic Cerebrospinal Meningitis. F. E. Batten.
- 30 Psychology of Traumatic Amblyopia Following Explosion of Shells. H. S. Pemberton.
- 31 Case of Cerebrospinal Meningitis. H. J. Alford.

19. **Ileus Duplex.**—Peritonitis of the serous surface of the intestine, when it reaches a certain degree, is accompanied by complete paralysis of the involved segment of intestine. General peritonitis means general paralysis of the intestine, and is accordingly not amenable to surgical treatment. But if the peritonitis is partial though unlimited by any adhesion barrier, certain segments only of the intestine are paralyzed. If the paralyzed segments can be thrown out of circuit by surgical measures, recovery is in such cases possible and even likely. Unfortunately, in these cases the surgeon's hand has been paralyzed by a facile assumption, based on the general abdominal distention, that general peritonitis is present. The observations Handley has made in the operating room and the successful results of his cases show conclusively that septic ileus of pelvic origin is not accompanied by general peritonitis when it first comes under observation, and that it is perfectly amenable to surgical treatment, subject to a clear recognition of the fact that two segments of the bowel are involved, and that accordingly two obstructions require to be circumvented.

22. **Theory of Telephone Probe.**—This instrument was designed for the location of bullets and other foreign metallic matter within the human body. It consists essentially of a telephone receiver, one terminal of which is electrically connected with the skin of the patient by means of a flat electrode covered with wet cloth, while the other terminal is connected with a metallic probe. A dry battery may or may not be inserted in series with the telephone. The probe is introduced along the track of the bullet, and on contact being made with the latter a sound is produced in the telephone. The instrument is of real value only when the ordinary

methods of detection are of no avail and when the Roentgen ray, if obtainable, is deceptive.

25. **Arteriovenous Aneurysm.**—Osler agrees with the conclusion arrived at by Subbotich, senior surgeon of the Belgrade State Hospital, from his experience in the Balkan War, "that arteriovenous aneurysms should be operated on, as they offer small prospect of spontaneous cure, although they often remain stationary for a long time and cause relatively little trouble." It is suggested that the question is largely one of situation and technic. As the cases reported by him indicate, even with the lesion of the axillary and subclavian vessels good health may be maintained for years without any serious trouble, but there are always risks, particularly of thrombus formation in the distended veins, and even after thirty or forty years serious trouble may arise. Urgency is greater in the case of the lower limbs, and it would be much safer to operate before the venous engorgement becomes excessive. Osler emphasizes the fact that up-to-date vascular surgery cannot be done in a hospital in which the younger surgeons have not full opportunities to experiment on animals, because the extraordinarily delicate technic of vascular suturing is an art acquired only after much practice.

26. **Etiology of Rickets.**—Examination of his results, Findlay says, shows very definitely that the disease is proportionate to the amount of air space allowed to the child, and that as this diminishes in amount the incidence of the disease rapidly increases. Probably the want of sufficient fresh air acts in a twofold manner. In the first place, the absence of pure air will act as a sedative and tend to make the child less inclined for exercise. If a child is confined to the house it is more easily tired, is less active, and wishes to go to bed earlier, so that the living in overcrowded rooms acts just in an opposite manner to taking the child out. Again, it is not unlikely that in overcrowded houses the amount of work that devolves on the mother will hinder her from attending properly to the child.

Closely allied to the above is the amount of time that the child spends in the open air. In the larger proportion of the cases the mother confesses to not taking the child out at all. These two factors, confinement and deficient fresh air, act by making the child more lethargic and less inclined to exercise itself, although it is quite possible that deficient oxygenation of the blood itself helps toward the production of the special rachitic metabolic error. The results which Findlay has obtained in the treatment of the disease with massage, passive movement and electricity are, he believes, strongly confirmatory of the view that deficient exercise engenders the condition. So far as his experience goes, no variety of dietetic or medicinal treatment brings about the same rapid and complete cure. The children are encouraged to walk, and as yet Findlay has not seen any bad effects follow such practice.

In view of the effect of deficient exercise on the calcium retention, the influence of confinement in the production of human and experimental rickets, and the frequency with which the disease is encountered in overcrowded houses, Findlay considered it not unlikely that rickets would be exceedingly prevalent in those parts of the world in which the people were confined in badly ventilated houses and from which sunlight was absent for long periods of the year. After a fairly extensive search through the diaries and journals of travelers in Iceland, Greenland and Alaska, parts of the world in which the winters are long and dark and in which the houses are badly ventilated and devoid of all sanitary conveniences, houses in which many people are huddled together for weeks at a time, he has not come across a single suggestion that rickets is ever encountered.

Practitioner, London

May, XCIV, No. 5, pp. 631-774

- 32 Treatment of Cerebrospinal Meningitis (Spotted Fever). W. Whitla.
- 33 Cerebrospinal Fever. T. J. Horder.
- 34 Fraudulent and Neurasthenic Cases. J. Collie.
- 35 Aphasia and Its Treatment. S. A. K. Wilson.
- 36 Recent Work in Ophthalmology. L. V. Cargill.
- 37 *Duodenum in Diabetes Mellitus. N. Mutch.

- 38 Treatment of Some Septicemias by Vaccines. G. T. Western.
 39 Recent Work on Clinical Pathology. W. D. Emery.
 40 *Cancer of Breast; Analysis of One Hundred Cases. R. Howard.
 41 Recent Work in Urinary Surgery. J. W. Thomson-Walker.
 42 Fatal Gastro-Intestinal Hemorrhage in Newborn. S. Sheill.

37. Duodenum in Diabetes Mellitus.—In nine consecutive patients with severe diabetes mellitus observed by Mutch, the mean vertical length of the duodenum was $3\frac{1}{6}$ vertebra, the extremes being 3 and $3\frac{1}{2}$ inches. Considering adults only, the average length was $4\frac{1}{5}$ inches, and the extremes $4\frac{1}{2}$ and $5\frac{1}{2}$ inches, respectively. These figures represent a very great enlargement of the organ; in fact, one patient's duodenum was twice as long as that of a healthy adult and was increased in caliber also, and on examination after death, the walls were seen to share the same change, being thick and fleshy, and of a somewhat milky appearance. Mutch says that the same alterations in structure can be traced in the upper portions of the jejunum.

This enlargement is also invariably associated with ileal or colonic stasis, and in some patients delay is so extreme, and the consequent modification of the lower bowel so advanced, that there is no doubt in Mutch's mind but that alimentary stasis preceded the onset of diabetes; as, for example, in the case of one patient whose duodenum showed strong antiperistaltic movements. The duodenal dilatation of such patients might reasonably be ascribed to the factors which produce this abnormality in simple intestinal stasis. In the majority of cases, however, the increase in size of the upper part of the small intestine is the predominant change in the alimentary canal, while lower bowel delay and duodenal regurgitation, although present, are not sufficiently pronounced to account for the enlargement. Fecal accumulation is evidently a common concomitant of diabetes mellitus, but not the sole determining factor, although it may be a predisposing cause. That ileal stasis plays an important part in the disease, Mutch believes, is clearly shown by an analysis he made in which the patients are classified according to the severity of their acidosis. The intensity of the disease was directly proportional to the degree of ileal stasis.

Almost all diabetic patients excrete indoxyl indolacetic acid, and parahydroxyphenylacetic acid in their urine, in varying proportions. In constipated subjects, these substances arise either directly or indirectly from the action of *B. coli* on tryptophan and tyrosin in the small intestines, and the amounts excreted serve as an index of the extent to which the ileum is infected with coliform organisms. In diabetes mellitus, the excretion of these bodies does not bear any obvious relationship to the severity of the disease, from which fact it may be inferred that the gravity of the prognosis in diabetics, with marked ileal delay, depends on some condition other than the coincident infection of the small intestine with coliform organisms. A profuse growth of *streptococcus brevis* was obtained from the duodenum of a boy with severe diabetes mellitus. The suggested explanation of these phenomena is that chronic duodenitis is the determining factor in the production of diabetes mellitus, and that ileal delay increases the severity of the disease by causing stagnation in the duodenum.

40. Cancer of Breast.—Howard's youngest patient was 23. Eighty-six of the patients were over 35 years of age. No definite connection between cancer and marriage, pregnancy or suckling could be made out, but the cases with the shortest histories were, on the whole, seen in the unmarried. Three cases had had abscesses in the breasts some years before the appearance of the cancer. In none of the 100 cases was there a definite history of injury preceding the appearance of the tumor. In sixty-seven of the 100 cases the lump in the breast was discovered by accident. In four cases the patient came for advice for a discharge from the nipple. Three patients suffered from spontaneous fracture, due to secondary cancer in the bones; but all three had been aware of a lump in the breast for some months, and had not sought advice because it was painless. The mortality for the 100 cases is three.

One patient had a goiter and did not recover consciousness. The second, an elderly lady, died quite suddenly after

the stitches were removed, and was found on postmortem examination to have extreme fatty degeneration of the heart. The third was a woman of 42, who died suddenly of pulmonary embolism, while having tea with her friends on the seventh day after the operation. Out of the 100 cases, Howard has so far performed eleven operations for recurrence, five locally in the skin, four in the supraclavicular glands and two in the opposite breast. Recurrence in the lungs has been seen five times, the patient first complaining of a dry cough and then developing signs of solidification of the lungs or fluid in the pleura. In one case there was recurrence in the dorsal spine, but Howard has not seen any other case of recurrence in the bones. In two cases recurrence in the skin occurred five years after the original operation, but in one of these the secondary growth was removed, and at the time of writing there is no further recurrence.

Howard's experience of radium is limited to two cases, both of which were inoperable. Neither received the slightest benefit from the treatment. Eight cases of recurrence were treated by Roentgen rays, and temporary improvement has resulted in several of them. In one case a large mass appeared in the opposite breast after removal of one for cancer. This mass had all the clinical characters of a cancer. It completely disappeared under Roentgen-ray treatment, and later the patient died with recurrence in the thorax.

Annales de Médecine, Paris

August, II, No. 2, pp. 107-222

- 43 *Meningeal Hemorrhage in the Young of the So-Called Spontaneous and Curable Type. V. Cordier, L. Lévy and L. Nové-Josserand.
 44 Bronzed Diabetes. N. Fiessinger and L. Laurent.
 45 Paroxysmal Tachycardia. E. Donzelot.
 46 Xanthoma in Young Man. Coton and G. Laroche.
 47 *The Symptoms Characteristic of Tricuspid Insufficiency; Especially the Ventricular Venous Pulse. C. Esmein.

43. "Curable" Meningeal Hemorrhage in the Young.—Cordier discusses the history of the so-called spontaneous and curable hemorrhage in the meninges and its connection with eventual acute hemorrhagic encephalitis, its nature and its outcome. The afterhistory of but few of the patients is known, and a case in his own experience suggests that the prognosis is graver than is generally assumed. In his case a man of 22 was treated at the hospital for supposed acute meningitis following influenza. He had previously been healthy, but his wife was a consumptive. Lumbar puncture released hemorrhagic fluid under high pressure, the symptoms gradually subsided and the patient seemed quite cured. Ten months later meningeal symptoms developed again, extremely severe, and soon fatal. Six illustrations are given of the findings in the brain. They indicated a hemorrhagic encephalitis, and Cordier is convinced that this was directly connected with the first meningeal hemorrhage. The latter must be regarded as the subarachnoid localization of some toxoinfection or latent unrecognized intoxication. This probably is the condition in all such cases hitherto regarded as spontaneous and curable. There is probably always some meningo-encephalitis, but the brain is affected so slightly that the symptoms from this escape attention. Sooner or later, however, the latent toxoinfection may flare up and the point of lessened resistance in the brain bear the brunt of it.

47. Symptoms of Tricuspid Insufficiency.—Esmein's long critical study of this subject has demonstrated, he says, that pulsation in the jugular veins does not always accompany tricuspid insufficiency and may, in rare instances, occur without it. Pulsation of the liver is still rarer, but when it is noted tricuspid regurgitation is practically certain.

Archives des Maladies du Cœur, etc., Paris

May, VIII, No. 5, pp. 105-148

- 48 *The Murmurs in the Arteries as Index of Peripheral Resistance. (Appréciation des résistances périphériques par l'auscultation des souffles artériels.) L. Bard.
 49 Slight Degrees of Pulsus Alternans Revealed by Auscultation of the Arteries. L. Bard.

48. Auscultation of the Arteries.—Bard has been studying the murmur in an artery as he slightly obstructed it by pres-

sure with a stethoscope. The murmurs vary widely in intensity and in the facility with which they can be induced. Greater precision is attained by partially obstructing the circulation with a sphygmograph cuff and ausculting below with a phonendoscope. Sounds are heard constantly in the artery, varying in intensity and tone; murmurs also are constant, but they are very faint with a normal circulation. With pathologic conditions in the circulation, the murmurs are extremely intense or entirely imperceptible. He says that analyzing the mechanism of the murmur reveals that it is dependent on the emptiness of the peripheral segment of the artery below the constriction. Whether the artery in this segment is empty depends in turn on whether the blood from it has passed on normally into the capillaries or whether the blood has encountered resistance and is thus unable to flow off out of this segment. Other factors may contribute, but this is the instructive factor. The most pronounced murmurs were in certain cases of aortic insufficiency of endocarditic origin, while no murmurs were perceptible in the cases of hypertension of renal origin. Proof that this is the correct explanation of the arterial murmur is afforded by the complete disappearance of the murmurs when the artery is compressed by applying a second cuff below, thus shutting off the escape of the blood into the capillaries. By testing for the murmurs it is possible to keep daily supervision over the course of a primary or secondary affection of the circulatory apparatus, and guide treatment accordingly. In cases of aortic insufficiency of syphilitic aortic origin, no murmurs could be detected.

Archives de Médecine des Enfants, Paris

April, XVIII, No. 4, pp. 181-236

50 *Infantile Scorbutus; Twenty-Six Cases. J. Comby.

51 *Comparative Importance of the Luetin and Wassermann Reactions in Inherited Syphilis. G. Blechmann, M. Delort and A. Tulasne.

52 Icterus Gravis in Children. J. Comby.

50. **Scorbutus in Infants.**—None of the twenty-six infants with scorbutus whose histories Comby relates were breast-fed or fed on fresh milk. After from five to ten months' feeding with commercially or home sterilized milk, the children began to grow pale and languid, and finally to cry whenever they were moved. The legs grew weak and as if paralyzed, a kind of pseudoparaplegia from pain. This is the most characteristic sign of incipient scorbutus. Hematomas may develop under the periosteum, but the most frequent symptom is the bleeding from the gums if the child has any teeth. Impress on the family the necessity to refrain from moving the child, especially from trying to make it stand up or walk; no bathing, merely leave the child quiet in bed, with plenty of air. Feed with fresh milk, boiled or not, and give a teaspoonful of orange or fruit juice between feedings. If no other fruit is available, lemon juice diluted and sweetened can be used. For children over a year old, three tablespoonfuls of soft mashed potato may be given during the day.

51. **The Luetin Versus the Wassermann Reaction in Inherited Syphilis.**—Blechmann and his co-workers have applied the luetin test to 230 children, and here report the details in 117 of the cases, including fifty with known or suspected syphilis. The Wassermann test was applied at the same time, and it harmonized much better with the clinical pictures than the luetin reactions, while the technic of the latter is more exacting. On the whole, they assert, a positive luetin reaction should be disregarded when the Wassermann and the clinical picture speak against syphilis. On the other hand, a positive Wassermann obtained on two occasions strongly suggests syphilis. In conclusion, they give tabulated findings with both tests in 274 cases of inherited syphilis as published by various investigators.

Bulletin de l'Académie de Médecine, Paris

April 20, LXXIII, No. 16, pp. 457-482

53 *Training Schools for Crippled Soldiers. (La rééducation professionnelle et la réadaptation au travail des estropiés et des mutilés de la guerre.) E. Mosny.

54 Frost-Bite. (Etude étiologique des froidures.) F. Debat.

55 *Specific Treatment and Prophylaxis of Leishmaniasis. (Bouton d'Orient.) Gachet.

53. **Training Schools for Maimed Soldiers.**—Mosny discusses what has been done in other lands for persons crippled by industrial or other accidents, and then describes the workings of the training school for crippled soldiers that has been at work at Lyons since last December. The men live in the school during their course of training, and the institution in various ways is a model. Another training school to teach horticulture is being organized. These, Mosny states, are the only practical realizations in France to date of aid by professional reeducation and readaptation to remunerative work for those mutilated or crippled in the war. At Lyons the men are taught to use the stump of the arm, without regard to an artificial limb. The prosthesis is to be selected later when the man has learned exactly what is best adapted to serve him in his work. Mosny discusses the general principles and special details of training the maimed to utilize the earning forces they have left, and of finding employment for them. It is a task the country must assume, he adds, and it will require all her ingenuity, all her material and moral forces, and all her goodness of heart. His plan contemplates loans to those who wish to set up a business for themselves.

55. **Oriental Sore.**—Gachet writes from the medical school at Teheran in Persia to extol the curative action of intravenous salvarsan treatment. The sore heals in from three to five weeks after one or two injections, with an interval of one or two weeks. He has found the Leishman bodies in the body of a fly common on dogs, the *Hippobosca canina*, and thinks that this fly has something to do with the transmission of the affection. Camels, horses and dogs are subject to it, but in Persia he has found it only in dogs; fifteen of twenty-one dogs brought in from the street showed the characteristic lesion. Intramuscular salvarsan injections cured them all in from three to five weeks. He adds that the fact that these lesions appear in man only on parts exposed, confirms the theory of fly intermediation in the transmission of the disease.

Revue Médicale de la Suisse Romande, Geneva

April, XXXV, No. 4, pp. 185-240

56 *Purulent Pleurisy as Complication of Artificial Pneumothorax. M. Jacot. Commenced in No. 3. Continued.

57 *Diuresis Induced by Intravenous Injection of Hypertonic Sugar Solutions. G. Turrettini.

56. **Purulent Pleurisy Complicating Induced Pneumothorax.**—Jacot discusses in this instalment the diagnosis, prognosis and treatment of this complication as observed in eight of 108 cases of pulmonary tuberculosis in which pneumothorax was artificially induced at Leysin. Purulent pleurisy is rare in ordinary pulmonary tuberculosis; Leudet found it only in nine of 2,000 consumptives. Some tuberculous focus perforating into the artificial pneumothorax is probably the cause explaining the purulent pleurisy. In treatment, even of the severest forms of purulent pleurisy, repeated puncture followed by insufflation of nitrogen is preferable to pleurotomy. It is free from the dangers of the latter while it maintains the therapeutic action of the induced pneumothorax, and adhesions rarely form with it while the chest wall is not left deformed as after a resection. Adhesions are particularly prone to develop after a lung has been compressed by the pneumothorax, and resection of the chest wall in treatment of the secondary purulent pleurisy is especially liable to bring this about, as it releases the lung from the compression.

57. **Diuresis from Sugar Infusion.**—Turrettini's experience has been unusually favorable with hypertonic sugar solutions in inducing diuresis in severe illness in which the kidneys had practically ceased to act. He gives the details of three cases of acute nephritis from poisoning with mercuric chlorid, two of uremia from nephritis plus atrophy of the kidneys, and one case of probable toxic action from some tuberculous focus elsewhere. The solution of glucose was of 25 or 40 per cent. strength, and the amount injected ranged from 300 to 500 c.c. each time. The condition was desperate in all the six cases, but these strong sugar solutions conquered the anuria in four cases and temporarily improved the kidney functioning in the fifth case before the patient died. Only one injection could be made in one case of severe mercurial poisoning as the vein could not be found.

Archiv für Kinderheilkunde, Stuttgart

LXIV, 1915, Nos. 3-4, pp. 161-320. Last indexed Feb. 27, p. 781

- 58 *Digestive Disturbances of Older Children and Their Treatment. (Die wichtigsten Verdauungsstörungen des älteren Kindes und ihre Behandlung.) A. Baginsky.
59 *Treatment of Acute Pneumonia in Children. (Die Therapie der Pneumonie als therapeutisches Paradigma.) A. Baginsky.
60 *Stenosis of the Pylorus in Infants. M. K. Forcart.
61 Pathology of Periodical Vomiting with Acetonuria. H. Zade.

58. **Digestive Disturbances in Older Children.**—Baginsky discusses in turn habitual vomiting, nervous anorexia, atony of the stomach, chronic dyspepsia from gastric achylia, achylic diarrhea, and chronic constipation, and the general principles for treatment of each. Chronic constipation is sometimes managed best with a change of scene to supplement the change to an anticonstipation diet. No milk should be allowed until the child has learned to chew its milk instead of drinking it. He abhors purgatives and enemas in these cases except as the very last resort. Nervous anorexia is most common in children fed long on milk who have never learned to chew properly or are too indolent to chew. If they can be roused and trained to masticate they soon acquire an appetite. In some children the senses of taste and smell seem to be abnormally blunt so they thus lack the normal impulse to eat.

With chronic dyspeptic disturbances the main point in treatment is to determine what elements of the food the children are able to digest, and this requires study of the stools and tests of stomach functioning. Some digest fats; others are unable to tolerate them, and so on. Once the individual functional capacity is determined, the physician has the reins in his hands. Every relapse does the greatest harm, because the whole course of treatment has then to be begun over again. The less drugs are used, the better. A child with diarrhea must be kept unconditionally in bed.

59. **Treatment of Pneumonia in Children.**—Baginsky strives to impress on young physicians that the child has generally an intact organism, strong to resist and well equipped against pathologic damage, infections and intoxications. It reacts in the most gratifying way as a rule to slight therapeutic assistance. Strong drugs and methods are not required except extremely rarely, and then only in economical dosage. He reports the details of eight cases of pneumonia in children to serve as guides to therapeutic procedure in general. The main point is to trust Nature's recuperating powers, watching to reenforce her when she is not quite competent alone, always bearing in mind that, for children especially, we must refrain from doing harm by any unnecessary interference.

60. **Stenosis of the Pylorus in Infants.**—Forcart reports 15 cases; there was no nervous taint in the family. Nine of the children were the first born. Delivery had been normal in 11 cases. Only 4 of the children were breast-fed. The first symptoms of the stenosis developed in the second up to the seventh week of life. Thirteen were boy babies and all were much constipated. In only a third of the cases were there any signs of spastic phenomena elsewhere. Lavage of the stomach had no influence on the stenosis. One child died from inanition but 10 left the hospital entirely cured, mostly by the fourth to sixth week, but in some the stenosis kept up for from twelve to twenty weeks. If no benefit is apparent by the sixth week, an operation should be considered. The curves are given for each case, and the necropsy findings in the 3 that succumbed to pneumonia or inanition. No anesthetics or sedatives by the mouth gave any relief. The children's strength was kept up with nutrient enemas.

Berliner klinische Wochenschrift

April 19, LII, No. 16, pp. 393-424

- 62 Optochin in Treatment of Pneumonia. G. Rosenow and A. Peiper.
63 Improved Technic for Study of the Urine in Acidosis. (Ueber die Reaktion auf Acetessigsäure nach Gerhardt.) L. Lichtwitz.
64 Salvarsannatrium. C. Gutmann.
65 Acute Idiopathic Destructive Tracheobronchitis; Two Cases; Both Fatal. C. Hart.
66 Bile Pleurisy from Transpleural Wound of the Liver; Recovery after Resection of Ribs. v. Gaza.
67 Diathermy in Treatment of War Injuries and War Diseases. A. E. Stein.
68 Tetanus Affecting One Side Only. (Tetanus lateralis.) A. Harf.

Correspondenz-Blatt für Schweizer Aerzte, Basel

April 24, XLV, No. 17, pp. 513-542

- 69 *Nature's Method of Autotraphing and Valve Production to Relieve Steeple Skull. (Ueber die Selbstreparation der Natur beim Turmschädel und über das Wesen des Turricephalus.) J. Strebel.
70 *Endemic Goiter. (Weitere epidemiologische Untersuchungen über den endemischen Kropf.) R. Klinger and T. Montigel.

69. **To Save Vision with Steeple Skull.**—Strebel discusses various typical shapes of the skull from premature ossification of the fontanels, especially as they affect vision and hearing. The last few years have brought a realization of the clinical importance of steeple skull, oxycephalus, turricephalus, hypsi-cephalus and pyrgocephalus, as they do not permit the normal expansion of the growing brain. The eyes protrude on account of the shallowness of the orbit with steeple skull, but the most serious consequence of it is the frequent atrophy of the optic nerve, with both central and peripheral loss of vision. Choked disk first develops, then optic neuritis follows, and atrophy is the next stage. It is a simple descending atrophy, from the mechanical injury of the nerve in the orbit or base of the skull or both, but the condition finally cannot be distinguished from true primary atrophy. In seven of nine such cases in the last four years, Strebel found evidences of this secondary atrophy. It develops usually before the age of 7, and boys are affected more frequently than girls. Headache and cramps have been noticed in some cases but as a rule there are no symptoms on the part of the brain. In two of Strebel's cases there were clonic convulsions with vomiting and loss of consciousness as signs of the chronic pressure on the brain.

In all cases of optic atrophy of dubious origin roentgenoscopy may first give the clue. It reveals further how Nature seeks to relieve in such cases by allowing holes to develop at the points where the skull is worn thin by the pressure. Holes up to 1 cm. long are worn through under the scalp and can be seen in the Roentgen picture. This is a kind of autotraphing, forming safety valves. Nature thus shows how to treat the disturbances from these abnormally shaped skulls. In one such skull there was one quite large hole and eleven small ones. As Strebel was examining this skull, it suddenly dawned on him that these holes explained why this person had had no visual disturbances during life notwithstanding the extreme steeple shape of the skull. Even the roofs of the orbits were worn through.

The roentgenograms in one case described in detail show the internal findings of pronounced steeple skull although externally it was scarcely apparent. In this family there was a history through four generations of congenital dislocation of the lens and congenital heart defects. Premature growing together of the fontanels is responsible for the trouble later; the brain continues to grow but there is not room enough for it in the prematurely solid skull. After blindness has once developed there is no chance for restoration of vision by any measures. But before this stage is reached, decompressive operations are liable to ward it off, making multiple openings where roentgenoscopy shows they are most needed. Family physicians and pediatricists should be on the lookout for a tendency to steeple skull; choked disk from this cause may develop in early childhood, even in the first months of life. The cases of partial turricephalus, without impairment of vision, demonstrate that Nature is able to cure or at least to arrest the tendency unaided. A visit to any blind asylum will usually show typical specimens of steeple skull, and Homer described a skull of this kind in Thersites. There are usually other anomalies in development in these cases, as Homer noticed.

70. **Endemic Goiter.**—Certain families and certain houses in the Swiss towns investigated show a remarkably large number of cases of goiter, but the water supply is the same as that for all their neighbors who are free from goiter. There is no direct inheritance of goiter, but there is unmistakably an inheritance of a predisposition to it when the exogenous factors come into play. Klinger and Montigel urge practitioners to collect family data on goiter.

Medizinische Klinik, Berlin*April 25, XI, No. 17, pp. 469-500*

- 71 *The War and the Nervous System. (Einige allgemeine Bemerkungen über den Krieg und unser Nervensystem.) E. Redlich.
72 *Treatment of Consequences of Concussion of the Brain. (Folgestände von Gehirnerschütterung.) E. Weber and Neubert.
73 *Hygiene in the Field. P. Kuhn and B. Möllers. Commenced in No. 15.
74 Typhus. (Kriegstypus.) H. Boral. Commenced in No. 16.
75 Skin and Venereal Diseases in the Army. E. Brinitzer.
76 *Nonalcoholic Drinks from the Standpoint of Public Health. (Die alkoholfreien Ersatzgetränke vom Standpunkte der öffentlichen Gesundheitspflege.) G. Fehsenfeld.
77 *Walking Casts. (Eine billige Gehhülse.) P. Köhler. (Eine ausziehbare Gehgipse mit Extension bei Fraktur des Oberschenkels.) K. Gerson.
78 Tabes Excludes Military Service. (Tabes und Heeresdienst.) G. Flatau.
79 Professional Secrecy from Medicolegal Standpoint. (Die Beschlagnahme von Krankengeschichten.) R. M. v. Olshausen.

71. **The War and the Nervous System.**—Redlich comments on the milder course of traumatic neuroses in this war in comparison with those in time of peace. The men affected are young and vigorous and the question of an indemnity does not influence the course, but the main factor, he thinks, in the comparatively favorable outcome is the authority of the discipline of military environment. The present experiences confirm Redlich's long held opinion that it is much better in cases of traumatic neuroses for the physician to refrain from paying too much attention to the patient's many disturbances, great and small. The physician's authority should be exerted to stimulate the patient to abstract himself from his troubles. In military circles, in the civilian population and in the refugees from the regions devastated by the war, the nervous system is bearing the strain far better than one would anticipate. Serious nervous affections seem to be restricted almost exclusively to those with a previous nervous taint. The predisposed break down, and melancholia and manic-depressive psychoses are comparatively common among such. Under ordinary circumstances their predisposition might never have been roused from its latent phase. In conclusion Redlich remarks "In future not only medical men and theorists but economists and statesmen will have to pay more attention to eugenics and to the training of the young in character and in physical endurance as well as training the mind. The longing for an everlasting peace will still be a Utopian dream in times to come as in the past. Hence we must do everything to promote efficiency and resisting power in young and old."

72. **Treatment of Concussion of the Brain.**—Weber refers only to cases in which the man was totally unconscious for a time after the injury, usually a fall on the head, or a wound of the skull from a bullet or scrap of shell, without actual lesions of the brain. The disturbances that follow are generally headache, restless sleep, dizziness in climbing stairs or walking fast, and inability to do any muscular work, sweating and having to give up when such is attempted. He has found that in such persons the distribution of the blood during muscular exertion differs from the distribution under normal conditions. The concussion injures the central mechanism for the innervation of the blood vessels; both the peripheral and the cerebral blood vessels are involved. It seems plausible to assume that this is the cause of the headache and other symptoms which follow and persist after concussion of the brain. The headache and dizziness are connected with the damaged central mechanism for the innervation of the vessels, as also the weakness and inability to do muscular work. In treatment, drugs gave no relief but surprising benefit was realized from alternating hot and cold douches. At first the relief is transient, but the improvement becomes permanent under a course of the alternating douches. The relief is striking within half an hour even after one alternating douche and in two or three weeks the improvement becomes a complete cure. The douches are given with hot and cold water for half a minute each (14 and 45 C. or 59 and 113 F.) applying the cold jet a trifle longer than the hot, and ending always with the cold. The cold seems to be the active factor; its effect is merely enhanced by the hot jet. Seven cases are described to illustrate the prompt and reliable curative action of the procedure in these conditions,

and Weber also describes how he registers the dilatation of the vessels in the hand or forearm during some strictly localized muscular exertion, such as dorsal and plantar flexion of the foot, hanging free. After concussion of the brain the vessels shrink, instead of becoming distended, during this muscular exertion.

73. **Hygiene in the Field.**—Among the various measures enforced or contemplated to keep the troops in health, Kuhn and Möllers mention that it is the plan to repeat the anti-typhoid inoculation after a five-month interval. Every tuberculosis suspect is sent home, and careful search is made through the civilian population for consumptives and suspects, and they are isolated in the public hospitals if possible. When this cannot be done, they are left in their homes; the houses are placarded and all intercourse with soldiers is prohibited.

76. **Nonalcoholic Drinks.**—Fehsenfeld has made a special study of the various beverages on the market which contain no alcohol. He has thus tested the output of fourteen firms; their fruit juice and malt beverages are kept from spoiling by pasteurizing, by thickening with sugar or by vacuum distillation. They are nutritious while supplying the mineral salts, etc., urgently needed by the tissues. From every point of view they are desirable except that one tires of them more easily, and that they do not have the same appetizing effect as alcoholic beverages. They are also more liable to adulteration and to the use of harmful preservatives. But since the Freie Vereinigung deutscher Nahrungsmittelchemiker, an association of food chemists, set up standards for such beverages in 1911, a large number of very good alcohol-free wines, beer and sterilized fruit juices have been put on the market. The main thing now is to uproot the tradition that a jolly company must have alcoholic drinks to be a success, and further, to convince the public that the amounts of alcohol which are extremely moderate for one person may be far too much for his neighbor. It must also be impressed on the public that even the "extremely moderate" use of alcohol is not always free from danger.

77. **Walking Casts.**—Köhler and Gerson give illustrated descriptions of inexpensive plaster splints and casts, with strip-iron stirrups, which allow the patients to be up and about. Gerson's cast not only immobilizes but exerts adjustable extension. This is realized when the patient is sitting or standing by overalls fastened to the stirrup and held up by suspenders. The pressure from the overalls on the stirrup and thus on the cast is ample to hold the cast in place and thus keep up the extension for a fractured femur, for instance. The pelvis and hip are not included in the cast; it fits against the tuberosity of the ischium. The cast can be cautiously pulled off at any time for inspection and massage of the limb, and the foot can be massaged and exercised without disturbing the apparatus.

Münchener medizinische Wochenschrift, Munich*April 20, LXII, No. 16, pp. 537-572*

- 80 Sudden Ptosis of Liver from Perforated Gastric Ulcer. (Ein röntgenologisches Phänomen bei perforiertem Magengeschwür.) W. Weiland.
81 Typhoid Bacilli Found Less Frequently in the Blood in Typhoid in the Vaccinated. (Einfluss der Typhusschutzimpfung auf den Nachweis der Typhusbazillen im kreisenden Blut.) H. Hohlweg.
82 The Blood Picture after Vaccination against Typhoid and Cholera. (Das Blutbild bei Typhus- und Choleraschutzimpfung.) H. Lipp.
83 *Excellent Permanent Results of Operative Treatment of Elephantiasis Edema. E. Kondoléon.
84 Hygienic and Medical Notes in Southern Tunis. J. Grober. Commenced in No. 15.
85 Treatment of Skin and Venereal Diseases in the Field. W. Gennerich.
86 *Gunshot Wounds of the Lung. (Lungenschüsse und deren Behandlung durch Punktion und Einlassen von Luft in die Brusthöhle.) H. Ehret and L. Krez.
87 *Bayonet Wounds of the Lung. K. Herrensneider.
88 *Ligation of Common Carotid after Gunshot Injury. F. Riedinger.
89 Vermin Fumigating Shed. (Die Ungezieferbekämpfung in einem Kriegsgefangenenlager.) L. Schlesinger.
90 Extension with Aid of Varnish. (Extensionsverbände mit dem Heusnerschen Wundfirnis.) O. Fleuster.
91 *Tardy Effects on Nervous System of Wounds in War. (Ueber die durch den Krieg bedingten Folgezustände im Nervensystem.) Saenger. Commenced in No. 15.
92 Hexamethylenamin Should Not Be Given in Typhus. (Zur Behandlung des Fleckfiebers.) F. Levy.

83. Operative Treatment of Elephantiasis.—Two years have now elapsed since Kondoleon first excised the deep fascia in the leg to improve conditions in chronic edema with elephantiasis. Several have applied this technic since, including Royster, whose favorable report was published in *THE JOURNAL*, May 30, 1914, p. 1720. Kondoleon has performed the operation on eleven patients, in four cases on both legs. The details and the ultimate outcome in ten cases are given in full. Two of the patients were entirely cured and three materially and permanently improved; two were slightly improved and in one patient the former condition returned. The outcome is not known in the other cases. Improvement occurred constantly when the tissues were still comparatively elastic; the failures were only in the very old, chronic cases with tough, hardened soft parts. The complete cures and the essential improvement realized in a considerable proportion of the cases are particularly gratifying, as we previously have had no means to influence this affection. Kondoleon does not describe his technic here, but it was given in *THE JOURNAL*, Sept. 12, 1912, p. 977, from his early report on the subject.

86. Air Treatment of Gunshot Wounds of the Lung.—Ehret says that none died of the 100 soldiers with gunshot wounds of the lungs he has examined or treated from five to twenty days after their injury. He ascribes this favorable outcome to his practice of puncturing the chest cavity and letting in air. This aids in expelling all secretions, and the pressure of the air tends to prevent bleeding and reduces the tendency to retraction and adhesions which are so common with gunshot wounds of the lungs not treated in this way. Even when the exudation is not enough to require puncture, yet adhesions are warded off better by this puncturing and letting in air. It is possible but not yet definitely settled that the artificial pneumothorax thus induced may break up adhesions already formed of recent date. He uses ordinary air and has never had any unpleasant by-effects with the method.

87. Bayonet Wounds of the Lung.—Herrenschneider reports a case in which a bayonet had passed through the entire chest, entering the right fourth interspace and emerging near the third thoracic vertebra. After the first day or so the temperature was normal or nearly so and except for a slight cough without expectoration the man suffered no discomfort. The pleural effusion was sterile at first but later an anaerobic bacterium was cultivated from it. Treatment was with absolute repose alone, except that a little codein was given to suppress the slight cough, and in less than six weeks after the injury the man was able to leave for home to complete his convalescence. Such experiences testify that it is not necessary to resect ribs, as some advise in treatment of bayonet wounds of the chest.

88. Ligation of the Common Carotid.—Various measures have been proposed to ward off the serious results liable to follow the sudden shutting off of the supply of blood to the brain by ligating the common carotid. Smoler advises slow "strangling" of the artery, shutting off the circulation by stages as it were, and Ceci advises ligating the internal jugular vein at the same time as the artery, thus impeding the escape of the blood from the brain. Riedinger recently had a soldier in his charge who had been shot just below the right mastoid process, the bullet passing out through the floor of the mouth. Serious arterial hemorrhage came on the eighth day and recurred again and again. Riedinger threw two ligatures around the common carotid and also around the internal jugular vein. No disturbances on the part of the brain were observed and the wound healed promptly. This experience sustains Ceci's views as to the advisability of ligating the vein at the same time as the artery.

91. Nervous Affections from Wounds in War.—Saenger reports a number of interesting cases encountered at Hamburg among soldiers wounded in the head or spinal cord, and discusses a number of special points. This war has shown that concussion or commotion of the spinal cord is liable to arrest temporarily its functioning even when the cord itself was not touched by the bullet. There does not seem to be any special "war neurosis," but pathologic psychic reactions

to the stress, both physical and emotional, of the war are common in the predisposed. He deplores Oppenheim's recent revival of the idea of "traumatic neuroses," saying that this conception should be repudiated not only from the scientific but from the practical standpoint on account of the enormous economic burdens it would impose on the state if generally accepted. In conclusion he relates five cases among the civilian population of Hamburg in which emotions connected with the war have led to acute mania or suicide. Numbers of other cases have also occurred, but, on the other hand, he remarks, many persons with unstable mind or nervous system have been steadied and helped by the war. In conclusion he quotes Hindenburg's prophecy: "The victors in this war will be those with the stoutest nerves."

Wiener klinische Wochenschrift, Vienna

April 22, XXVIII, No. 16, pp. 411-434

- 93 Indirect Gunshot Injury of the Spinal Cord; Three Cases. (Rückenmarkschädigungen durch Wirbelschuss.) E. Gamper. Concluded in No. 17.
- 94 Animal Charcoal in Research on Vaccines. (Verwendung von Tierkohle bei Vakzineuntersuchungen.) J. Hammerschmidt.
- 95 Unfavorable Experiences with Vaccine Therapy of Typhoid. (Zur Frage der Typhustherapie mit Besredka-Vakzine.) H. Boral.
- 96 *Participation of the Kidneys in Relapsing Fever. (Mitbeteiligung der Nieren bei Rückfallfieber.) L. Jarno.
- 97 *Technic for Cultivating Bacteria from the Stools. (Wirkung des Petroläthers auf die Bakterien der Typhus-Koligruppe.) R. H. Jaffé.
- 98 Sterilization of Clothing with Fumes of Carbon Disulphid. (Neues Entlausungsverfahren.) E. Eckert and A. Fuchs.

96. Involvement of the Kidneys in Relapsing Fever.—Jarno remarks that in the accessible literature he has found mention of merely traces of albumin in the urine or hemorrhagic nephritis as the only renal complications of relapsing fever. In his extensive experience at the contagious disease hospital at Ruma, he has found albumin constantly, sometimes in large amounts, and frequently accompanied by granular tube-casts. The findings in 170 cases are tabulated; the albumin appeared in the urine the very first day as a rule and by the second day there was up to 0.5 and 1.5 per thousand and masses of tube-casts. The findings in the urine keep up during the attack but disappear after defervescence, the urine being quite normal by the fourth day. These phenomena recur regularly with each of the relapsing attacks, and the normal urine afterward demonstrates that apparently no serious damage has been done the kidneys. In only one of all his cases have the albuminuria and casts persisted indefinitely since. Hemorrhagic nephritis as a complication was encountered only twice and there was no macroscopic blood. The clinical picture of relapsing fever, including the kidney findings, was favorably influenced by neosalvarsan and to a remarkable extent. As the spirilla are killed off by this drug, the kidneys escape further injury.

97. Improved Technic for Determination of Typhoid Bacilli in Stools.—Jaffé expatiates on the superior advantages, the ease, and the reliability of Bierast's benzin method of treating the stools of suspected typhoid carriers. The benzin seems to destroy some substance in the membrane capsule of colon bacilli, and they die off in consequence, while the typhoid and paratyphoid bacilli are not injured by it enough to check their growth. The delay of sixteen hours before the test is conclusive, he says, is a slight drawback which is outweighed by the advantages of the method. The findings in fourteen cases are tabulated. In four cases typhoid bacilli were demonstrated by this means when other methods gave negative results. In the five other positive cases, the typhoid bacilli were in pure culture or there were merely very few colon bacilli in comparison with the luxuriant growth of the former on the ordinary plates. One of the advantages of the technic is that the entire specimen of stool is treated. It is rubbed up with bouillon to a thin suspension. The benzin is then poured on it, as thick as one's thumb, and the glass vessel is corked and vigorously shaken up. Unless the cork is sound and tight, some of the vessel contents might get on the fingers. Bierast himself contracted typhoid, probably in this way, while studying out this technic, and a bacteriologist in a hospital near Vienna has succumbed recently to

typhoid acquired in this way. A rubber cap might be used to cover the top of the bottle, or the benzin might be merely stirred into the suspension. The aim is to expose the colon bacilli to the benzin as thoroughly as possible. The vessel is then set away in a cool place, protected against the light, for sixteen hours. Then one or two drops from the lowest brownish strata are transferred to a series of Drigalski or Endo plates.

Zeitschrift für Urologie, Leipzig

March, IX, No. 3, pp. 81-120

- 99 *Clinical Importance of the Modern Tests of the Functional Capacity of the Kidneys. (Nierenfunktionsprüfung.) R. Bauer and W. v. Nyiri.

April, No. 4, pp. 121-160

- 100 *Chronic Painful Nephritis with Apparently Normal Urine; Two Cases. W. Misch.

99. **Comparison of Tests of Kidney Functioning.**—In this communication from the medical clinic at Vienna in charge of Ortner, the detailed findings in the urine with various tests are tabulated, under ten headings, from sixty-eight patients with internal disease, mostly of the kidneys. The elements that make up the Ambard formula are also compared, and the correspondence between the Ambard findings and the clinical picture and course is emphasized. The essential feature and the progress realized with the Ambard method are that no attempt is made to record and compare the intake or elimination of nitrogen. It aims merely to estimate the proportion of urea and of chlorids in the urine and blood at a given moment, and compare the figures. Contradictory findings were never encountered in any of the sixty-eight cases studied; the clinical course and the Ambard findings always harmonized. The figures in the index were within normal range in every case in which the kidneys were sound. For convenience, Bauer classifies nephritis in three groups: glomerular nephritis in a first, second or third stage; nephrosis, alone or associated with glomerular nephritis; and sclerosis, bland or combined with nephritis. The Ambard findings in each group are compared and discussed and the comparatively simple and rapid technic is extolled as well repaying study. (The Ambard formula was described in *THE JOURNAL*, March 7, 1914, p. 813. His "uremic constant" is the constant ratio between the urea in the blood and the square root of the urea in the urine.)

100. **Chronic Painful Nephritis with Apparently Normal Urine.**—The patients were men of 28 and 45. The attacks of pain in the left kidney region in the first case were so severe that decapsulation was done, which put an end completely to the pains. A scrap cut from the kidney showed evidences of chronic parenchymatous nephritis and yet no albumin nor tube-cast had been discovered in the urine. There was a history in this case of an inflammatory affection of this kidney a few months before, but in the second case no pathologic antecedents were known. This patient also was relieved of all pains by decapsulation of the painful kidney. Misch queries whether this painful nephritis without urine findings may not be merely an early stage of nephrolithiasis. Decapsulation seems to answer the purpose completely. A permanent cure was realized by it in these cases and also in a number in the literature to which Misch refers.

Gazzetta degli Ospedali e delle Cliniche, Milan

April 18, XXXVI, No. 31, pp. 481-496

- 101 *Croup and Tracheotomy. F. Marinelli.

101. **Tracheotomy in Croup.**—Marinelli presents an array of arguments to impress on the general practitioner the value of tracheotomy for stenosis in croup, and the necessity for his familiarizing himself with the technic so that he can apply it in time. He reports twenty-seven cases to demonstrate the advantages of tracheotomy, making the incision with a bistoury, below the "isthmus" of the thyroid, and only barely large enough to admit the cannula. The patient's breathing must be supervised day and night, and the cannula be discarded at the earliest possible moment. He declares that in general practice tracheotomy should be preferred to intubation, for one reason, because it is the best means at our disposal to ward off secondary pneumonia. He advises

it in every case in which the usual measures are not followed by evident improvement. General anesthesia is contraindicated as liable to aggravate the postoperative condition.

Policlinico, Rome

April 18, XXII, No. 16, pp. 517-552

- 102 *Iodin Treatment of Erysipelas. A. Magi.
103 Instrumental Dilatation of Stenosis of the Urethra. (Candelette metalliche a conduttore per dilatazione uretrale.) G. F. De Meo.

April 25, No. 17, pp. 553-588

- 104 *Pseudotetanus from Diplococcus Sepsis. T. Pontano.
105 Pathogenesis and Prognosis of Pulsus Alternans. G. Galli.

102. **Iodin in Erysipelas.**—Magi relates that in his experience painting the inflamed region abundantly with tincture of iodine had an "actually brilliant effect" on the infectious process, especially with enlargement of the lymph glands in the arm following infected wounds of the hands. The lymphangitis subsided almost constantly after once painting with the iodine, and rebellious erysipelas yielded to repeated applications. In the severest cases he supplemented this with antistreptococcus serotherapy. An attack of erysipelas of the face and scalp on the assistant surgeon at the clinic also yielded promptly to the iodine treatment.

104. **Diplococcus Pseudotetanus.**—Pontano's patient was a man of 77 with an acute toxi-infectious general condition plus a neuromuscular syndrome with painful contracture and intentional spasm. The two syndromes had developed simultaneously, everything suggesting a symptomatic tetaniform status from the same cause responsible for the acute fever and general depression. No benefit was derived from quinine or vigorous salicylic medication. A diplococcus was cultivated from the blood, but the cerebrospinal fluid gave negative findings on repeated examination. Transient benefit was derived from a silver salt injected intravenously, but the condition grew progressively worse, with death the twenty-ninth day after entering the hospital. He had had diffuse pains in the limbs and joints for a few days before the fever developed, and one year before had had an attack of pneumonia, but otherwise no pathologic antecedents were known.

Riforma Medica, Naples

April 24, XXXI, No. 17, pp. 449-476

- 106 *Primary Alcoholic Degeneration of Corpus Callosum. (Morbo di Marchiafava.) P. Guizzetti and G. Tomasinelli.
107 *Cultivation of Tetanus Bacilli from the Blood. G. Sinigaglia.

106. **Primary Alcoholic Degeneration of the Corpus Callosum.**—Guizzetti relates that Marchiafava was the first to call attention to this primary degeneration of the nerve fibers in the corpus callosum and commissure in men with alcoholic psychoses. The clinical picture in this condition is that of a gradually developing feeble-mindedness, with perversion or deadening of the moral sense; there may also be tremor and disturbances in speech, etc. Guizzetti reports, with illustrations of the necropsy findings, a case in a man of 55 who had died of pneumonia. The middle stratum of the corpus callosum and middle of the anterior white commissure showed systematized primary degeneration, but not so extensive as in most of the other cases recorded. For the last few years there had been a gradually increasing tendency to loss of memory, failure at times to comprehend what was said to him, inability to attend to matters outside of his regular routine as meter inspector, and for some years he had complained of headaches and occasional dizziness. He was not a very hard drinker, and his mental impairment had not been severe enough to cost him his position. Guizzetti has since reviewed the 13,000 necropsy reports at the institute of pathologic anatomy in his charge but was unable to find any record of a similar primary degeneration of this region, although he found three cases of ischemic softening, one of primary tumor and one of a metastatic tumor at this point.

107. **Tetanus Bacilli in the Blood.**—Sinigaglia discusses what has been published on this subject and compares with it a case from his own practice in which he was able to cultivate tetanus bacilli from the blood. His patient was a boy of 10 who had stepped on a nail, October 11, signs of

tetanus developing on November 9. Cultures were made from the blood November 16, and two microbes developed, one evidently the tetanus bacillus, and causing tetanus in animals inoculated with it. The tetanus bacilli were not numerous in the blood and seemed to sojourn there only temporarily, but still the blood might serve as a vehicle for infection in case of an operation on a patient with tetanus.

Brazil-Medico, Rio de Janeiro

April 8, XXIX, No. 14, pp. 105-112

- 108 Brazilian Nematelminth Worms. (Revisão dos acantocephalos brasileiros. I. Fam. Gigantorhynchidae Hamann, 1892.) L. Travassos.
109 *Vagotomy. J. de Monlevade.

109. **Vagotomy.**—Monlevade has been studying in Austregesilo's service the effect of atropin, pilocarpin and epinephrin on the sympathetic and vagus nervous systems, comparing his findings with those that have been reported by other authors as types of pure vagotomy and of what he calls "status vagotonicus." The latter is found in connection with various clinical pictures, on which it imprints a special stamp. Neurasthenia, for instance, epilepsy, or hysteria may be accompanied by a confused and vast train of symptoms on the part of the heart, the digestive tract, the respiration or the vasomotor system, all of which are merely the manifestations of this excessive excitability of the vagus nervous system. Among the infectious diseases, tuberculosis stands at the head with vagotonic disturbances from its very inception. Upsets in the ductless gland system are also fields in which vagotomy flourishes exceptionally luxuriantly, as in Addison's disease and exophthalmic goiter. Gastric ulcer may develop in some cases with vomiting, hyperchlorhydria and constipation while other cases are free from them. In the first group the status vagotonicus modifies the clinical picture. Six typical cases of this kind are related, with the response to epinephrin and pilocarpin tests. In every case the reaction to epinephrin and to pilocarpin was exactly the reverse; when one was positive the other was negative.

Semana Medica, Buenos Aires

April 8, XXII, No. 14, pp. 441-472

- 110 Vaccination against Diphtheria. (La vacunacion antidifterica.) D. Thamm.
111 Functional Stomach Disturbances I. (Hiperestencias gastricas primitivas.) T. Martini.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

April 17, I, No. 16, pp. 1293-1384

- 112 *The Tuberculosis Problem in the Tropics. J. J. Van Loghem.
113 The Hospital in Ancient and Modern Times. (Het ziekenhuis voorheen en thans.) J. L. C. Wortman.
114 Study of the Normal Carotid Pulse. (Bijdrage tot de kennis van de polskromme. I.) L. Kaiser.

112. **Tuberculosis in the Tropics.**—Van Loghem is chief of the department of tropical hygiene in the Colonial Institute of the Netherlands, and he has been making a special study of tuberculosis in the Dutch East Indies. He compares the general and the tuberculosis mortality, 1900 to 1904, in thirty-two large cities of the world. Amsterdam and Christiania head the first list in Europe with a general mortality of 15.3 per thousand inhabitants. In Asia, Tokyo heads the list with 18.3 per thousand. Calcutta had 39.3; Manila, 46.7; Batavia, 53.2, and Bombay, 71.4 per thousand. The tuberculosis mortality parallels this range to some extent, Amsterdam having 1.52 per thousand; Tunis, 6.91; Bombay, 6.35, and Batavia, 4.09. New York is cited at 2.21 per thousand.

Van Loghem remarks that as we are learning to keep yellow fever and other tropical diseases under control, tuberculosis in the tropical regions is coming in for greater attention. Study of tuberculosis under tropical conditions is liable to throw light on many of its problems elsewhere. As an example of this he points out that bovine tuberculosis in recent years seems to be spreading, and the milk from tuberculous cows is being used by children and adults more than ever before, and yet human tuberculosis shows a downward tendency everywhere. He regards this as evidence of the nonidentity of bovine and human tuberculosis. The experi-

ences in the tropics sustain this view. For instance, he relates that the stock of cows in the Dutch East Indies is free from tuberculosis. By strict supervision infection from importation of bovine tuberculosis has been warded off, and yet the figures cited show that human tuberculosis is very prevalent. It must have developed without any basis of bovine tuberculosis, as there is none in the islands. These facts settle also the question as to the possible mutation of human into bovine tubercle bacilli, which some have deemed possible. It certainly has not occurred to date in Netherlands India, he affirms. Although human tuberculosis is common, yet the cattle have kept free from it.

Conditions in the tropics throw light further on the influence of infection in childhood on tuberculosis in later life. In the remote interior of the islands, the Pirquet skin tuberculin test has shown that large areas of country are entirely free from tuberculosis. The more intercourse there is with Europeans and Americans on the coast and in the cities, the greater the spreading of tuberculosis to invade the virgin areas from the large centers. In the persons thus attacked for the first time the disease does not behave as in Europeans and Americans who have been immunized to a greater or less extent by infection in childhood. It runs an acute course in young and old alike, very much like the course of tuberculosis in children in the western world. He suggests that it might be well to vaccinate against tuberculosis in these virgin regions, aiming to realize an effect like that realized in Europe and America by the systematic natural vaccination which repeated opportunities for infection confer on the young as they grow up. He remarks that under modern hygiene and control of open tuberculosis, the number of tubercle bacilli in the external world is certainly growing less and less. This suggests that a time is coming when the young will not have the repeated opportunities of the present and past for infection. The young will grow up free from tuberculosis, but, when opportunity for infection does arise, they will be practically virgin soil, like the natives in the interior of tropical islands, and the disease when it attacks them will run the acute course of the nonimmunized. It is possible that Europe may have to face a new invasion of tuberculosis with an acute course and high mortality unless it can be stamped out by vaccination, as smallpox has been rendered harmless in parts of Europe, or unless it can be eradicated like leprosy.

Hospitalstidende, Copenhagen

April 28, LVIII, No. 17, pp. 401-424

- 115 Advantages of Paraffin with a High Melting Point for Histologic Sections. (Om Indsmeltning i Paraffin ved Fremstilling af histologiske Preparater.) O. Thomsen.
116 *Histochemical Basis for Cholesterin Type of Degeneration of Lipoids. (Nogle kritiske Bemærkninger til det histokemiske Grundlag for Cholesterinsteatosen.) T. E. Thaysen. Commenced in No. 16.

116. **Degeneration of Lipoids.**—Thaysen confines his study of this subject to what he calls cholesterin steatosis, and tells of the various means for its chemical investigation in man and animals, tabulating the results of his own research. He states that they seem to discredit the histochemical bases on which the pathologic anatomists have been building up the theory of cholesterin steatosis.

Ugeskrift for Læger, Copenhagen

April 29, LXXVII, No. 17, pp. 637-682

- 117 Polydactylism. (Et Tilfælde af Hexadaktyli paa alle 4 Extremiteter.) M. Seedorff.
118 Four Years of Tuberculosis Sanatorium Work. (Nogle Erfaringer om Pleje- og Rekonvalescenthjem for brystsyge.) G. S. Permin.

Correction.—In Abstract 69 in THE JOURNAL, May 8, 1915, page 1620, the number of cases of scarlet fever in which serotherapy was applied was incorrectly stated. The tenth line from the bottom should read: Among 28 patients with extremely severe scarlet fever . . . (instead of "280"). Also the fourth line from the bottom should read: In twelve milder cases normal serum was used and one died. (Instead of "none died.")

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THE RATIONAL TREATMENT OF HODGKIN'S DISEASE*

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INTRODUCTORY

A combined pathologic, experimental and clinical study of Hodgkin's disease extending over a period of six years is the basis of this communication. The most efficacious methods of treatment will be presented with sufficient data to justify the various therapeutic procedures held to be indicated. Fischer¹ was unable in 1901 to find a record of a single case in which cure was *permanent*. None has since then been reported in the literature up to the present year. We have been so fortunate as to have seen two recoveries (that is, five years without evidence of the disease) and at present have a small number of patients under observation who are in a very encouraging condition three to six years after beginning treatment. We believe the disease more common than supposed, more protean in its clinical manifestations than is generally accepted, and not of necessity universally fatal.

This is to be regarded as a statement of observations made and an indication of the results attained by the practical application of the lessons drawn from those observations, laboratory and clinical. Although it is not claimed that a satisfactory routine method of treatment has been established, we feel that a single recovery is indeed encouraging and that prolongation of life, reduction of discomfort and the distinct possibility of 10 per cent. of ultimate cures justifies a conviction that our therapeutic principles are to some extent well founded.

DEFINITION

Hodgkin's disease may be tentatively defined as a non-contagious, infectious granulomatous process due to the *Bacillus hodgkini*. Primarily localized at or about a portal of entry, it causes a progressive enlargement of a specific nature in adjacent and remote pre-existing lymphoid structures, and early provokes characteristic changes in the blood picture. Once well established, the disease manifests little or no tendency to spontaneous recovery.

ETIOLOGY

A pleomorphic diphtheroid organism, gram-positive, antiformin-fast but not acid-fast, has been grown almost constantly,² and usually in pure culture from fresh tissue showing the characteristic pathologic changes in the disease. It has been stained in situ in affected tissue where it may occur in large numbers in an acute process and apparently be the only micro-organism present. Subcutaneous inoculation in pure culture into monkeys has provoked a series of changes quite analogous to the disease as manifested in its more acute form in the human. Recovered in pure culture from lesions in a monkey in which the disease had become established, the inoculation of another monkey therewith induced a similar affection as did likewise a subcutaneous transplant of an involved gland from an affected to a normal monkey.³ Moreover, the monkeys soon after inoculation show changes in their blood pictures identical with those observed in spontaneous human cases. Similarly the subcutaneous injection into a quite normal individual of five, ten and twenty million bacilli of a polyvalent stock Hodgkin's vaccine at intervals of five days has produced within four days of the last injection the blood changes which Dr. Bunting⁴ has shown to be an almost constant characteristic of the disease.⁵

Diphtheroid organisms are widely distributed⁶ and are being cultivated from a variety of pathologic tis-

2. Negri and Mieremet: *Centralbl. f. Bacteriol.*, 1913, lxxvii, 292. Bunting, C. H., and Yates, J. L.: *Cultural Results in Hodgkin's Disease*, *Arch. Int. Med.*, August, 1913, p. 236. Rosenow, E. C., and Billings, Frank: *The Etiology and Treatment of Hodgkin's Disease*, *THE JOURNAL A. M. A.*, Dec. 13, 1913, p. 2122. Steele: *Boston Med. and Surg. Jour.*, 1914, clxx, 123.

3. Bunting, C. H., and Yates, J. L.: *An Etiologic Study of Hodgkin's Disease*, *THE JOURNAL A. M. A.*, Nov. 15, 1913, p. 1803; *ibid.*, Feb. 14, 1914, p. 516.

4. Bunting, C. H.: *Bull. Johns Hopkins Hosp.*, 1911, xxii, 369; *ibid.*, 1914, xxv, 173.

5. Solely for the benefit of the antivivisectionists be it known that the above mentioned individual was a physician who understood the nature of the experiment.

6. It has been so long and so widely held that Hodgkin's disease was of an infectious origin that attempts have been made by many investigators to isolate organisms from tissue obtained at operations or post mortem. Cocci were found first (Verdelli: *Centralbl. f. Med. Wissensch.*, 1893, xxxi, 545); later various cocci and bacilli (Brigidi and Peccoli: *Ziegler's Beitr.*, 1894, xvi, 338) leading to a suspicion that a number of bacteria might be causative agents. Delbet isolated a bacillus (*Delbet: Compt. rend. Acad. d. sc.*, 1895, cxx, 1373) which was not described, and was said to have caused characteristic glandular enlargements after intraperitoneal and subcutaneous injections into dogs. Emulsions of glands have been injected into various animals, and if there was not a concomitant tuberculosis the results were quite negative. Thus Longcope produced transient glandular enlargements in monkeys (*Longcope: Bull. Univ. of Pennsylvania Med. Dept.*, 1907-8, xx, 229) which failed to show characteristic pathologic changes. A possible relationship to syphilis has repeatedly been suggested. Spirochetes were said to have been stained in sections of typical glands (White: *THE JOURNAL A. M. A.*, Aug. 31, 1907, p. 774) but this has lacked confirmation through a positive Wassermann reaction (Caan: *München. med. Wchnschr.*, 1910, lvii, 1002) has been obtained in cases giving a negative luetic history. As a heritage of the belief that Hodgkin's disease was an atypical tuberculosis, Fraenkel and Much have held that an organism which they obtained with great regularity from various affected tissues by an antiformin method was a granular, nonacid-fast tubercle bacillus. (Fraenkel and Much: *Ztschr. f. Hyg. u. Infektionskrankh.*, 1910, lxxvii, 159.) They were unable to obtain a culture of this organism or to reproduce the disease by inoculation of animals with the filtrate which contained it. It is probable that they were dealing with *B. hodgkini*.

* This work has been aided by a grant from the Rockefeller Institute and by the Trustees of the Columbia Hospital in providing clinical facilities.

* This paper has been abbreviated in *THE JOURNAL* by the omission of the case reports. The complete paper appears in the authors' reprints. 1. Fischer: *Deutsch. Ztschr. f. Chir.*, 1901, xxiv, A, 104.

sues. Until the identity of the *B. hodgkini* has been determined accurately it will be impossible to fulfil Koch's dicta to the letter, yet from the facts already established it would seem justifiable to assume that the causal relationship of this organism to the disease has been demonstrated.⁶

Nothing is known of the occurrence of *B. hodgkini* outside the human body. Clinical evidence indicates that it may enter through other portals than those situated in the gastro-intestinal tract. It is at least suggestive in this connection that so-called pseudoleukemia has been described as having occurred in swine;⁷ in a horse;⁸ in chickens;⁹ in dogs,¹⁰ and in sheep.¹¹ In the last animal the disease is claimed to be infectious and to be transmitted by insects.

GENERAL PATHOLOGY

Since the publication of Dorothy Reed's paper¹² twelve years ago, subsequent pathologic descriptions of the more common types of the lesions have been largely repetitions of her observations. With the realization that Hodgkin's disease is probably less limited in its clinical manifestations than was held at that time, and in the light of present conceptions, other less generally accepted lesions should be included in the category. These variations, however, are quantitative rather than qualitative and no radical additions can be made to Dr. Reed's splendid fundamental contribution to this subject.

For example, we have observed two adults showing clinical and pathologic characteristics of a type of lymphosarcoma who had a positive Hodgkin's blood picture, and from whose excised glands an organism identical with or closely related to the *B. hodgkini* was cultivated. In both the disease was first noticed in an enlargement of inguinal glands. Histologically these glands showed an almost complete obliteration of the normal architecture and a widespread proliferation of the "endothelioid" cells particularly marked in numerous foci which on fresh gross section gave an appearance suggesting miliary tubercles.

A man, aged 64, suffering from chloroma in its most typical advanced form, clinical and pathologic, presented a characteristic blood picture, and mediums on which were implanted pieces of excised glands gave pure cultures of what appeared to be the Hodgkin's organism. Macroscopically the greenish tint was evident in a fresh section; microscopically a proliferation of atypical large lymphoid cells and the presence of occasional "giant" endothelioid cells and numerous accumulations of blood pigment were particularly noticeable.

Still more surprising were the results of observations on a young physician who had for seven years been suffering from periodic attacks of a peculiar type of subcutaneous inflammation associated with pain, fever, delirium, leukocytosis, lymphangitis and lymphadenitis affecting one leg and causing a very gradual enlargement suggesting elephantiasis. His blood picture was that of Hodgkin's disease both between and during attacks. Cultures taken from obviously involved subcutaneous fat and from enlarged popliteal glands developed an apparently characteristic diphtheroid organism.

Sections from the fat showed a definite perivascular inflammation, a mononuclear cellular infiltration and fixed tissue proliferation. Those from the glands showed a distortion of architecture, proliferation of endothelioid and lymphoid cells with scattered endothelioid giant cells and with a fine, diffuse, fibroblastic proliferation. A periadenitis of character similar to the perivascular inflammation in the fat was also present. Eosinophilic infiltration was lacking.

The successful cultivations of a similar organism from the spleen pulp after splenectomy in two cases in which a clinical diagnosis of early Banti's disease had been made are very suggestive, particularly since it has been held (Westphal) that there is a purely splenic type of the disease. In these instances the blood picture was not quite positive because of the absence of an increase in the size and number of the platelets. Microscopically there was the usual increase in stroma, destruction of the malpighian corpuscles and excess of the endothelioid cells. The cultivation of a characteristic organism from the glands in a case of lymphatic leukemia by Steele and the observations of the Fraenkel-Much granular bacillus in this disease are suggestive, but only suggestive, of a possible relationship of these diseases and not proof of their identity.

A middle-aged woman with moderately advanced arthritis deformans had, in addition to carious teeth wonderfully masked by most artistic crown work, obviously affected tonsils and enlarged inguinal glands. Cultures made from these glands developed a diphtheroid bacterium in pure culture, a section therefrom showed histologic changes indicative of Hodgkin's disease and virtually conclusive additional evidence was in the changes in her blood picture. As a corroboration of these findings may be cited the observation of another patient suffering from Hodgkin's disease in a subacute form who has had, but only since the affection became well established, recurrent attacks of multiple arthritis apparently attributable to no other infection.

Certain erroneous statements are frequently encountered, quotations from observations made when pathologic and clinical diagnoses differed from present standards. Some have a definite therapeutic significance and should be refuted.

It is incorrectly maintained that the capsules of lymph glands are never penetrated and that the periglandular tissues are therefore not directly invaded by the intraglandular granulomatous process. This capsular penetration is unusual and is only marked when the disease is progressing acutely. It has also been held that there is no periadenitis, hence no matting together of the glands or formation of adhesions to the skin or deeper structures. This too is incorrect. A periadenitis is virtually constant, probably developing from a lymphangitis as dissemination occurs, indeed virulent specific organisms are to be found in the periglandular tissues. These periglandular tissues, as pointed out by Fischer, are moist, vascular and friable in acute or recent involvements and are more apt to be dry, avascular and firm in the older and more chronic varieties. Thus, without evidence of secondary infection, intimate and dense adhesions to the skin occur and rarely may even lead to ulceration, according to Delbet.¹³ The brawny induration of the skin present in several of our cases indicated that certain of the board-like subcutaneous inflammations

7. Gunther: Deutsch. tierarztl. Wchnschr., 1906, xiv, 112. Hodgson: Jour. Comp. Path. and Therap., 1903, xvi, 382.

8. Bretegnier: Rec. Med. Vet. Paris, 1909, lxxxvi, 156.

9. Hart: Ztschr. f. Krebsforsch., 1908-9, vii, 485.

10. M'Fayden: Jour. Comp. Path. and Therap., 1903, xvi, 379.

11. Selenew: Folia Haemat., 1911, xii, 99.

12. Reed, Dorothy: Johns Hopkins Hosp. Rep., 1902, x, 133.

13. Delbet: Semaine méd., 1893, xiii, 430.

might be due to the *B. hodgkini*, and this has been already confirmed in a case cited above.

Likewise more or less conspicuous and dense adhesions are found between the glands themselves and surrounding deep structures, often leading to an erroneous conclusion that a malignant type of infiltration has been encountered. The fluctuations in the size, consistency and degree of mobility so often noticed in the course of the disease are probably attributable to a large extent to waves of intensity in this periadenitis.

Contrary to a frequently repeated statement, foci of macroscopic softening do occur, without any secondary infection, though but rarely, and then particularly in the more acutely affected glands. When the process is older or more chronic there is a correspondingly increasing sclerosis which virtually becomes complete if life is sufficiently prolonged. Even when there is little to be found microscopically except fibrous tissue the organism can be cultivated with proper technic.

LIVING PATHOLOGY

Since the living pathology of any disease is a foundation for its therapy an attempt will be made to portray that of Hodgkin's disease as we have come to see it through superimposed pathologic and clinical spectacles.

When Wilks gave to Hodgkin's disease an intermediate position between cancer and tuberculosis he did all three an injustice. Hodgkin's disease may be said to possess all of the evil clinical characteristics and none of the virtues of both a malignant neoplasm and a malign infection. By the latter is meant an infectious process in which the balance of power between virulence and resistance is so delicately adjusted that it may be disturbed by factors frequently unrecognizable and usually negligible under other conditions. In the constant struggle for supremacy the powers of resistance ultimately succumb, but only after repeatedly having overcome the temporary advantages gained by relatively or actually increased virulence.

The offensive mechanism may be regarded as both neoplastic and inflammatory *in its effects*, attributing to the former, more particularly, the mechanical or physical injuries and to the latter more especially the toxic or physiologic.

With the establishment of a portal of entry, a lymphangitis partly toxic and in part due to the presence of bacteria marks the first extension of the disease toward the next lymphadenoid station, there to provoke a specific lymphadenitis. Perilymphangitis and perilymphadenitis are significant and constant features in the process. The entire progress of the disease is a repetition of similar steps, now more acute, now less, increasing numerically here by arithmetical there by geometrical progression, almost never constantly but in alternating waves of progression and regression due probably to periods of disproportion between the powers of virulence and resistance, and varying directly with the degree and duration of this inequality, being at times well localized, at others quite general.

Thus may be explained at the one extreme the extension between glands or groups of glands without any notable concomitant reaction, and at the other extreme those characteristic recurrent febrile attacks.

Three stages of the disease may thus roughly be outlined:

Stage 1. Process localized, physical effects slight, physiologic effects usually unnoticed, though a positive blood picture, an expression of toxemia, is already developed.

Stage 2. Considerable dissemination, physical effects more marked but still relatively insignificant, physiologic effects now definite, toxemia and anemia.

Stage 3. Wide dissemination, physical effects pronounced, edema, dysphagia, dyspnea, physiologic effects advanced, toxemia, anemia and cachexia.

Manifestly, in any given case, the variations in extent and intensity of the physical and physiologic effects present diverse problems in diagnosis, therapeutics and prognosis.

Apparently local and general resistance may be estimated to some extent histologically. The end-result so far as local recovery is concerned is fibrous tissue. An index of the general resistance can be found in the blood picture where there seems to be some direct significant relationship between a normal proportion of small lymphocytes and a favorable prognosis.

Sarcomatous metamorphosis in Hodgkin's disease has been described by Yamasaki,¹⁴ Karsner¹⁵ and Symmers.¹⁶ A necropsy in the most acute and extensive case we have seen showed the parietal pleura, visceral pericardium, intercostal and pectoral muscles to be riddled with nodules. Macroscopically the appearance of malignancy was as distinct as was the picture of typical Hodgkin's granulomatous infiltration, microscopically. The possibility of malignant metamorphosis must be admitted, also its improbability, inasmuch as the causative agent is to be found in and to be cultivated from these so-called malignant metastatic lesions.

Confusing complications of secondary infections, other than agonal, occur and may make a certain diagnosis extremely difficult. When tuberculosis is engrafted on an established Hodgkin's process, as not infrequently occurs late in the disease, the histologic diagnosis is simple. Exceptional cases are reported, as cited by Fischer and Dietrich,¹⁷ in which the two diseases were thought to have developed simultaneously. These should present little difficulty of recognition from a pathologic point of view at least. If any such cases have come under our observation they have been unrecognized. The greatest difficulty has been encountered when, apparently, Hodgkin's disease may have been engrafted on an old tuberculous adenitis in which there exists both caseation and secondary acute infection. We have two such cases under treatment. Glands obtained at two operations on bilateral cervical enlargements of one individual showed advanced tuberculosis with much caseation and some less chronic changes that could not with certainty be identified. Cultures give cocci *B. subtilis* and in one tube a diphtheroid bacillus which could not be isolated. Definite evidence of an acute infection grafted on a Hodgkin's disease has not yet been established in our work.

CLINICAL HISTORY

Heredity and contagion are without apparent significance, though a case cited by Albutt is still quoted as indicative of the latter being a possibility. Unhy-

14. Yamasaki: Ztschr. f. Heilk., 1904, xxv, 269.

15. Karsner, H. T.: A Study of Cases of Hodgkin's Disease and Certain Allied Conditions, Arch. Int. Med., August, 1910, p. 175.

16. Symmers: New York Med. Jour., 1911, xcii, 971.

17. Dietrich: Beitr. z. klin. Chir., 1896, xvi, 377.

gienic surroundings may have some influence, particularly deficient personal cleanliness. No age is exempt, and contrary to the usual statement the sexes are about equally affected, though in males the disease is apt to develop in younger individuals.

Almost every conceivable condition supposed to reduce resistance has been suggested repeatedly as a predisposing factor. It is an interesting coincidence that diphtheria has been mentioned but once in the literature to which we have access.¹⁸ Robust young persons are attacked while in apparently excellent health; more often perhaps, careful inquiry will disclose symptoms of some minor affection that will offer a satisfactory explanation for the onset or at least for the entrance of the infection.

The predilection of Hodgkin's disease to manifest itself primarily in an enlargement of the cervical glands led Trousseau to investigate all structures drained by these glands as possible portals of entry for infection. Murchison first directed attention to the tonsils which appear now to be the worst and most constant offenders. Not only may the disease be limited for a time to enlarged tonsils, as in a case reported by Delie,¹⁹ and have a possible origin from a frank tonsillitis (Westphal), but it can affect these structures so slightly as to give no external evidence of abnormality. We have seen typical histologic Hodgkin's changes in tonsils which appeared normal clinically. Locating the disease in the tonsil is not sufficient, as this may be a secondary infection from other sources in the mouth and nasal passages. The possibility of carious teeth being portals of entry was recognized by Gowers. Rosenow has cultivated the *B. hodgkini* from peridental abscesses and sinuses.

In a fatal case with acute ethmoidal sinusitis, Bunting obtained this organism in pure culture from the affected cells. Organisms morphologically identical with those obtained in gland culture were found in smears made from secretions obtained from the upper nasal passages in a case in which the disease was present in the cervical glands. Chronic dacryocystitis, rhinitis, pharyngitis and otitis media are other lesions which have apparently been the starting point of the disease. We have seen two cases in which the portal of entry was certainly intestinal and others in which this was a possibility. In another the disease may have begun in the bronchial glands. Fraenkel and Much believe the infection may take place through the respiratory tract.

Preexisting adenitis has been noted frequently. Peacocke²⁰ observed the development of Hodgkin's disease in twin boys aged 4, both of whom had had measles complicated by adenitis. Other children in the same family had had measles but without adenitis. Delbet cites a case attributed to Billroth, in which the disease supervened on a lymphangitis and adenitis due to a bee sting. The possibility of this infection being added to a tuberculous adenitis has been mentioned above.

One patient with a primary enlargement of her inguinal glands had a profuse leukorrhea. Smears from the mucus from her cervical canal showed in considerable numbers an organism similar to that obtained in pure culture from an excised gland. Another had a sharp attack of cystitis preceding the

onset, which is of greater significance since Fraenkel and Much observed an infiltration of ureter and bladder with Hodgkin's disease that they attributed to renal infection.

Skin lesions are fairly common. Fifteen per cent. of the cases studied by Westphal showed some skin affection and in 10 per cent. a lichen-like eruption preceded the onset. Trousseau's statement, so often repeated, that chronic irritations of the skin and mucous membrane may give access to a Hodgkin's infection, is evidently upheld. The site of the primary glandular enlargement would give a fairly definite regional location of the actual portal of entry.

The course of the disease depends on the relative virulence of the infection. In the acute forms death may result in a few (two to four) months; in the most chronic, life may be prolonged up to five years. A feeling of lassitude may precede recognition of the disease but more often the glandular enlargement is a fortuitous observation when the general health is good, notwithstanding there has been an absorption of sufficient toxin to alter the blood picture. During the early stage while the disease is localized in the primarily affected group of glands there is so little effect on the general health that proper attention is often neither sought nor given when it is sought. In acute cases there is a rapid transition into an intermediate stage where dissemination is manifest, physical and mental depression more constant and anemia, due to a toxic hemolysis, becomes evident. This transition into an intermediate stage in chronic cases is usually gradual and marked rather by the accidental discovery of additional glandular swellings more and more remote from those first affected. Exceptionally, following a period of chronicity there is a sudden explosive dissemination, after which a more acute course is run, suggesting a very rapid diminution in the powers of resistance of the individual. One of the most strikingly characteristic features of the disease, to be seen in the intermediate stage particularly but occurring if less obviously in the others, is the alternating periods of exacerbation and remission in the intensity of the process. During the periods of progression, the conditions manifested by the acute forms are simulated somewhat, there is more effect on the general health, the groups of glands become larger and the individual glands therein less differentiable and movable and a transient sensitiveness may develop. The overlying skin is less movable, may be boggy and even become reddened. These periods are relatively short and escape the notice of unobserving patients, though most all can recall the periods of remission when there is generally a marked diminution in size of the glandular tumors. This decrease in size may be so great and so persistent and so often accompanied by a sense of well-being that any treatment then in vogue, though the same improvement may be entirely spontaneous or follow an intercurrent acute infection, is apt to be considered causative, and another cure for Hodgkin's disease thereby discovered and unfortunately is usually promptly reported. Sooner or later another recrudescence appears, usually more vicious than those preceding, but now uncontrollable by the measures formerly so efficacious, and not infrequently introducing a rapid, final decline. Those later details, however, quite constantly escape publication.

During the intermediate stage extension takes place from one cervical triangle to the other, then to the

18. Westphal: Arch. f. klin. Med., 1893, li, 83.

19. Delie: Rev. Hebdom. de Laryngol., 1908, ii, 499.

20. Peacocke: Tr. Roy. Acad. Med., Ireland, 1905, xiii, 1.

neighboring axilla, the opposite side of the neck, the mediastinum, the opposite axilla, the spleen, the groins, the liver and retroperitoneal glands, in about that order. When the involvement has become widespread, the effects of increased intoxication and of pressure makes themselves evident in the terminal stage. Here is noted the grave anemia that may simulate the pernicious type, and the marked cachexia and emaciation, the tendency to purpura and to repeated hemorrhages from the mucous membranes due to a deficiency of blood platelets resulting from exhaustion of the bone marrow, febrile attacks, occasionally of the relapsing (Murchison) type, pleural and pericardial effusions, ascites, obstruction to blood and lymph circulation and to respiration. It is during this late stage that miliary tuberculosis so often develops and is unrecognized until revealed at necropsy.

No description can be given of the nature and progress of the less common types of Hodgkin's disease that are not associated with glandular enlargements nor those varieties that are just beginning to be recognized as such through bacteriologic and hematologic methods.

DIAGNOSIS

It is impossible to escape a recognition of the very pronounced similarity between the clinical aspects of Hodgkin's disease and those of many malign neoplasms especially in the tendency to dissemination and to recurrences, and the ultimate general effects on the individual. In no disease is a prompt and particularly an early positive diagnosis of more consequence in successful treatment. This most important part of the therapeutic problem has, we believe, become relatively simple.

Without detracting in the least from the great importance of accurate history taking with its proper interpretation and a most thorough and complete examination,²¹ these observations alone will not lead to an indisputably positive recognition of the disease, at least while a cure is still possible or probable. Final proof comes from the laboratory and there must be a competent objective observer who can recognize and construe slight variations, hematologic, bacteriologic and histologic. At the present time a satisfactory blood examination gives the most reliable immediate diagnostic evidence. Histologic studies cannot be equally positive until the early minute pathologic appearances of borderline affections are definitely established, granting that this may eventually be accomplished, and can never be possible in those less common types which do not manifest glandular swellings or easily accessible involvement in unimportant tissues. Nor can bacteriologic methods be uniformly satisfactory. Diphtheroid organisms are ubiquitous. Contaminations may occur under the most rigid technic, and more important still, the organism may take ten days to grow satisfactorily.

Material for histologic study can never, and for bacteriologic study, seldom, be obtained without the

excision of a test gland or some affected tissue. Personal observations would have convinced us, even were the proof not clearly written in the reported experiences of all who have treated this disease, that partial excisions were accompanied by such actual and not hypothetic dangers of dissemination that "test excisions" are absolutely contraindicated unless the stage or the character of the disease is such that the only hope lies in vaccine therapy, should its value ever be undisputably established. Even under these conditions, using a polyvalent stock vaccine may be a safer method than taking some undue chances to obtain an autogenous culture.

Since Bonfils (1856) first pointed out that there was no increase in the white blood corpuscles in Hodgkin's disease and this fundamental observation was incorrect, it has been held that there are no characteristic blood changes in this affection, and that such as were observed marked either a secondary infection or a transition to lymphatic leukemia.

The essential features in the blood picture that have proved to be almost pathognomonic with but few conditions to be excepted, can be summarized briefly.²²

There are two distinct types, an early and a late, showing a constant characteristic increase in the number of platelets (unless exhaustion of the bone marrow occurs) with abnormally large forms and either a relative or absolute increase in the so-called transitional cells. In the early type the leukocytes are usually less than ten thousand. Very early there is a moderate increase in the basophils, and when the disease is well established the eosinophils are slightly increased. The polymorphonuclear neutrophils remain within the usual limits, the lymphocytes at or slightly above the normal. The late type shows a leukocytosis which may reach one hundred thousand, the neutrophils are relatively increased to a percentage of from 75 to 92 and the lymphocytes are reduced to 5 per cent., frequently even less. The transitionals, the only other cells found in any numbers, are usually above 8 per cent. unless the leukocytosis is very high, when they may be relatively fewer, but still exceed the lymphocytes in number. This late picture is a result of the intensity of the disease rather than the extent of involvement and is usually largely dependent on duration for its development. Not only has this blood picture held clinically, having been confirmed in every instance either histologically or bacteriologically or both, but has appeared in monkeys inoculated with the living Hodgkin's bacillus and in one normal individual injected with the same, but killed, bacteria. Notably in one case of chloroma and two of so-called lymphosarcoma, the blood examination was positive and was confirmed by the cultivation of typical organ-

21. A complete examination will determine the details of treatment and should include careful investigations by trustworthy specialists of the mouth, throat and nose, including the accessory sinuses, and may be satisfactorily conclusive only after skiagraphs have been made. No thoracic examination, however carefully done, is adequate until suitable roentgenograms have determined the absence of involved mediastinal glands or their size and location if present. When there is slight involvement in the anterior mediastinum, it is often unrecognizable by other methods, and this is especially true of the posterior which is invaded more frequently than is supposed. Moreover, this affords the only accurate method of gaging the efficacy of treatment even when the intrathoracic involvement is sufficient to be recognized by ordinary methods of examination. No great concern need be given to actual lung involvement as this is a manifestation of a late and probably a hopeless stage.

22. It is quite probable that the reasons why these characteristic variations in the blood picture have so long escaped detection, depend on the technical methods followed in making and staining the blood smears and on the varying conceptions of the proper differentiation of the groups of leukocytes. Thus Litten is quoted by Fischer as having noted the platelet increase in 1895, an observation which Fischer attempted unsuccessfully to confirm, but which was upheld by Selenew who also remarked the very large forms. It remained for Bunting (Bull. Johns Hopkins Hosp., 1911, xxii, 114) to show the constancy and evident source of these structures in Hodgkin's disease. Lymphocytosis occurs and has been recognized by many observers, but is of little diagnostic importance since there is a constant and marked lymphopenia after the early stage. This was commented on by Steiger (Berl. klin. Wchnschr., 1913, i, 2129) who also repeated the old observation of a tendency to eosinophilia, which may be so high (over 20 per cent.) as to suggest the presence of some animal parasite and yet be due, as Lincoln's case has shown (Lincoln: Boston Med. and Surg. Jour., 1908, clvii, 677) entirely to an atypical manifestation of the disease. The leukocytosis which occurs in the late stages has been noted repeatedly.

isms from tissues that histologically alone might not have been properly diagnosed.

Confusion has arisen so far in but one class of cases, those of tuberculous adenitis with an acute (coccal) secondary infection. Here, too, histologic and bacteriologic controls can fail to be conclusive. Differentiation from uncomplicated tuberculous adenitis is seldom difficult, the blood pictures are distinct and the reaction to tuberculin usually confirmatory. We have seen a positive von Pirquet reaction but four times. One patient had a clearly definite apical lesion, one, an adult with so-called lymphosarcoma, was without a demonstrable tuberculous focus, and the other two had preexisting tuberculous adenitis. In an acute case miliary tuberculosis was discovered post mortem and there had been a negative tuberculin test two months before. This man showed shortly before death a temporary transition to what is commonly accepted as a lymphatic leukemia blood count.

TREATMENT

However constant has been dispute as to the name or nature of the disease, there has ever been unanimous agreement that it was inevitably fatal in less than five years. Evidently, therefore, successful therapeutic measures would have to differ from any hitherto employed and must find their application in combating the various pathologic processes manifested as the disease progresses, while attempting at the same time to protect and enhance such curative physiologic reaction as could be recognized clinically and pathologically. Five years elapsed after our investigations began before the *B. hodgkini* was first isolated and its probable etiologic relationship established, so that we had opportunity to try other therapeutic methods than those dependent on a specific bacteriology. Our working hypothesis has been to accomplish (1) an exclusion of all possible liability to reinfection, hence a removal of the primary source of infection and its portal of entry; (2) the most rapid elimination of at least the major portion of the diseased tissue with the bacteria and toxins contained therein, in order to prevent further dissemination and to place the balance of power in favor of individual resistance, wherefore its surgical extirpation when conditions permitted; (3) a destruction of the remaining bacteria by any and every means, especially the Roentgen ray, hygiene, and more recently vaccine therapy has been employed; (4) the conversion into fibrous tissue by hygiene and the Roentgen ray of such irremovable abnormal tissue as cannot undergo resolution; (5) and finally, to continue treatment as circumstances seem to indicate until a clinical and roentgenologic examination and a normal blood picture indicate a cure has been of at least a year's duration.

The measures to be described hereafter have been found to give the best results, results so encouraging at present that their presentation seems to be justified. Every detail has been found to be of such importance that the reasons for the application of each will be given lest any be considered unessential and be slighted or discarded at the cost of the utmost possible prolongation of life and comfort of some individual. It should not be supposed that the procedures are equally applicable to all cases whatever be the stage of the disease or evident virulence of infection. Here again be it known that the extent of involvement is less significant than its location and nature, which can

only be revealed by the detailed examination already outlined.

1. *Removal of the Source of Infection*—A. Where involvement is primarily cervical a complete pericapsular tonsillectomy is definitely and invariably indicated even if the tonsils appear perfectly normal. In addition the teeth, nose, ears, eyes and accessory structures must be excluded as the site of primary infection, or properly treated. B. If the primary glandular involvement is extracervical, a search must be made for a source of infection in the area thereby indicated and suspicious lesions treated appropriately. These measures should be instituted immediately and when possible carried out under local anesthesia, observing, so far as possible, the principles underlying the treatment of malignant tumors.

2. *Extirpation of the Major Portion of the Disease*. Excision of the cervical glands can be done as thoroughly as in the block dissection advocated by Crile, with the possible exception of preserving at least a part of the eleventh nerve and observing otherwise all of the precautions advocated by Halsted to safeguard dissemination. This can be accomplished without unduly reducing resistance, and we believe with less risk to the individual, than attempting to treat them otherwise. Any dissection less complete and careful is positively contraindicated.

The glands will be found to be more or less adherent, in some instances so adherent that their separation from the subclavian vein will be difficult, from the internal jugular so formidable, that this vein should be excised unless there be any question of the patency of its fellow. Glands adherent at the subclavian-jugular angle may be extremely trying to extirpate, but their removal is imperative in that this last source of mediastinal infection must be excluded. In spite of every effort we have cut the thoracic duct in two individuals. In one it was ligated, in the other the discharge of chyle was finally controlled by pressure. Neither manifested any ill effect.

The entire area exposed should be treated thoroughly and actively with full strength tincture of iodine and drained, as it is inconceivable that all contamination can be avoided. This additional irritant also increases the immediate inflammatory reaction, a very desirable feature, particularly as it has no effect on the ultimate functional or cosmetic result. Exposures of the entire wound area to the Roentgen ray should be started not later than the second day, preferably within a few hours of operation and continued at intervals of a few days to the limit of skin tolerance, for reasons that will be given later.

Such radical treatment will be criticized particularly by those wanting in surgical sympathy. In explanation be it known that any less thorough or even as thorough excision, without disinfection and subsequent radiation, may be followed by a recurrence, which, as Reed has reemphasized, can be more extensive than the original involvement. Recurrences in Hodgkin's disease are as little to be desired as in carcinoma. We have seen other glandular enlargements (for example, axillary, opposite cervical) begin their final decline *only after the removal* of this source of infection or drain on the powers of general resistance when the treatment was otherwise unchanged, just as we have seen some cervical enlargements permanently disappear under the Roentgen ray *after* tonsillectomy. These observations have been assumed to

indicate that the balance of power has been changed and have been sufficiently numerous and well controlled to convince us that such treatment may determine the ultimate result no matter what other therapy is employed.

As yet we have not seen the same beneficent effect on mediastinal involvement, though apparently complete and final resolution has followed in axillary glands that have been probably, in size, at least, as extensively involved. The explanation seems to lie in the comparatively slight effect of the rays on intrathoracic tissue. Progress in intrathoracic involvement has been checked in two individuals if the radiographic evidence is conclusive. The general health has remained unimpaired in one boy for over six months and one girl appears radiantly healthy after four months, but in both the blood findings are ominous. Mediastinal infection may occur early or be absent even when both sides of the neck and both axillae have shown extensive enlargements for months. The appearance of intrathoracic involvement, in our experience, has been of more sinister significance than a moderate splenic or hepatic enlargement. Indeed, these may indicate, when other conditions are favorable, but an extensive reaction on the part of the defensive mechanism. Therefore we emphasize the extreme importance of protecting the mediastinum from any infection by extension from the neck or axilla, particularly before, but also even after intrathoracic involvement has occurred. We take this to mean that when the excision of the primarily affected cervical glands is not followed promptly by the progressive resolution of secondarily enlarged glands which may infect those in the mediastinum, that these glands also should be excised.

Axillary dissections should be as extensive and as thorough as the cervical. This requires division but not excision of the pectoralis major and resection of the minor. The nerves supplying the pectoralis major and the long thoracic nerve should be preserved. Involved glands have been found anterior to the major pectoral, between it and the minor and extending upward along the vein to the falciform ligament. An incision can be made along the anterior axillary line, extending thence if necessary a short distance along the lower margin of the clavicle that will give adequate exposure and not injure the breast tissue in women nor be cosmetically objectionable. Subsequent wound treatment should be the same as after cervical excisions.

No case in which the inguinal glands were affected primarily has come at a stage when radical extirpation was thought to have been indicated. The same general plan should be followed to protect the retroperitoneal as the intrathoracic lymphatics.

Patients presenting themselves in the later stages of the disease, with advanced involvement, intrathoracic or intraperitoneal or both, have been subjected to no radical treatment and this has probably been a mistake, at least in exceptional cases. Those in fairly good general condition and in whom the blood changes do not indicate the latest stage may be benefited materially by thus starting a regressive phase when other methods may help greatly. Without the initiative of this wave of regression those procedures have been futile. In one apparently hopeless case the patient has shown remarkable progress during the period between the excision of glands and the final prepara-

tion of her vaccine. This particular organism grew very reluctantly, and the excision removed considerable tissue from neck and groin because the periglandular adhesions made safer and easier the extirpation of groups of glands. Had she received any treatment in this interval there might be less justification in attributing some causal relationship to this excision.

3. *Destruction of Bacteria by the Roentgen Ray.*—No permanent cure has ever been obtained solely by the use of these rays. Numerous instances of marked improvement have been noted since the observations published by Senn.²³ Pfeiffer²⁴ made a very careful and extensive study of the value of Roentgen therapy in Hodgkin's disease and found the usual discouraging facts; after varying intervals of great improvement recurrences were inevitable and finally became uncontrollable. The reasons for its marked temporary efficacy have, to some extent, been discovered. A very resistant culture of *B. hodgkini* implanted on the most favorable mediums was destroyed by one exposure under conditions identical with the therapeutic dose, so long as these cultures were not much over 5 days old. Later than this the involution forms that develop so characteristically are more resistant, and after exposure to the ray the control subcultures were positive. This effect is not due to changes in the mediums, which after the same exposure supported subsequent cultures apparently equally well.

The patient from whose tissues the *B. hodgkini* was first grown in 1912, had, low in her right axilla, two glands a few inches apart. One was excised as a control. Cultures were positive, sections showed the usual moderately chronic process. The other gland was subjected to the usual radiotherapy and later excised.²⁵ Cultures this time were negative, when the technic had been developed so that positive cultures were being obtained constantly from tissue that was found histologically to show the disease. Comparison of the sections, which unfortunately were not stained and studied for the presence of bacteria, showed increased sclerosis, hyaline degeneration and an abundance of the "endothelioid" cells in excess of what could have been expected by natural reaction in the elapsed time. Moreover, there was present in the periglandular tissue, increase in fibrous elements as well as infiltration with round cells and neutrophils.

The effects of the ray immediately after operation are of the same character, only possibly less intense, than when given after excisions of malignant neoplasms with reflected skin flaps as advocated by Crile. There is a remarkable increase in the inflammatory reaction shown by the excessive serous exudate and superficial deposition of fibrin, the overlying skin is edematous and healing correspondingly delayed. After several months the evidences of the excess irritation disappear completely, the skin becomes soft and movable, pigmentation disappears, the scars of incisions are narrow and pale and there is a much reduced liability to keloidal changes.

Burns have resulted exceptionally and are probably not always to be avoided even under the most skilful administration and accurate dosage of the rays. We have been singularly fortunate in having the coopera-

23. Senn: New York Med. Jour., 1903, lxxvii, 655.

24. Pfeiffer: Beitr. z. klin. Chir., 1906, 1, 277.

25. Invaluable lessons were learned from this patient who, with the one exception noted below, is the last who has been subjected to meddlesome surgery. As a result of partial excisions the disease was so spread in the axilla as to demand a complete axillary dissection to protect the mediastinum, which has fortunately remained free.

tion of exceptionally competent therapeutic roentgenologists who will subsequently make a formal report of their work and observations. It is a pleasant duty to acknowledge an indebtedness to Dr. Foerster and Dr. Baer for their unflagging interest in our work and generous care of these patients, but particularly for having proved the value of this phase of treatment, possibly as important as any other detail, when given rationally as to time, place and method.

4. *Hygiene*.—Whatever treatment may be selected, evidently the native individual resistance will be the fundamental factor in determining the outcome. Nothing that will improve general physiologic efficiency should be omitted as everything should be that might provoke physiologic deficiency. In this connection may be considered the question of drugs. Tonics are often indicated. Arsenic is no more specific than iron. The uses of maximum doses of Fowler's solution internally, subcutaneously or injected directly into the affected glands has been wondrously exploited. Its value is not more than transient. Marked and prompt improvement has followed the administration of salvarsan intramuscularly and intravenously, as in a case treated by Galland,²⁶ another treated by Dr. L. F. Barker (personal communication) and in one of our series, but these effects are only fleeting and when recrudescence appears it is unaffected by further administration of this remedy. No indication has been found for the use of benzol (benzene C_6H_6). The treatment of one case by this means has been recorded,²⁷ but the diagnosis was not established and only the early results were reported.

The mixed toxins of erysipelas and *Bacillus prodigiosus* so warmly and authoritatively advocated by Coley have not been tried, in spite of the knowledge that almost complete if temporary disappearance of glandular swellings has followed acute intercurrent infections, notably in one rather advanced case after a severe scarlatina. The belief that Hodgkin's disease was an inflammation, and a disinclination to add to the intoxication in view of the lack of evidence that any permanent benefit has thus been obtained, even in Coley's cases,²⁸ was considered sufficiently contraindicated. In a personal communication Dr. Coley has stated that a patient under the care of a former assistant was treated in the Ottawa hospital and has remained well for six years.²⁹ In this instance, while the clinical diagnosis appeared probable it was not confirmed pathologically and must therefore be, to some extent, questionable.

5. *Vaccines*.—Successful active or passive immunization in the light of the constant failures that have followed all other therapeutic methods, has been a stimulating hypothetical possibility. Encouraging results are not wanting, neither are the discouraging, at least so far as vaccination is concerned. Improvement has followed subcutaneous injections of both polyvalent stock vaccines and the autogenous, but not in every case, and in some at least, the same old discouraging sequence of events ensues and subsequently an uncontrollable recrudescence leading rapidly to death gives the impression that history is repeating itself and that another "cure" may have to be admitted to the list of failures.

In no case that we have seen treated by vaccination has there been a favorable result in the rapidity, extent or permanence of improvement that has not been equalled at least by observations on similar cases treated essentially similarly except for the vaccine administration.

One boy whose history will be given has had vaccine treatment over a period of two months for a slight mediastinal involvement, the only discoverable manifestation of a recurrence. Stock vaccines prepared by Dr. Rosenow, who generously forwarded an adequate supply, and by Dr. Clara Moore at the University of Wisconsin according to Dr. Rosenow's directions, have been given at five-day intervals, to the total number of 62,000 million bacilli. There has never been a local or general reaction and his health has remained good. The involvement has remained stationary but in addition he has been receiving the Roentgen ray in maximum doses. His blood is beginning to show features of the late stage.

Another patient, whose history also will be given, had, in addition to extensive mediastinal involvement, a small group of involved glands in her right axilla. She received subcutaneously over a period of four months 18,000 million bacilli of an autogenous vaccine. There was improvement in her general health, increase in weight, but not more than could have resulted without the use of vaccines. No marked general reactions resulted at any time, though subcutaneous nodular induration appeared at the sites of the injections. Roentgenographic and physical examinations showed no diminution in the mediastinal disease and her blood picture remained unchanged. It became essential to know what had occurred in the axillary glands as they had not changed noticeably in size or consistency. A partial excision was done and the glands were removed, followed by the maximum doses of the Roentgen ray which had not hitherto been given at this area. These glands were not manifestly different microscopically or macroscopically from those obtained from her opposite cervical region, three months before; in fact, the microscopic pictures were virtually identical.

There is no desire to detract from the possible value of vaccine therapy in Hodgkin's disease, but such observations as we have been able to make, and every effort to obtain proper controls and to maintain an objective point of view has been exerted, will permit of not more than a Scotch verdict. Vaccination in our hands cannot be shown as yet to have exerted marked if any influence on the ultimate course of the disease, but admittedly it is too soon to pass final judgment. If there is an ideal method of vaccination for Hodgkin's disease we believe it is yet to be established.

6. *Conversion of Abnormal Tissue into Fibrous Tissue*.—This is desirable when resolution is impossible, in order to remove any tendency to pressure effects and the liability to subsequent infections, of whatever nature, in structures of abnormal powers of resistance. Conversion into fibrous tissue by no means indicates that such accumulations will be permanent. It is quite probable that when this dense abnormal tissue is not subjected to constant physiologic strain it undergoes some form of degeneration leading to ultimate absorption as seen for example in certain types of pancreatitis and intra-abdominal adhesions. The best possible physical condition and Roentgen rays are the only methods that have been supposed to aid this transformation.

26. Galland: Med. Press and Circular, 1911, New Series, xcii, 43.

27. Lawson, G. B., and Thomas, E. A.: A Case of Hodgkin's Disease Treated with Benzene, THE JOURNAL A. M. A., Dec. 13, 1913, p. 2157.

28. Coley: Am. Jour. Surg., 1908, lxxvii, 127; Surg., Gynec. and Obst., 1908, vi, 649.

29. Coley: Surg., Gynec. and Obst., 1911, ix, 174.

SUPPLEMENTARY TREATMENT

It has been so well established that patients may be apparently well and remain so even up to five years, only to succumb to an acute, explosive recrudescence, that there is positive indication for prolonged after-treatment, periodically repeated. The exceeding importance of protecting the general health cannot be overstated. Periods of even slight mental and physical depression have preceded, if they have not introduced, recrudescences. Except in two cases, in which the blood picture returned to normal and has remained there, we have not seen a single instance in which this evidence of a persistence of the infection was eliminated. Routine blood examinations are made as the patients report for observation, either at stated intervals of a few months or whenever untoward symptoms are suspected. The blood count has been found to give the earliest and surest evidence of an impending recrudescence or of the persistence of some focus of infection that had escaped detection. Apparently, recurrences of the disease, if taken very early, may be controlled by appropriate measures, whereas, if the infection increases to any extent in virulence the characteristic rapid fatal progress is to be expected.

REEXCISIONS

Glandular recurrences have shown two types. One that follows soon after incomplete excision is of the softer, more cellular and acute variety. The other appears at a longer interval, perhaps more than a year after complete excision and repeated courses of the Roentgen ray, and is more chronic in every way, yet reexcisions usually done under local anesthesia have produced improvement, local and general, otherwise unobtainable. Removal of early recurrences is at times justifiable, but seldom is to be expected to help materially and has led to the opinion expressed by Fischer that reexcisions are always unwarranted.

During the period of quiescence, when there is no longer any external evidence of the disease, should be the time, hypothetically at least, when the administration of vaccine virtually prophylactically might be expected to be of the greatest benefit. Under such conditions the only judgment as to immediate improvement would have to be based on blood changes, and as the vaccine itself affects the blood picture nothing definite can as yet be stated. There has been no improvement noted in the return toward normal; either there has been no change or there was evidence of some degree of unfavorable variation.

One must constantly bear in mind that the safety of these patients lies in unremitting watchfulness and attention to details. The fact that otherwise there must be a certain fatality should lead to persistence to find the therapeutic measures indicated and give one courage to put them to practice.

RESULTS

A cure or, better, a recovery can be considered as established only when there is no trace of the disease, including a normal blood picture, at least five years after the last manifestation of the infection. Recrudescence has occurred after a shorter period of apparent freedom. A case recorded by Eve,³⁰ had an interval of six years between a primary operation and the first recurrence but the diagnosis was not established.

30. Eve: Brit. Med. Jour., 1897, i, 584.

THE BEGINNING OF SYPHILIS *

W. A. PUSEY, M.D.

CHICAGO

"By the historical method alone can many problems in medicine be approached properly. For example, the student who dates his knowledge of tuberculosis from Koch may have a very correct, but a very incomplete, appreciation of the subject. Within a quarter of a century our libraries will have certain alcoves devoted to the historical consideration of the great diseases, which will give to the student that mental perspective which is so valuable an equipment in life."
—Osler.

The history of syphilis is unique among the records of great diseases. For, unlike most diseases, it does not gradually emerge into the historical records of medicine as its characters become recognized, but appears on the stage of history with a dramatic suddenness in keeping with the tragic reputation it has made—as a great plague sweeping within a few years over the known world. Syphilis is the one disease whose history begins with a definite date. That date is the date of the discovery of America. It happens also that the ten years from 1903 to 1913 were fruitful of discoveries of such fundamental importance in syphilis that they represent an epoch—the most important epoch—in the history of our knowledge of the disease.

LACK OF KNOWLEDGE OF SYPHILIS AMONG
THE ANCIENTS

Local genital diseases have been recognized from ancient times; references to them are numerous in both Occidental and Oriental literature. It is, however, a very striking fact that in all medieval and ancient literature, although sexual matters are favorite topics and are considered frequently and with freedom, there is no reference to a disease of the genitals which is followed by constitutional symptoms. Many diseases involving the skin are easily recognized in the descriptions of medieval and classical literature, but in spite of the most painstaking and zealous searching of all literary evidence, no single authentic document has been found in ancient literature in which a description of syphilis can be recognized. Prior to the last years of the fifteenth century no description of the syphilitic syndrome existed.

THE EPIDEMIC OF SYPHILIS AT THE END OF
THE FIFTEENTH CENTURY

In the autumn of 1494, Charles VIII of France, with an army composed of mercenaries from all parts of western Europe, invaded Italy for the conquest of Naples. Italy, which at this time had reached the height of effeminate luxury and was weakened by the rivalries of her numerous states, was able to make no effective resistance to the well-organized forces of Charles; and the progress of his army through the peninsula was more of a triumphal march of debauchery than a serious military campaign. Charles was able to make good his claims to the throne of Naples and to set up his court for permanent occupation. In a short time, however, his army became so

* This article is the first chapter of a monograph on "Syphilis," being one part of a volume, now on the press of the American Medical Association, commemorating the completion of the Panama Canal and reflecting what medicine has done to make the canal possible. The article on Typhus Fever by Vaughan, published May 29, 1915, was part of a monograph on "Infection and Immunity," also to be included in this book. The other articles contained in this "Commemoration Volume" are by Drs. W. J. Mayo, Simon Flexner, E. O. Jordan, Major General Gorgas and Mr. F. L. Hoffman. The book, of some 380 pages, will be issued about July 1. Price, \$2.50.

weakened through disease and dissipation that the Neapolitans were able to assert themselves and drive it out. The retreat of Charles and his soldiers from Italy in the summer of 1495 was little better than a rout, and the various troops were left ultimately to return to their countries in their own disorganized way.

THE BEGINNING OF THE EPIDEMIC

All contemporaneous records are at one in attributing the epidemic of syphilis which began in Italy at this time to Charles' army, and the quick spread of the disease over Europe to the scattering of his troops. Syphilis, if it existed before this time, was unrecognized. It was at the appearance of this great epidemic that physicians and laymen alike became aware of a disease of the genitals, which was followed by constitutional symptoms and of which they had no previous experience.

THE SPREAD OF SYPHILIS OVER EUROPE

The development of syphilis in Italy can be traced in the local chronicles of the time step by step with the progress of Charles' army, and with the scattering of his soldiers it went over western Europe in a rapid-spreading epidemic. It appeared in France and Germany and Switzerland in 1495, in Holland and Greece in 1496. It spread to England and Scotland in 1497; to Hungary and Russia in 1499.

Iwan Bloch, to whom all students are indebted for bringing together the known facts concerning the early history of syphilis, gives many contemporaneous references testifying to the interest excited by the new disease and to the importance attached to it. Thus, in 1496, the Parliament of Paris decreed that all persons infected with the disease should leave the city within twenty-four hours. In 1496-1497 prophylactic measures against the disease were attempted at Nürnberg. On April 21, 1497, the town council of Aberdeen, Scotland, ordered that, for protection from the disease which had come out of France and strange parts, all light women desist from their vice and sin of venery and work for their support, on pain, else, of being branded with a hot iron on their cheek and banished from the town. Six months after the Aberdeen order, the Scottish Privy Council passed an edict ordering all inhabitants of Edinburgh afflicted with syphilis into banishment to the island of Inchkeith near Leith. In 1496, Grünpeck, a German writer, mentions that English soldiers in Italy had acquired syphilis. The archives of Bristol indicate that the disease was introduced there in 1498 from Bordeaux, and hence was called the Bordeaux disease. In the *Breviarie of Health*, by Andrew Boorde, published in 1575, it is stated that "In English *Morbus Gallicus* is called the French pocks, and when that I was young they were named the Spanish pocks."

Indeed this tendency to shift the responsibility for the disease on others by giving it their name, appears all through the early references to it. The Italians called it the Spanish or the French disease; the French called it the Italian disease; the English called it the French disease; the Russians called it the Polish disease; the Turks called it the French disease; the Indians and the Japanese called it the Portuguese disease. And, as we shall see, the first Spaniards who recognized the disease called it the disease of *Española*, which meant at that time the disease of Haiti.

ITS SPREAD TO THE ORIENT

In quick sequence the disease spread over the rest of the known world, carried by the great voyagers of that period. The Portuguese soon carried it to Africa and the Orient. The researches of Okamura and Susuki for Japan and China, and those of Jolly and others for India, show the introduction of syphilis into these countries only after contact with Europe. The Indian, Chinese and Japanese languages had no native names for the disease, and, like the Europeans, the Orientals gave it names indicating its foreign origin. In India the disease was first recognized in 1498, after the arrival of Vasco de Gama, who had left Portugal in 1497. It appeared in Canton, China, in 1905, after the visit of Europeans. It was not recognized in Japan until 1569, when its appearance at Nagasaki was attributed to Chinese or Portuguese sailors.

There is thus an accurate historic record of the startling spread of syphilis over the known world in a few years after 1495; and from that time it has everywhere been endemic. No similar record exists of the sudden establishment of any other great disease among the larger part of the earth's inhabitants.

THE SEVERITY OF THE FIRST EPIDEMIC

The early recognition of syphilis and the prompt record of its spread over the civilized world are to be accounted for not so much by its newness, although it was everywhere recognized as a new disease, as by its severity. It amounts almost to an axiom in pathology that when an infectious disease first appears among a people—finds lodgment in a virgin soil—it rages with unwonted severity. This has been noted many times—with measles, scarlet fever, smallpox, and with syphilis in modern epidemics among isolated peoples. And this was a characteristic of the great epidemic of syphilis which occurred at the end of the fifteenth century.

In syphilis as ordinarily seen, its early manifestations are trivial in character, so trivial in fact that they are dangerously deceptive to the careless. The symptoms are mild and the patients are not acutely ill. All evidence, however, points to the severe character of the disease during this first epidemic. The cases ran an acute febrile course accompanied by symptoms of such severity as are now seen only in very unusual cases. There were high fever, intense headache and bone and joint pains; early skin symptoms so severe that they simulated smallpox; great prostration, and very frequently a fatal ending early in the disease, a result that is the rarest occurrence at present. This epidemic had all the characteristics of a virulent plague. With the loose morals of the time, however, syphilization of the world was rapid, and contemporaneous evidence, Fracastoro for example, indicates that the severity of the symptoms of early syphilis rapidly diminished; and within fifty years the disease had assumed the character with which the world has since been familiar.

EARLY SPECULATION AS TO ITS ORIGIN

The origin of syphilis was, at the time of this great epidemic and until recently has still been, a subject of much speculation and discussion. In keeping with man's superstitions, particularly at the time of the appearance of syphilis, it has been attributed to every imaginable source; to vice and sin, and the anger of

Providence; to dirt and beasts; to the elements and the influence of the heavenly bodies. Much unsuccessful effort was made to demonstrate its presence in Europe in the middle ages and earlier, although contemporaneous opinion pointed to the Spaniards and Americans for its origin. Later, as the disease became familiar and men lost sight of its sudden appearance, opinion veered round to the view that it had always existed in Europe. It is only within the last thirty years that its American origin has been practically demonstrated.

THE EVIDENCE OF ITS AMERICAN ORIGIN

The bald fact of the sudden appearance of syphilis shortly after the return of Columbus from his first voyage might easily suggest and lend plausibility to the theory of the American origin of the disease. The presence of Spanish adventurers in Charles' army would furnish the connecting link between Barcelona and Seville and Columbus' crew and the Italian epidemic. But in addition to the chronologic sequence of Columbus' return from America and the first recognized epidemic of syphilis in Europe, there are numerous other facts which confirm the American theory of its origin.

As we have seen, certain of these facts stand out prominently in the great epidemic:

The disease at the time was recognized as a new disease.

Names for it did not exist, and as it spread over Europe, men were hard put to give it a designation. The same was true on its appearance in the Orient.

The development of the great epidemic was definitely associated with the Italian campaign of Charles VIII, and its rapid spread over Europe was associated with the breaking up of his army. Its origin was recognized as being southwestern Europe. Even with the first outbreak in Italy, Spain was pointed to as the country whence it came, and the Spanish soldiers of Charles' army were incriminated as the authors of its distribution.

The disease pursued a course of unusual severity and spread over Europe with the rapidity of an infectious disease among people unprotected by any previous infection with it.

ABSENCE OF EVIDENCE IN EARLY EUROPEAN BONES

Parallel with the absence of any pre-Columbian documentary evidence of the existence of syphilis, is the absence of any evidence of syphilis in pre-Columbian European or Oriental bones. Bones withstand time, and the ravages of many diseases can be clearly traced in ancient bones that have come down to us. Syphilis is one of the diseases which leaves frequent, unmistakable evidence of its existence in bones; and if syphilis existed in Europe before the discovery of America it would be expected that evidence of it would be abundantly found in the great collections of prehistoric, ancient and medieval bones that exist. With the licentiousness of Rome and of the Dark Ages, syphilis would have been expected to leave a broad trail in the bony remains of those times; and yet careful scrutiny of those bones has failed to reveal any evidence of it. Most of the great European collections of human skeletons of pre-Columbian times have been carefully examined with

this point in view, without the finding of a single syphilitic bone, and no less an authority than Virchow, one of the world's greatest anthropologists and probably its greatest pathologist, has declared that no pre-Columbian bone has been produced presenting evidence of syphilis. On the other hand, human skeletons of later date showing syphilitic changes have been found in all parts of the world.

AMERICAN PREHISTORIC BONES

On the other side it must be said that we have no unquestionable evidence of syphilis in pre-Columbian bones in America. Syphilitic bones have been found in North and South and Central America, and the presumption is strong that some of these bones are of pre-Columbian origin. Nevertheless, the difficulty in establishing the antiquity of Indian remains is so great that the pre-Columbian origin of these bones cannot be demonstrated.

SPANISH DOCUMENTARY EVIDENCE

But quite apart from this circumstantial evidence of the American origin of syphilis, there has been discovered in recent times definite documentary evidence indicating the introduction of syphilis into Spain by the sailors of Columbus' first voyage. For the unearthing of this evidence we are indebted to Montejo y Robledo, a Spanish army surgeon, who critically examined all the early Spanish sources and reported his findings at the fourth Congreso internacional de Americanistas, at Madrid in 1882. The importance of Montejo's work was overlooked until attention was called to it by Seler in 1895.

Ruy Dias de Isla.—The most important evidence produced by Montejo—and surprisingly definite evidence it is—is the account of syphilis of Ruy Dias de Isla. To paraphrase Bloch: at the time of the first appearance of syphilis in Europe, Dias de Isla was a physician of note, who for ten years held the position of surgeon at the Hospital of All Saints in Lisbon. There he had a large experience in syphilis, which he incorporated in a special work which was published between 1510 and 1520, and was fortunately discovered by Montejo in the National Library of Madrid. Dias de Isla is known to have been in practice in 1493 in Barcelona, and he was thus in a position to be a witness to the very landing of syphilis in Europe. The title of Dias' book put into English is: "Treatise, entitled, Fruit of All Saints against the Disease of the Island Española, by Master Rodrigo de Isla, Surgeon and Citizen of Lisbon, to the Common and General Good of those Suffering from the Disease in Question, Commonly Called Bubas." The contents of the book are, briefly, as follows: Syphilis was unknown before the year 1493. It was brought by the crew of Columbus on his first voyage from Española, or Haiti. Dias called it the disease of the Island of Española, but also gave a number of native names for the disease. A majority of Columbus' crew returned to Spain infected with syphilis, and Dias himself treated several syphilitic sailors from this squadron, among them the pilot, Pinzon of Palos.

Oviedo, Las Casas, and the Spanish Chroniclers.—This record of Dias de Isla is corroborated by other contemporary Spanish chroniclers; particularly by the important works of Oviedo, and of the great Las Casas, both of whom were in America within a few years after its discovery. Oviedo was in Barcelona

at the return of Columbus in 1493, and knew Columbus and members of his crew. In his "Historia general y natural de las Indias," and in a report drawn up at the command of Charles V of Spain, he recites: That the disease was contracted from Indian women by the Spaniards with Columbus; that it was brought by them to Spain and thus transmitted to the army of Charles VIII by Spanish soldiers; and that syphilis should be called the West Indian disease, rather than the French or Neapolitan disease. He also mentions in independent corroboration of Dias de Isla, that one of the brothers, Pinzon, contracted the disease, and that it "is common among the Indians, but in those regions is not so dangerous as with us."

Oviedo was an advocate for Spain, and it has been urged that the theory of the Indian origin of syphilis may have been readily adopted by him in his attempts to palliate the cruelty of the Spaniards toward the Indians. No such charge, however, will stand against Las Casas, whose efforts were all in behalf of the Indians, but who, nevertheless, did not hesitate to give in detail the facts of syphilis among them.

The father of Las Casas accompanied Columbus on his second voyage, and Las Casas himself was in Haiti in 1498, where he lived many years and wrote his "Historia general de las Indias." He records: "There were, and still are, two things which at the beginning were very dangerous to the Spaniards. One is the disease syphilis, which in Italy is known as the French evil. . . ."

"It is, however, known for certain that it came from this island, either when, with the return of the Admiral Don Christóbal Colón with the news of the discovery of the West Indies, the first Indians arrived, whom I saw myself in Seville, or it may be that certain Spaniards were already tainted with this disease at the time of their first return to Castile. . . ."

"I took the trouble on several occasions to interrogate the Indians of this island as to whether this disease was of great antiquity, and they answered, 'Yes.'"

"It is also an undoubted fact that all Spaniards addicted to sexual excess, who did not in this island observe the virtue of continence, were attacked by the disease, not one in a hundred escaping, unless the woman was healthy." He too emphasizes the greater severity of the disease among the Spaniards than among the natives.

In addition to Oviedo and Las Casas, numerous others of the early chroniclers of Spanish America (Pane, Sahagun, Hernandez), testify as shown by the researches of Montejo, to the pre-Columbian existence of syphilis in America. They show not only that the disease was known to the Indians, but that the Indians had numerous names for it; that they were fairly familiar with its symptoms and course, and had well-worked-out methods of treatment for it; and that the disease was much milder in its course among the Indians than among the Spaniards, who contracted it from them.

This brief summary of the discoveries of Montejo y Robledo from his researches among original Spanish authorities, furnishes the final link connecting the origin of syphilis with America, and, it would seem, compels us to conclude that syphilis was introduced into Europe from Haiti by the sailors of Columbus on their return in 1493 from his first voyage to America.

THE LANDAU IODIN SERUM TEST FOR SYPHILIS *

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A good deal of interest has been aroused lately in the new serum test for syphilis proposed by Landau.¹ It is declared that this test is more sensitive than the Wassermann reaction and that its simplicity makes it available for every one. Among the many tests said to have these qualities, the Landau demands attention because of the popular interest shown in it and the possibility that it may come into more or less general use. Any new test for deciding so important a diagnosis as that of syphilis must be subjected to the sharpest scrutiny, and tried in many thousand cases.

Landau at first used as a reagent a 0.05 per cent. solution of iodine in liquid petrolatum. The composition of various samples of this solvent varied enough, however, to make it difficult to obtain a reliable reagent, so that he later adopted carbon tetrachloride (CCl₄) as a solvent. In this he dissolves 1 per cent. of iodine (a saturated solution which requires trituration to complete it), and uses 0.1 c.c. of this reagent to 0.2 c.c. of the serum to be tested. These are shaken together in a test tube 12 mm. in diameter, and allowed to stand at room temperature for four hours. If, at the end of this time, the serum above the decolorized reagent is a clear yellow, the reaction is recorded as positive. If the serum is an opaque grayish-white, it is recorded as negative. Only fresh serum, obtained not more than six hours before, and free from any cloudiness or hemoglobin stain, can be used. If the result is not easy to determine, 0.2 c.c. of ammonia solution may be added to clear up the doubt.

Landau, with his first technic, reported that he obtained, in a series of 122 cases, only one result that did not agree with the clinical diagnosis. This was a positive test in a case of a leg ulcer, clinically and serologically nonsyphilitic. He reported also that the reaction gave fifty-five positive readings in a series of ninety syphilitics, in whom only forty-nine positive Wassermann reactions were obtained.

These results have not been substantiated by others. Golay,² using the carbon tetrachloride reagent, obtained forty-one positive, eleven doubtful, and eleven negative reactions in a series of sixty-three syphilitics, in which only thirty-seven positive Wassermann reactions were obtained. But he also reports in seventeen nonsyphilitics, all of whom had negative Wassermann reactions, a positive Landau test in eight cases. One of these was a case of gonorrhea, three cases of soft ulcer, two of tuberculosis and two of malignant tumor: 47 per cent. positive in nonsyphilitics! He concludes that the test is positive in a large percentage of cases of systemic disease, but reports negative reactions in all of three cases of "skin disease of external origin" and three healthy persons.

Villaret and Pierret³ report agreement with the Wassermann reaction in thirty-two cases of thirty-nine

* From the Dermatological Department of Cook County Hospital.

1. Landau, Wilhelm: Untersuchungen über eine Reaktion luetischer Sera mit einem Jodöl-Reagens, Wien. klin. Wchnschr., 1913, xxvi, 1702.

2. Golay, J.: La réaction de Landau, Rev. méd. de la Suisse romande, 1914, xxxiv, 571.

3. Villaret and Pierret, R.: Tr. Soc. biol. de Paris, Presse méd., July 29, 1914, p. 582.

examined, and agreement with the clinical diagnosis in twenty-seven of thirty-three cases.

Capello⁴ reports that in forty-one cases, the Landau reaction agreed with the Wassermann in only twenty-seven, leaving fourteen, or 34 per cent., in which it differed. In three cases of late syphilis under mercury treatment, the Wassermann reaction was negative, while the Landau gave a strong positive in two and a doubtful positive in one. In two cases clinically and serologically nonsyphilitic, the Landau test gave a strong positive. Of four cases in which the Wassermann reaction was a strong positive, the Landau gave a doubtful result in one and a frank negative in three.

My technic is the same as that prescribed, except that for the first of my series I used very small test tubes, in order to make the small column of serum longer and more easily seen. Later I adopted the regulation size, 12 mm. diameter, running a series of parallel reactions in both kinds of tubes, until I was satisfied that my results were practically the same with both, and that my early tests could be admitted as reliable. I also used from the beginning twice the prescribed quantities of serum and reagent, 0.4 c.c. of serum and 0.2 c.c. of reagent. But in order to check this with the original technic, and to check my results on each serum, I made each time two tests, one with the original quantities and a parallel test with the double quantities. The measurement of the reagent is a difficult matter in the ordinary pipets. My work was made much easier by the use of a Wright pipet, graduated in 0.1 c.c. In this, several doses of reagent can be taken up, separated by columns of air, and the movement of the thin liquid much more easily controlled.

On shaking the mixture of serum and reagent, an emulsion is formed which soon becomes a light yellow and then white. All serums decolorize the carbon tetrachlorid, so that it separates out and remains as a white layer under the serum.

The reading of the final result is by no means always easy. All degrees of opalescence occur, and even the addition of ammonia does not always clear up the doubt. Golay makes the same observation, and this accounts for the large number of doubtful reactions recorded by him and Capello. I have tried to avoid as far as possible recording doubtful reactions, and I believe that my use of two tests for each serum has been helpful in that direction. Where any doubt existed, I have tried to give the new test the benefit of it.

My results with fifty tests in forty-six cases of syphilis are shown in the accompanying table.

COMPARATIVE RESULTS WITH THE LANDAU AND WASSERMANN REACTIONS

	No. Cases	Landau Reaction			Wassermann Reaction	
		+	+	-	+	-
Primary syphilis.....	5	4		1	5	
Active secondary.....	16	7		9	16	
Latent	11	1	1	9	5	6
Tertiary	17	13		4	13	4
Tabs	1			1	1	
Totals	50	25	1	24	40	10

One latent case under treatment gave a positive Landau and a negative Wassermann. This is greatly outweighed by the five latent cases which gave negative Landau reactions and positive Wassermans. In

the tertiary cases the honors are even. Nine cases gave positive reactions with both tests. Four gave positive Landau reactions and negative Wassermans. Two of these were on the same patient. Four gave negative Landau reactions and positive Wassermans.

Of forty tests in nonsyphilitics, all of whom had negative Wassermans, twenty-nine gave negative Landaus, eleven positives. In these eleven cases, no history of syphilis could be obtained, although one, an old hemiplegic, may be suspected because of a history of cerebral hemorrhage at the age of 21. The positive Landau tests in this series were as follows:

One case of ulcer of the cheek from caustic applied by a dentist.

One of five cases of *ulcus molle*.

Two of five cases of gonorrhea.

One case of gonorrheal epididymitis.

One case of salpingitis and abortion.

One case of pulmonary tuberculosis with lupus of the palate.

One case of hemiplegia with ulcer of the leg.

One case of seborrheic dermatitis.

Two cases of dermatitis venenata, both from *rhus toxicodendron*.

My results differ from those of the other investigators of this subject in the low percentage of positive results in known syphilitics, 52 per cent. of positives in the forty-six cases, while the Wassermann reaction gave 84.8 per cent. of positives. It might be thought, from the large percentage of positives in tertiary cases, that the administration of iodids had something to do with the production of a positive Landau test. But all our secondary cases received iodids, and the Landau was especially weak in them, differing markedly from all the European writers on the subject, and agreeing most nearly with Kolmer,⁵ who reports 71.6 per cent. of positive Landau reactions in Wassermann-positive serums. Mine gave 62.5 per cent. of positive Landaus in Wassermann-positive serums. Kolmer obtained 70 per cent. of positive tests in Wassermann-negative serums, which may be due to the fact that he used only 0.01 c.c. of the reagent, instead of 0.1 c.c., or with the fivefold amounts, 0.05 c.c. of reagent to 1.0 c.c. of serum. If the test depended on the same constituent of the serum that binds complement in the Wassermann test, it might be expected to give with a smaller amount of reagent a larger proportion of positives in syphilitics at the same time that a number of positives in nonsyphilitics would appear. But the corresponding increased percentage of positives in syphilis does not appear in Kolmer's series.

Leaving out the case of old hemiplegia as a suspect syphilis, my series of nonsyphilitics gave 27.8 per cent. of positive reactions. Golay, in seventeen nonsyphilitics, obtained 47 per cent. positive Landau reactions. Capello, in forty-one cases of both classes, obtained a positive Landau reaction in two which are probably nonsyphilitic, one a subacute polyarthritis and the other listed as clinically nonsyphilitic, both giving negative Wassermans. A test giving so large a percentage of positive results in nonsyphilitic cases can certainly be of no value in the diagnosis of syphilis, and the idea that it is a test for syphilis can do incalculable harm.

The hope with which I undertook this work, that a negative Landau test might prove of value in eliminating syphilis from the diagnostic possibilities of a case, has been destroyed by the failure of the test to equal

4. Capello, G.: Contributo allo studio della reazione di Landau nella sifilide, *Gazz. d. osp.*, 1915, xxxvi, 423.

5. Kolmer, J. A.: Concerning Landau's Color Test for Serodiagnosis of Syphilis, *THE JOURNAL A. M. A.*, May 1, 1915, p. 1461.

the Wassermann reaction in my series of known syphilitics. My statistics do not bear out the idea of Golay and Capello, who think that under treatment the test remains positive longer than the Wassermann reaction.

The Landau reaction is, as Golay says, an interesting phenomenon, which may some day be made use of in research. As a means of diagnosis, however, it deserves no consideration, but should be relegated to the same shelf as its predecessor and possible relative, the iodine reaction of the leukocytic granules.

SUMMARY

1. No reliance can be placed on a positive Landau, for it occurs in a large percentage of nonsyphilitics.

2. A negative Landau is of no value in proving the absence of syphilis, for a large proportion of syphilitics have negative Landaus.

3. So far as this series of cases can show, no definite relation exists between syphilis and the Landau serum reaction.

A FURTHER NOTE ON LANDAU'S COLOR TEST FOR SERODIAGNOSIS OF SYPHILIS*

JOHN A. KOLMER, M.D.

PHILADELPHIA

Shortly after the publication of my paper concerning Landau's color test for the serodiagnosis of syphilis¹ I learned that 0.1 c.c. instead of 0.01 c.c. of the 1 per cent. iodine in carbon tetrachloride reagent should have been used with 0.2 c.c. of serum. THE JOURNAL,² from which I obtained this technic, had quoted from an Italian medical journal³ which was responsible for the error. Additional foreign literature⁴ states that the correct quantity of the iodine reagent is 0.1 c.c. and since my work had been done with 0.01 c.c. reagent or ten times less the amount given by Landau I have continued the work with this correction, the results being summarized in this paper.

A 1 per cent. solution of iodine was prepared according to weight by dissolving 1 gram of iodine crystals in 62.7 c.c. pure carbon tetrachloride (specific gravity 1.59 at laboratory temperature) and the container was tightly stoppered to prevent evaporation. The regular and routine test was conducted by placing 0.2 c.c. of serum in a small test tube, adding 0.1 c.c. of the reagent and gently shaking until all color had been removed from the reagent.

The reagent has a deep purple blue color and owing to its high specific gravity settles in the test tube below the serum. After thorough agitation the mixture assumes a brownish color and the carbon tetrachloride quickly settles to the bottom of the tube in a layer resembling chloroform.

Each serum was also tested routinely with five times the quantity of serum and reagent, namely, 1 c.c. of serum and 0.5 c.c. of reagent. This mixture results in the formation of a heavy brownish sediment overlaid with serum.

Immediately after serum and reagent are mixed the whole is distinctly cloudy; after standing for four hours at room temperature a syphilitic serum, according to Landau, becomes clear transparent yellow, whereas with a nonsyphilitic serum the fluid becomes a whitish gray and is opaque.

When 1 c.c. of serum and 0.5 c.c. of reagent are used the readings cannot usually be made at the end of four hours because of insufficient time for clearing. With this technic the mixtures must be centrifuged or the readings delayed for twenty-four hours.

I have experienced considerable difficulty in reading the reactions. With those reactions in which the supernatant serum is perfectly clear or quite cloudy no difficulties arise in recording the result, but in many instances the serum is neither clear nor distinctly cloudy, but is faintly opalescent, so that different observers will vary considerably in reading the same reactions. For this reason a portion of the unused serum should be on hand for comparison; but under any conditions the reading and interpretation of the tests are difficult and unsatisfactory.

I have again tested each serum with Landau's original reagent of iodized petrolatum, prepared by the addition of 5 drops of 10 per cent. tincture of iodine to each 10 c.c. of white paraffin oil, followed by thorough mixing. As the color of this mixture tends to fade spontaneously I have prepared fresh mixtures twice a week. The test with this reagent was conducted by placing 0.2 c.c. serum in a small test tube and adding 2.5 c.c. of the reagent followed by thorough mixing and standing aside at room temperature for from fifteen to twenty-four hours. A control without serum was included with each set of tests.

Immediately after mixing the serum and reagent the mixture is of a light pinkish color; the serum, however, quickly settles to the bottom of the tube and is of a deeper yellow color, while the deep pink tint returns to the supernatant oil. I have usually shaken the tubes once or twice more during the following six hours.

According to Landau a syphilitic serum decolorizes the mixture after fifteen hours, while the color persists a reddish yellow with normal and nonsyphilitic serum.

MATERIALS AND METHOD OF STUDY

In all 172 serums and fourteen cerebrospinal fluids⁵ have been tested. The majority of these were collected within twenty-four to forty-eight hours of the time when these tests were made and were centrifuged if necessary to render them clear and free of corpuscles. Markedly opalescent serums as those collected soon after a meal were discarded; the majority were clear while a few were faintly tinged with hemoglobin. The latter were more likely to become cloudy and opaque with the iodine reagent than were perfectly clear serums.

I found no differences, however, in the results of the tests, whether a serum was secured within three hours or three days of the time when the tests were made, and likewise practically the same results were observed with fresh active serums and the same serums after heating at 55 C. (131 F.) for thirty minutes (inactivation). The plan of study was the following:

TECHNIC

(a) Two-tenths c.c. fresh active serum + 0.1 c.c. iodine tetrachloride of carbon reagent; the results were

* From the Laboratories of the Philadelphia Polyclinic and College for Graduates in Medicine.

1. Kolmer, J. A.: Concerning Landau's Color Test for Serodiagnosis of Syphilis, THE JOURNAL A. M. A., May 1, 1915, p. 1461.

2. Color Test for Syphilis, Misc. Abstr., THE JOURNAL A. M. A., Oct. 10, 1914, p. 1317.

3. Un nuovo metodo diagnostico della sifilide, abstr., Riv. Osp., July 15, 1914, p. 641.

4. Réaction des sérums syphilitiques avec le réactif de W. Landau, abstr., Presse méd., May 2, 1914, p. 335.

5. I am indebted to Miss A. McNitt of the laboratory of the Philadelphia General Hospital for a number of these serums.

read after standing four hours and again after twenty-four hours at room temperature.

(b) The same technic was repeated after the serum had been heated at 55 C. for half an hour (inactivation).

(c) One c.c. fresh active serum + 0.5 c.c. iodine reagent; the results were usually read after standing twenty-four hours at room temperature.

(d) The same technic was repeated after the serum had been heated at 55 C. for half an hour.

(e) Two-tenths c.c. fresh active serum + 2.5 c.c. iodized petrolatum; the results were read after from fifteen to twenty-four hours at room temperature.

(f) Same technic repeated after the serum had been heated at 55 C. for half an hour.

(g) A Wassermann reaction was conducted with each serum after inactivation, with three different antigens, namely, an alcoholic extract of human heart reenforced with cholesterol; an alcoholic extract of syphilitic liver and an extract of acetone-insoluble lipoids. All serums reacting positively with the three antigens were included and listed as Wassermann positive; those reacting negatively with all extracts were listed as Wassermann negative. In view of the frequent difficulty of establishing a reliable clinical diagnosis of syphilis I have adhered to my former plan of studying the Landau test from the standpoint of Wassermann positive and Wassermann negative serums.

RESULTS

(a) *With the Iodized Petrolatum Reagents.*—As stated in my previous paper, the addition of serum to this reagent in the proportions named results in the partial decolorization of the reagent after from fifteen to twenty-four hours in the majority of tests, regardless of whether the serum was from a syphilitic or non-syphilitic person. Of 92 serums (52 Wassermann positive and 40 Wassermann negative) tested with this reagent, partial loss of color occurred in 75, or 81 per cent., with no distinction between Wassermann positive and negative serums; in 11 serums, or 12 per cent., there was complete or almost complete decolorization, and in 6, or 6 per cent., no change of color.

Cerebrospinal fluids, on the other hand, produced slight or no change in the color of the mixture, regardless of whether they were Wassermann positive or negative.

(b) *With Iodine Tetrachloride of Carbon Reagent.*—The results observed with this reagent are summarized as follows:

1. Of 64 serums yielding *positive Wassermann reactions* and tested in a fresh active condition in amounts of 0.2 c.c. serum with 0.1 c.c. of reagent, 48, or 75 per cent., reacted positively as read at the end of four hours; at the end of twenty-four hours four serums became cloudy and thereby reduced the percentage of positive iodine reactions to about 69 per cent. These results tallied quite closely with those previously reported when 0.01 c.c. of the reagent had been used.

2. Of 84 serums reacting *negatively in the Wassermann reaction* and tested in a fresh active condition in amounts of 0.2 c.c. of serum with 0.1 c.c. of reagent, but 36, or 42.7 per cent., reacted negatively as read at the end of four hours. In my previous work, including 61 Wassermann-negative serums tested with 0.01 c.c. reagent, but 29.5 per cent. reacted negatively,

so that with the larger amounts of reagent the percentage of false positive iodine reactions has been reduced about 13 per cent.

3. The important objection I raised, however, against the iodine test as a practical diagnostic procedure in that it yields a high percentage of falsely positive reactions, is confirmed in this second series of cases.

4. With 1 c.c. of serum and 0.5 c.c. of reagent the results as read at the end of twenty-four hours tallied quite closely with those observed when 0.2 c.c. of serum and 0.1 c.c. of reagent were used. With the larger amounts the reactions usually cannot be read at the end of four hours.

I have worked with other combinations of positive and negative serums and reagents and found 0.4 c.c. of serum with 0.2 c.c. of reagent quite satisfactory in that the quantities are larger and accordingly more easily read than those given by Landau, and the readings may be made after four hours, but the results were almost identical with those observed with the smaller amounts and I have not yet found a combination of serum and reagent that would yield more satisfactory results in the diagnosis of syphilis.

5. While Landau states that only fresh active serums should be used, I have tested serums at different times varying from a few hours to three days after bleeding and found practically no differences in the results. Likewise all serums were tested after heating at 55 C. for half an hour and the results were similar to those observed with active serum. With 82 per cent. of serums the results were identical, while 18 per cent. of serums reacting positively in an active condition were negative when tested after the process of heating or inactivation.

6. With cerebrospinal fluids the results were entirely unsatisfactory, as previously reported. Practically all fluids reacted alike, that is, the color persisted in the reagent collected in the bottoms of the test tubes and the supernatant fluids remained clear irrespective of whether they were Wassermann positive or negative. Of fourteen fluids tested, eight gave strongly positive Wassermann reactions and five reacted negatively, but as stated, all reacted in a similar manner when tested with iodine in carbon tetrachloride and iodine in paraffin oil reagents.

7. The starch test for unbound iodine was applied by adding 0.5 c.c. of a 1 per cent. solution in distilled water. After a few minutes a blue color at the line of contact between serum and reagent is seen in the majority of tests, while in a few the reaction is quite marked or entirely absent. This test was applied to most serums after the four-hour interval and to the balance after the twenty-four-hour interval, at room temperature.

As an aid in differentiating positive from negative iodine reactions this starch test had failed to be of any value. Of 67 serums remaining clear or giving positive Landau reaction at the end of four hours, 48, or 71 per cent., gave a positive starch reaction, while of 33 serums giving a negative Landau reaction, 31, or 94 per cent., gave a positive starch reaction.

When 0.01 c.c. of iodine reagent is used with 0.2 c.c. serum as in my previous work the starch test is negative in the majority of instances, as in the series of 58 tests so conducted a faint starch reaction was apparent in but six, and four of these occurred in clear serums or positive reactions, according to Landau.

SUMMARY

To sum up, the iodine color test as conducted with the correct technic was found to have no practical value in the serodiagnosis of syphilis because of its irregular results as shown by the low percentage of correct positive reactions with Wassermann positive serums, and more especially by reason of the high percentage of false positive reactions with Wassermann negative serums.

THE ETIOLOGY AND EXPERIMENTAL PRODUCTION OF HERPES ZOSTER

PRELIMINARY NOTE *

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Head and Campbell¹ have shown that the peripheral manifestations in herpes zoster are due to lesions in the corresponding posterior root ganglia. The character of the lesions in the ganglia described by them and others and the symptoms suggest strongly a microbic origin of this disease. And recently Sunde² has demonstrated gram-staining diplococci in a hemorrhagic gasserian ganglion in a case of ophthalmic herpes in an old man who died of a bronchopneumonia three and one-half days after the appearance of the herpes. The evidence, therefore, that bacteria are the cause of the lesions in the ganglia is rather direct, but so far herpes has not been produced experimentally in animals by intravenous injection.

Rosenow³ has demonstrated that streptococci from the appendixes in appendicitis, from the walls of the gallbladder and the center of gallstones in cholecystitis, from the depths of ulcers of the stomach and duodenum, from the articular exudate in rheumatic arthritis, and the organisms from the subcutaneous nodes in erythema nodosum tend to localize electively in the tissues from which they are isolated. He has also shown that the probable infection atria (tonsils, pyorrheal pockets, suppurating sinuses, etc.) in these diseases harbor streptococci and other organisms showing similar elective localization when injected intravenously into rabbits.

It occurred to us that the presumable infection atrium in cases of herpes zoster might contain streptococci or other bacteria having elective affinity for the posterior root ganglia, and experiments were made accordingly.

Herpes of the skin, tongue or lips and lesions in the corresponding ganglia have been produced in a large number of rabbits and other animals (forty-six) by intravenous injection of the bacteria in emulsions of extirpated tonsils, of mixed cultures and pure cultures of streptococci obtained from tonsils or pyorrheal pockets, and of streptococci in pure culture from the spinal fluid. A number of animals, usually those showing marked herpes of the skin, showed also herpetiform lesions of the viscera, and in these the ganglia of the vagus or sympathetic nerves were found

to be hemorrhagic. The tendency of these organisms to localize electively in the ganglia is illustrated by the fact that herpes developed in six guinea-pigs following intraperitoneal injection. The streptococci isolated from the tonsils and other places after recovery, those cultivated on artificial mediums for a time, and those passed through a series of animals no longer show this peculiar property. Broth culture filtrates, proved not to contain streptococci, failed to produce the lesions.

The lesions of the ganglia consist chiefly of hemorrhages and round-cell infiltration, usually most marked just beneath and outside the capsule and surrounding areolar tissue and along the sheath of the corresponding nerve. The blood vessels commonly show marked congestion, and at times are completely or partially filled with mononuclear and polynuclear leukocytes. Gram-staining diplococci and short chains have been found to occur quite constantly in the areas showing lesions in and about the ganglia, but not in the normal portions. Cocci have been found in these lesions, by cultures and sections, when absent in the blood and other tissues. The peripheral lesions in the experimental disease in the animals which recovered, just as in man, have not contained the organisms. Most of the eleven cases studied were typical thoracic herpes zoster, three were cases of recurring herpes, one a marked herpes of the lips and left side of the cheek during pneumonia, and one a mild herpes during an attack of an ordinary cold.

The following experiments will serve to illustrate the results obtained:

EXPERIMENT 1.—D. 220, a small white and black dog, was injected intravenously, February 20, with the growth from 45 c.c. of ascites-dextrose-tissue broth of a pure culture of a rather long-chained green-producing streptococcus from the tonsils removed on the second day after the onset of a typical attack of herpes zoster.

February 21: Seems ill and keeps rubbing the left side of head with front paw.

February 22: Seems better, but still rubs gently and slowly left side of head.

February 23: Seems about the same as yesterday. Chloroformed and examined at once. The under surface of the skin of left side of forehead shows a number of hemorrhagic vesicles from which exudes a large amount of sero-sanguineous fluid when cut across. A few similar lesions are found in the subcutaneous fat over lumbar region on the right side corresponding to the last dorsal vertebra. Under the vesicle on left side of head the periosteum is hemorrhagic over an area 0.5 by 1 cm. The left gasserian ganglion shows a small hemorrhagic area. The spinal cord was not removed. The spinal fluid is turbid and contains a moderate number of large and small mononuclear cells. No other gross lesions.

February 24: Cultures in ascites-dextrose broth from spinal fluid and hemorrhagic ganglion give pure cultures of short-chained streptococcus, while those from the blood and joint are sterile.

EXPERIMENT 2.—D. 242, a small white dog, was injected intravenously, March 4, with the growth from 40 c.c. of ascites-dextrose-tissue broth of the primary, pure culture of the spinal fluid in a case of typical herpes zoster.

March 6: Seems well. Chloroformed. Marked herpes of inner angle of right eye and of the upper lip. Rather large amount of turbid spinal fluid. Marked hemorrhage of right gasserian ganglion; the left appears normal. No other lesions.

March 8: Cultures from spinal fluid and hemorrhagic ganglion show moderate number of grayish-green colonies of streptococcus only on blood agar plates. The blood, joint fluid and opposite ganglion are sterile.

* From The Memorial Institute for Infectious Diseases.

1. Head and Campbell: *Brain*, 1900, xxiii, 351.

2. Sunde: *Deutsch. med. Wchnschr.*, 1913, xxxix, 849.

3. Rosenow, E. C.: *Jour. Infect. Dis.*, 1915, xvi, 240; *The Newer Bacteriology of Various Infections as Determined by Special Methods*, *THE JOURNAL A. M. A.*, Sept. 12, 1914, p. 903; *Bacteriology of Cholecystitis and Its Production by Injection of Streptococci*, Nov. 21, 1914, p. 1835.

CHOLESTERINEMIA AND THE WASSERMANN REACTION *

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Cholesterin has most important biologic applications: cholesterin and the lipoids are seriously involved in the specific blood tests, and it has been said that "no earnest discussion of serologic work can be undertaken today without reference to them."¹ It is probable that no earnest serologic work today can be properly explained or correctly interpreted without due regard to the cholesterin and lipid content of the blood. It is the question of the correct interpretation of the Wassermann reaction which first interested me in this work.

Recent work on the Wassermann reaction has tended, first, toward the standardization of this very important clinical test: second, toward the increase in its delicacy, and third, toward the production of a suitable antigen. A review of the literature of the past year or more will show, at a glance, that it is cholesterin with which most, if not all investigators are working. Some of the more recent subjects are entitled as follows:

1. "Cholestere Reaction in Serodiagnosis of Lues."²
2. "Use of Cholesterinized Antigens in The Wassermann Reaction."³
3. "Cholesterinized Antigens."⁴
4. "The Use of Cholestereine Antigen in the Wassermann Reaction."⁵
5. "A Method Developed for Obtaining a Standard Wassermann Antigen."⁶
6. "Serum Cholesterol and The Wassermann Reaction."⁷
7. "A Comparison of Cholesterinized and Non-Cholesterinized Artificial Antigens in The Wassermann Reaction."⁸
8. "Modified Technique For Wassermann Reaction."⁹
9. "Antigens in Wassermann Reaction."¹⁰
10. "Cholestereine-Heart Antigen Proposed by Walker and Swift."¹¹

Other papers have undoubtedly been written on the subject, but the ten mentioned clearly show that cholesterin is receiving considerable attention in our newer researches on the Wassermann reaction. A great number of serologists, however, especially as concerns the Wassermann reaction, have failed to take into consideration those apparently uninteresting and unimportant clinical manifestations which, in the great majority of instances, accompany cases of syphilis. We practically never see a case of syphilis which does not at the same time manifest some other clinical abnor-

mality not always dependent on syphilis. I refer to such clinical abnormalities as fever, nephritis, arteriosclerosis, jaundice, etc.

I am not in a position to discuss the various methods which we now see employed in doing the Wassermann test; but if we are to go ahead studying the influence which cholesterin plays in the Wassermann reaction (and by the Wassermann reaction I mean the biologic reaction of that name), must we not take into consideration the pathologic variations in the cholesterin content of the blood? Up to the present time considerable work has been done to determine in which pathologic conditions the cholesterin content of the blood varies,¹² and we have sufficient data safely to say when we can expect either a hypercholesterinemia or a hypocholesterinemia.¹³ That all this newer work on the Wassermann reaction should have gone on without considering the cholesterin content of the blood in individual cases is surprising.

We have arbitrarily designated the intensity of the Wassermann reaction numerically: 1+, 2+, 3+ and 4+, depending on the degree of hemolytic inhibition. Why should one case of syphilis show a 1+ reaction and another case a 4+ reaction? Duration of the disease and severity of infection, or effect of treatment, do not always explain the differences in the intensity of the reaction. Is a man with a 1+ reaction less syphilitic than one with a 4+ reaction? Are such experiences as the following unheard of?

1. A case infected thirty years ago with a 4+ and never treated.
2. A case infected twenty years ago with intermittent treatment during this period, with a 4+.
3. A case of one year's duration, with moderately severe treatment with a 4+.
4. A case of 4+ vigorously treated, and after two years the reaction is still 4+.
5. A case in which the reaction increases in spite of proper treatment.
6. A case in which the reaction decreases without treatment.

What do these discrepancies mean? Do they mean anything? Is there something in the blood, something whose quantity varies, responsible? Is it unreasonable to assume that a case is or is not syphilitic, and that the intensity of the Wassermann reaction is determined not by how much syphilis is in the individual's system but by how much cholesterin, or lipoids, which are seriously involved in the reaction, are in that individual's blood serum? The reverse argument that syphilis affects the lipid and cholesterin content of the blood does not hold. I have examined a sufficient number of serums to convince me of that fact. There is no definite relation between cholesterinemia and the present-day numerically interpreted intensity of the Wassermann reaction.

We have been led to believe that cholesterin materially influences the Wassermann reactions. But there seems to be a difference of opinion as to the value of using an antigen to which cholesterin has been added. Some of the conclusions of investigators in this field are as follows:

1. C. C. W. Judd:

(a) "Cholesterinized antigens do not yield an appreciable number of nonspecific reactions."

* Read before the Society for Serology and Hematology, New York, April 2, 1915.

1. Reflections Regarding Cholesterol, editorial, THE JOURNAL A. M. A., Feb. 21, 1914, p. 620.

2. Matlack, F. S.: Cholestereine Reaction in Serodiagnosis of Lues, Month. Cyc. and Med. Bull., No. 7.

3. Thomas, B. A., and Ivy, R. H.: The Use of Cholesterinized Antigens in the Wassermann Reaction, THE JOURNAL A. M. A., Jan. 30, 1914, p. 363.

4. Thompson, Loyd: Cholesterinized Antigens, THE JOURNAL A. M. A., May 9, 1914, p. 1458.

5. Field, Cyrus W.: The Use of Cholesterin Antigen in the Wassermann Reaction, THE JOURNAL A. M. A., May 23, 1914, p. 1620.

6. Field, Cyrus W.: A Method Developed for Obtaining a Standard Wassermann Antigen, Arch. Int. Med., May, 1914, p. 790.

7. Weston, Paul G.: Serum Cholesterol and the Wassermann Reaction, Jour. Med. Research, xxx, No. 3, p. 377.

8. Judd, Charles C. W.: A Comparison of Cholesterinized and Non-Cholesterinized Artificial Antigens in the Wassermann Reaction, THE JOURNAL A. M. A., July 25, 1914, p. 313.

9. Orkin, G.: Modified Technique for Wassermann Reaction, Berl. klin. Wehnschr., li, No. 15, p. 667.

10. Owen, R. G., and Snure, H.: Antigens in Wassermann Reaction, Jour. Michigan Med. Soc., xiii, No. 7.

11. McClure, C. W.: Cholestereine-Heart Antigen Proposed by Walker and Swift, Jour. Med. Research, xxx, No. 3.

12. Henes, E., Jr.: The Cholestereine Content of Human Blood under Various Pathological Conditions, Deutsch. Arch. f. klin. Med., iii, Nos. 1 and 2.

13. Henes, E., Jr.: Cholesterinemia, Proc. New York Path. Soc., xiii, No. 7.

- (b) "Cholesterinized antigen, though amenable to the influence of treatment, is less susceptible to extinction by therapeutic measures."
- (c) "Cholesterinized antigens detect many luetic cases which do not yield positive results with the Noguchi reaction."
2. B. A. THOMAS and R. H. IVY:
(a) "We conclude that with cholesterinized antigens, varying degrees of inhibition of hemolysis may be obtained in serums from many conditions other than syphilis, and in normal persons."
3. LOYD THOMPSON:
(a) "If the reagents are titrated properly, nonsyphilitics will not give positive results."
(b) "Cholesterinized antigen is slightly more delicate than other antigens, and is especially valuable in determining when a cure has been effected, as a positive with it persists after treatment for a longer time than with other antigens."
4. CYRUS W. FIELD:
(a) "Cholesterin seems to increase the velocity of the reaction."
5. I. CHANDLER WALKER:
(a) "Cholesterinized alcoholic extracts of human heart have a specific fixation property with syphilitic serums, and they do not give non-specific fixation with nonsyphilitic serums, provided the reagents are properly titrated."
(b) "The serum of syphilitic patients contains a 'something' for which cholesterin has a definite fixation power in the presence of complement."
6. PAUL G. WESTON:
(a) "The cholesterol content of the serums examined bore no constant relation either to the Wassermann reaction or the gross appearance of the serum."

I am not in a position to criticize these conclusions, except to say that I have had serums with astoundingly high measures of cholesterinemia in which the Wassermann reaction was negative; again, inasmuch as P. G. Weston confined his examinations to the bloods of normal individuals and those of paretics, I am inclined to doubt the justification for his conclusion.

It is apparent, nevertheless, from the review just made, that cholesterin can, and seemingly does, influence the Wassermann reaction. May I therefore ask the following questions?

1. Has the Wassermann reaction in a pregnant woman ever changed from 2+ to 4+ during the course of the pregnancy despite treatment?
2. Has the 4+ reaction of a chronic nephritic ever changed to 2+ when that patient became uremic and died even without antisyphilitic treatment?
3. Is the Wassermann reaction influenced at all by fever?
4. Why does an ieteric serum frequently inhibit hemolysis?
5. Has the intensity of the reaction ever increased in a convalescent case of typhoid fever?
6. Do not old syphilis, old with endarteritis and arteriosclerosis, resist treatment, that is, do they not persist with their strong reaction?

I cannot answer these questions; perhaps serologists can. But if we may assume for a moment that the cholesterinemia is responsible for the intensity of the reaction in individual cases, these questions can not only be answered, but I think, can be correctly answered. For in each of the hypothetical cases mentioned, changes in the cholesterin content of the blood could explain these different Wassermann results. Why should the cholesterin content of the blood be absolutely disregarded in interpreting the Wassermann reaction?

Among the many hundreds of cases in which I have made quantitative cholesterin determinations, obtaining the material almost exclusively from the medical and surgical services, and the dispensary patients of the German Hospital, I have about 225 in which the Wassermann reaction was also done.¹⁴ Dr. A. L. Garbat, the attending serologist at the German Hospital, is responsible for the Wassermann results, having used the Citron-Wassermann method, noncholesterinized alcoholic extract of guinea-pig's heart, as an antigen.¹⁵

On most of the ambulatory cases of the dispensary, it was impossible to obtain full clinical data; but on all of the hospital cases, those data are complete, and especially those that are of importance as influencing the cholesterin content of the blood.

Tabulated briefly, they include the following:

Forty-six cases with 4+ reactions: cholesterin content of blood varying between 0.0007 and 0.00463 grams per cubic centimeter serum, with an average of 0.00234 grams.

Three cases with 3 to 4+ reaction: cholesterin, 0.00117 to 0.00160, average 0.00133.

Twenty-nine cases with 3+ reaction: cholesterin, 0.0007 to 0.00907, average 0.00202.

Thirty-one cases with 2+ reaction: cholesterin, 0.00074 to 0.00463, average 0.00238.

Nineteen cases with 1+ reaction: cholesterin, 0.0004 to 0.00399, average 0.00202.

Eighteen cases with \pm reaction: cholesterin, 0.00097 to 0.00262, average 0.00174.

Seventy-nine cases with negative reaction: cholesterin, 0.000501 to 0.00621, average 0.00225.

It will be noted that of these 225 cases, seventy-nine had negative and 146 positive Wassermann reactions. The cholesterinemia in the negative cases averages 0.00225, and in the positive, 0.00196. Looked at collectively, these figures probably do not mean very much; but when one looks at individual cases, the figures are far more interesting.

In Table 1 are presented a few cases with positive Wassermann reactions, their cholesterinemia, and the coincident clinical conditions, which in my opinion explain the cholesterinemias regardless of the luetic infection.

TABLE 1.—CASES WITH POSITIVE WASSERMANN REACTIONS, THEIR CHOLESTERINEMIA, AND CLINICAL CONDITIONS

Case No.	Wassermann	Cholesterinemia gm. per c.c. serum	Coincident Clinical Condition
1	4+	.00247*	Obliterating endarteritis
2	4+	.00381	Incomplete abortion
3	4+	.00374	Chronic nephritis
4	4+	.00251	Angina pectoris
5	3+	.00265	Incomplete abortion
6	1+	.00378	Pregnancy
7	1+	.00385	Chronic nephritis

* It is to be remembered that the average normal cholesterinemia is about 1.5 gm. per cubic centimeter of serum.

Coming, as this paper does, with a questioning finger pointed at the Wassermann reaction as today interpreted and relied on from a therapeutic point of view, the following questions arise:

If cholesterinized antigens influence the Wassermann as we have shown they do, then I ask:

Why is not the 4+ with cholesterinemia of 0.00247 a stronger reaction than the 4+ with cholesterinemia of 0.00381? Does not the difference in the blood cholesterin in these two cases have some effect on the Wassermann reaction? We call them both 4+.

14. The total includes examinations as late as Feb. 1, 1915.

15. Citron, J. B.: *Immunity, Methods of Diagnosis and Therapy and Their Practical Application*, translated by A. L. Garbat, Ed. 2, Philadelphia, P. Blakiston's Son & Co., 1914.

Furthermore, in Table 2 are cited cases with equally strong Wassermann reactions, but with widely varying cholesterinemias. Explaining the cholesterinemia by the coincident clinical conditions which, unfortunately, I was unable to obtain in detail in these particular cases, I present this series (Table 2).

TABLE 2.—CASES WITH EQUALLY STRONG WASSERMANN REACTIONS, BUT WIDELY VARYING CHOLESTERINEMIAS

Case No.	Wassermann	Cholesterinemia
8	4 +	.00147
9	4 +	.00390
10	4 +	.00102
11	4 +	.00463
12	4 +	.00131
13	4 +	.00355

Why is not the 4 + of Case 8 much stronger than the 4 + of Case 9, or that of Case 10 much stronger than that of Case 11? Why, with such decided differences in the cholesterinemia, do we designate all the Wassermann reactions 4 +? Why are not the cholesterinemias of Cases 9, 11 and 13 responsible for the degree of hemolytic inhibition which we designate as 4 + and not the syphilis?

TABLE 3.—CASES OF HIGHER CHOLESTERINEMIA WITH THREE PLUS THAN WITH FOUR PLUS REACTIONS

Case No.	Wassermann	Cholesterinemia
14	4 +	.00360
15	3 +	.00360
16	4 +	.00160
17	3 +	.00233
18	4 +	.00137
19	3 +	.00408

In the series of Table 3, in which the 3 + reactions have a higher cholesterinemia than the 4 + reactions, why are not the reactions of Cases 15, 17 and 19 what they are because of the hypercholesterinemia in these cases? With marked differences in the cholesterinemia, I should think we would have more marked differences in the interpretation of the Wassermann reaction. If such calculation is permissible, a 4 + reaction is 25 per cent. stronger than a 3 +, but the cholesterinemia of Case 19 is 300 per cent. higher than that of Case 18. So why not call the reaction of Case 19 something decidedly lower than 3 +? Why not 1 +?

TABLE 4.—CASES OF HIGHER CHOLESTERINEMIA WITH FOUR PLUS THAN WITH ONE PLUS REACTIONS

Case No.	Wassermann	Cholesterinemia
20	4 +	.00307
21	1 +	.00127
22	4 +	.00390
23	1 +	.00125
24	4 +	.00300
25	1 +	.00100

In the series of Table 4, in which, vice versa, the 4 + reactions have a decidedly higher cholesterinemia than the 1 +, why are not the 1 + reactions with a normal cholesterinemia just as strong as the 4 + with a hypercholesterinemia? Biologically, there is a difference, of course; but are we correct when we make such a big clinical difference in our interpretation? Do we do ourselves justice from a therapeutic and a prognostic point of view? Let us say, for example, that Case 22 with a 4 + reaction has gallstones which account for the very high cholesterin figure of 0.00390. Aware, or not aware of the gallstones, but mindful of the hypercholesterinemia, are we not justified in believing that our 4 + patient is just as nearly cured of his syphilis as is our 1 + patient?

These cases, I think, show that there ought to be at least a reasonable doubt as to our justification in arbitrarily numbering our Wassermann reactions as we do.

Continuing on the assumption that serum cholesterin influences the Wassermann reaction just as a cholesterinized antigen does, the following hypothetical cases are far from unreasonable:

CASE 1.—A married woman with syphilis becomes pregnant and, let us say, aborts at the sixth month. Experience has shown us that during these six months the quantity of serum-cholesterin constantly increases above normal, and at the termination of pregnancy slowly returns to normal. Why, if cholesterin influences the biologic reaction which we call the Wassermann reaction, should we not take the serum-cholesterin into consideration?

CASE 2.—Again, a patient with syphilis contracts typhoid fever, and the usual course of hyperpyrexia is run; during that fever period, the serum-cholesterin is decidedly diminished, and when convalescence sets in, rises considerably above normal, and then slowly comes back to normal. If, as Pighini says, cholesterol may be the chief constituent of the Wassermann reaction, why should not fluctuations in the cholesterinemia be taken into consideration when interpreting this reaction? Bürger and Beumer assert that the outcome of the Wassermann reaction is not dependent on the presence of simply more or less of cholesterol or lecithin in the serum. My experience bears out their assertions. Hypercholesterinemia in itself, in my examinations at least, does not give a positive Wassermann reaction. I have had a few cases with exceedingly high measures of cholesterinemia with a negative reaction.

CASE 3.—A patient with syphilis, with a 2 + positive Wassermann reaction, under treatment, during the course of observation develops a cirrhosis hepatis and becomes markedly jaundiced. The Wassermann test done in this icteric serum shows a reaction stronger than 2 +. Jaundice, no matter from what cause, is accompanied by a decided increase in the serum-cholesterol above the normal. Why, under these circumstances, is not the hypercholesterinemia responsible for the increased intensity in the Wassermann reaction, and why is it not accountable for the frequent fixation of complement by icteric serums? On the other hand, if in such a hypothetical case as outlined, with jaundice present, the Wassermann should stay 2 +, would it not seem reasonable on this basis to consider that our therapy had favorably influenced the syphilis, and notwithstanding the fact that the Wassermann had stayed 2 + (as we read it today), the reaction should be interpreted as something less than 2 +?

CASE 4.—In a case which, by the way, is under treatment by a colleague of mine, there is a 2 + Wassermann. This reaction continues positive despite efficient and prolonged treatment. The man's serum happens to contain 0.00463 gm. of cholesterin per cubic centimeter. I do not know what is producing this hypercholesterinemia; perhaps it is due to arteriosclerosis. But why is not the hypercholesterinemia responsible for the fact that the Wassermann does not go below 2 +? Is not this man entitled to a lower interpretation? It might be argued that the syphilis is responsible for the sclerosis and therefore for the hypercholesterinemia. But I have many cases of arteriosclerosis with negative Wassermann reactions and marked hypercholesterinemias.

CASE 5.—Another actual case is that of a young married woman, aged 21. One year ago she had a 4 + Wassermann. Since that time she has been vigorously treated, and yet the reaction stays at 4 +. The cholesterinemia in this case is 0.00287 gm. per cubic centimeter of serum. Is not this hypercholesterinemia keeping the Wassermann at 4 +, and is not this patient entitled to a lower interpretation?

CASE 6.—Another actual case is that of a man aged 39, suffering from chronic nephritis and marked secondary anemia. The Wassermann reaction in this case is \pm and the cholesterinemia 0.00183 gm. per cubic centimeter of serum. In the absence of a luetic history, we look with doubt on

this Wassermann reaction, but the biologic reaction did show some inhibition of hemolysis. Some time later, this man developed a fever of 102 F., a clinical condition which reduces the measure of cholesterinemia; it was reduced to 0.00108, almost 80 per cent., and the biologic test which we call the Wassermann reaction was negative at the second examination.

In diabetes, nephritis,¹⁶ cholelithiasis,¹⁷ icterus from any cause, obesity and arteriosclerosis, in which profound changes in the cholesterin content of the blood exist, are we to ignore just that blood constituent which today serologists are most interested in relative to the Wassermann reaction? It is just because of this fluctuating cholesterinemia under pathologic conditions—a fluctuation that a rather large experience has taught us is pretty constant—that I present my ideas on the subject of the Wassermann reaction. The subject of cholesterinized antigens has called forth these ideas.

SUMMARY

1. The cholesterin content of the blood varies considerably under various pathologic conditions. Placing the normal cholesterinemia at 0.00150 gm. per cubic centimeter of serum, variations between 0.0004 and 0.0102 gm. per cubic centimeter have been encountered, the latter, as far as I know, the highest figures ever recorded.

2. We are in a position to know when a hypocholesterinemia or a hypercholesterinemia can be expected.

3. The addition of cholesterin to the antigen of the Wassermann reaction increases the rapidity and intensity of hemolytic inhibition.

4. Serologists have failed to take into consideration the pathologic variations of the blood cholesterin in interpreting the Wassermann reaction.

5. Syphilis, in itself, is not primarily responsible for a hypercholesterinemia.

6. Hypercholesterinemia, in itself, does not give a positive Wassermann reaction.

CONCLUSIONS

Conclusions, from a work of this sort, must of necessity be submitted with reservation. While acknowledging my inability to prove nothing more than the facts which I have presented, I nevertheless offer the following theoretical conclusions:

The lipid content of the blood serum determines the intensity of the biologic reaction employed in the diagnosis of syphilis. Cholesterinemia and lipoidemia have been shown to follow parallel curves.¹⁸ We are justified in assuming then that cholesterin determines the intensity of this reaction. Having been shown that cholesterin in the antigen does intensify the Wassermann reaction, why should the cholesterin of the blood serum be utterly disregarded? Just because the cholesterinemia shows such marked fluctuations under various pathologic conditions, and such marked fluctuations in the course of certain diseases (infectious diseases, nephritis) and certain physiologic processes (pregnancy), the serum cholesterin must be taken into consideration in the interpretation of the Wassermann reaction, whether cholesterinized or non-cholesterinized antigens are used.

The nearer the blood cholesterin approaches the normal, in any given case, the stronger is the Wassermann in that case. For example: A 4+ Wassermann with a normal cholesterinemia (not taking conditions of hypocholesterinemia into consideration) should be interpreted, according to our present-day standards, as the strongest reaction. A 4+ reaction with a hypercholesterinemia is a weaker reaction than a 4+ with a normal cholesterinemia. A 4+ reaction with a marked hypercholesterinemia is no stronger than a 2+ with a moderate hypercholesterinemia. A 4+ reaction in a chronic nephritic is something less than a 4+. It is the hypercholesterinemia of an icteric serum that often interferes with the reading of a Wassermann reaction. Failures or discouragements in our antiluetic therapy, as judged by the Wassermann reaction, may be due to certain hypercholesterinemias in individual cases. Surely there ought to be some difference in the Wassermann reactions of bloods which show respectively a cholesterinemia of 0.0007 and 0.00463 gm. per cubic centimeter of serum; and yet, these two actual extremes gave a 4+ reaction—and we call them the same, and judge them in the same way.

Finally, our interpretation of a positive Wassermann reaction would be much more accurate if we, jointly, would take the cholesterinemia into consideration. That does not, of necessity, mean that a quantitative cholesterin determination should form part of the Wassermann reaction; but those clinical factors which we know influence the cholesterinemia should most certainly be recognized and considered.

829 Park Avenue.

TAENIA SAGINATA

A CASE PRESENTING STRUCTURAL ABNORMALITIES AND ASSOCIATED WITH SPURIOUS PARASITISM IN AN INFANT

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Segments of tapeworm sent in to the U. S. Bureau of Animal Industry by Dr. Louis T. Cassidy of Norwich, Conn., were found on examination to be *Taenia saginata*. Among the segments was one presenting a meristic variation consisting in the unilateral duplication of the genital pore and canals in one segment with what is apparently the formation of a rudimentary genital pore alone on the side of the segment opposite the two pores which are provided with canals. The segment is enlarged, being 20 mm. long and 9.5 mm. wide, while an adjoining segment is only 15 mm. long and 7 mm. wide. The uterine branching is somewhat diffuse and irregular, and the eggs present some abnormalities of shape and structure. An examination of a number of eggs did not disclose the presence of any developed hexacanth embryos.

The tapeworm segments were passed by a Polish child said to be from 14 to 18 months old. This seems like a very young age at which to be harboring tapeworms resulting from the eating of underdone beef and, as a matter of fact, such cases are rare. They are perhaps to be attributed to the use of scraped raw beef, the treatment advocated by Weiss in cases of chronic diarrhea, but as children are fed in many households on exactly the same food as the adults,

16. Hencs, E., Jr.: Prognostic Value of Cholesterinemia in Chronic Nephritis, Read before the Clinical Society of the German Hospital, Feb. 19, 1915.

17. Hencs, Edwin, Jr., The Value of the Determination of the Cholesterin Content of Blood in the Diagnosis of Cholelithiasis, THE JOURNAL A. M. A., July 11, 1914, p. 146.

18. Vidal, Weill and Laudat: La Lipémie des brightiques, Semaine méd., Nov. 6, 1912.

some of these cases may result from the ingestion of very rare steak, roasts, etc.

Accompanying the tapeworm segments from the infant was a beetle larva, said to have been passed at the same time, which I identified as *Tenebroides mauritanicus*, an identification which was confirmed by Mr. A. E. Schwartz of the U. S. National Museum. This beetle is commonly found in cereals, flour, old bread, etc., and is, of course, not parasitic. It is frequently sent in to entomologists, according to Mr. Schwartz, with a history of being passed in the feces. In such cases there are two evident possibilities: That the larva is found in the feces as a result of its occurrence in the vessel used or getting into the feces in some such way after passage; or that the larva is ingested in food, such as breakfast food, old bread, etc., and passes the digestive tract dead but undigested. It is well known that various diptera, alive or dead, may pass through the alimentary tract undigested, and there appears to be no reason why the chitinous structure of a coleopterous larva should not resist digestion equally well. I have collected such larvae from the stomach of rodents, *Sciurus aberti mimus*, but of course these larvae had not been subjected to the digestive action of the entire alimentary tract. There is every likelihood that the resistant undigestible chitinous structure would be unbroken in the case of a larva eaten by a baby. It might also be noted that the presence of such a larva in the feces fits in well with the carelessness in regard to a child's diet suggested by the presence of *Taenia saginata* at so early an age.

The tapeworm most commonly found in children is *Hymenolepis nana*. *Hymenolepis diminuta* has been found in suckling infants. According to Grimm,¹ *Taenia solium* has been reported by von Pardo² in an infant 5 months old. *Taenia saginata* has been reported by Comby³ from an infant 9 months old, which had been fed raw beef juice. Westhoff⁴ reports *Taenia saginata* from an infant 8 months old, and notes that the child had been fed a half pound of minced beefsteak daily. Two cases have been reported in which tapeworms are recorded from children 5 days old. In one case, European, recorded by Mueller,⁵ the tapeworm reported as *Taenia solium*, was said to be 1½ feet long. In the other case, reported for the Long Island Hospital, New York, by Armor,⁶ gravid segments of *Taenia solium* are said to have been passed after the administration of calomel following trismus on the fourth day. No further evidence of tapeworm was seen during the child's first year. The mother of the child was found to have a tapeworm, *Taenia solium*. Reports of cases of tapeworm in five-day old infants must be regarded as apparently due to error or confusion of some sort.



Taenia saginata, showing duplication of genital pores in a segment.

ARTIFICIAL PNEUMOTHORAX

WITH REPORT OF FIFTEEN CASES

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LAKE KUSHAQUA, N. Y.

During the past two years we have attempted the lung compression treatment in thirty selected cases, most of which were far advanced, and in which the disease was steadily progressing. In fifteen of these we were unsuccessful on account of dense pleural adhesions; in fifteen we were more or less successful, according to the degree of lung collapse.

While it would be impossible to make any hard and fast rule in every case, in general the indications and contraindications may be summed up as follows:

INDICATIONS

The ideal case is one in which the disease is limited to the upper portion of one lung, an acute progressive condition, generally with signs of softening, but which has not responded to the usual therapeutic measures.

The treatment is indicated in cases with marked involvement of one lung, with a moderate infiltration of the opposite lung, preferably the apex; râles may or may not be present.

The treatment in cases of severe and uncontrollable hemorrhage has often given brilliant results.

Some cases of pulmonary tuberculosis, complicated by pleurisy with effusion, offer an excellent opportunity of giving pneumothorax treatment. Lung abscesses and bronchiectasis are occasionally benefited.

Complications, such as tuberculous laryngitis, may improve if the patient is doing well otherwise. In one of our cases a deep ulceration of the left ventricular band healed entirely, and the infiltration of the left false cord, which had covered the true cord for months, entirely absorbed and retracted. We had been treating this larynx with intralaryngeal application of liquor formaldehydi, but no marked improvement was noticed until the patient commenced gaining under the collapse treatment.

We would not hesitate to try the lung compression in hopeless cases complicated by tuberculous enteritis. The symptoms referable to the lungs will improve in proportion to the extent of the lung collapse. Tuberculosis of the intestines is, however, a grave complication, whether the treatment is given or not. Some writers assert that the enteric complication may improve or even be cured if the patient is doing well otherwise; our patients who developed tuberculous enteritis after the treatment was begun lost steadily, owing to the progressive intestinal involvement, although the symptoms referable to the lungs improved.

CONTRAINDICATIONS

The chief contraindications are as follows: An extensive or progressive lesion in the opposite lung to the one to be collapsed, or disseminated miliary tuberculosis would preclude the gas treatment. The treat-

1. Grimm, K.: *Taenia saginata* beim Säugling, München. med. Wehnschr., 1914, lxi, 1780.

2. Von Pardo, J. S.: Soc. Ginec. Espan. (not available).

3. Comby, J.: *Ténia* chez un nourrisson, Arch. d. méd. d. enfants. 1911, xiv, 525.

4. Westhoff: Tapeworm in an Eight Months Old Child, abstr., Geneesk. Tijdschr. v. Nederl.-Indië, Batav., 1884, xxiv, 168.

5. Mueller: Abgang eines Bandwurmes von einem neugeborenen Kinde, Med. Cor.-Bl. d. württemb. ärztl. Ver., 1837, vii, 80.

6. Armor, Samuel Glasgow: A Fully Matured *Taenia solium*, or Tapeworm, Expelled from a Child Five Days Old, New York Med. Jour., 1871, xiv, 618.

ment would not be justifiable in patients even though far advanced who are doing well under the usual therapeutic measures. Generally, basal lesions in the opposite lung are contraindications and are less favorable in the collapsed lung. Endocarditis and nephritis would lessen the chances of recovery in proportion to their severity. While dense pleural adhesions could not, strictly speaking, be considered contraindications, they are nevertheless the chief cause of a large percentage of failures.

TECHNIC

The Floyd-Robinson apparatus is the one used by us. It is very simple and easy to operate. It being determined to collapse a lung in a selected case, the patient is given beforehand one-eighth grain of morphin hypodermically for the first, rarely, for the subsequent injections.

Factors Which Should Be a Guide in Selecting the Point of Puncture.—An area is chosen as far away as possible from the original site of the disease, as here there are less likely to be found pleural adhesions. The physical signs are very often misleading. We endeavor to find an area where there is good lung resonance, good breathing, no adventitious sounds, preferably in the seventh or eighth interspace, scapular line, or at any point between the anterior axillary line and the scapular line. Efforts to find a free pleural space are often a failure, and frequent attempts have to be made in different places before a free space is found. We have often failed where by percussion and auscultation we had reason to believe we would be successful, and vice versa.

Position of the Patient.—This will necessarily vary according to the point of election. The patient lies on the side, with the lung to be collapsed uppermost. A pillow is placed in the axilla of the side on which the patient is reclining. This facilitates the widening of the intercostal space.

Preparation of the Skin.—After being properly sterilized, a small area of the skin is painted with tincture of iodine and the excess removed with alcohol.

Cocainization.—An all glass syringe is used, with a platinum needle just long enough (1 inch) to pass through the parietal pleura. We have found that 2 c.c. of a 0.25 per cent. novocain solution gives excellent results. The index and middle fingers of the left hand are placed on the upper border of the rib. A large sized wheal is made in the skin between the ribs. The tissues are then carefully cocainized, waiting until the structures in advance of the needle are thoroughly cocainized before advancing the needle farther. When the parietal layer of pleura is reached, the patient often feels a slight pricking sensation, and here we use the novocain solution freely. The structures from without inward offering resistance to the needle are as follows: the skin; external intercostal fascia, very dense; middle intercostal fascia, very little resistance; internal intercostal fascia and pleura, quite dense and generally perceptible resistance; when the pleura is thickened, marked resistance. A small puncture is now made through the epidermis and the dense external intercostal fascia with a cataract knife, and we are now ready to introduce the gas needle. The needle is held in the hollow of the right hand, between the thumb and index finger, and the tip of the index finger is pressed against the chest wall in order to have the needle under perfect control. With the gas needle we can readily determine the different layers of tissue

through which it is passing, and it often passes through them with an audible snap.

The needle having pierced the external and middle intercostal fascia, we are now obliged to proceed cautiously as we approach the internal intercostal fascia and the costal pleura. The rubber tubing, having been previously connected with the needle, we now pull out the obturator and refer frequently to the manometer reading. When the needle rests against the costal pleura, a very slight oscillation can be seen, but by advancing the needle very slightly, if there are no pleural adhesions, a good free space may be observed, giving a reading, say from -4 to -10 cm., or -6 to -12 cm., actual reading. The negative reading is naturally greater during inspiration than expiration. If there are slight pleural adhesions, the reading may not be more than from -2 to -4 cm.

A suitable space having been found, we now close the cock leading to the manometer and slowly introduce 50 c.c. of nitrogen gas, the gas being warmed by placing the middle coils of rubber tubing in a basin of hot water; then shutting off the gas, we again consult the manometer carefully, and so on until the gas needed for the individual case is given. In new cases it is far better to inject a small amount of nitrogen gas, say from 300 to 500 c.c., leaving a negative end reading, then give refills every three to five days until gradually a total collapse of the lung is obtained. This overcomes the danger and discomfort caused by displacing the heart and other organs too rapidly, and by allowing the heart time to accommodate itself to its new position. A large needle is used for the initial injection, a smaller one for the refills.

DANGERS AND SEQUELAE

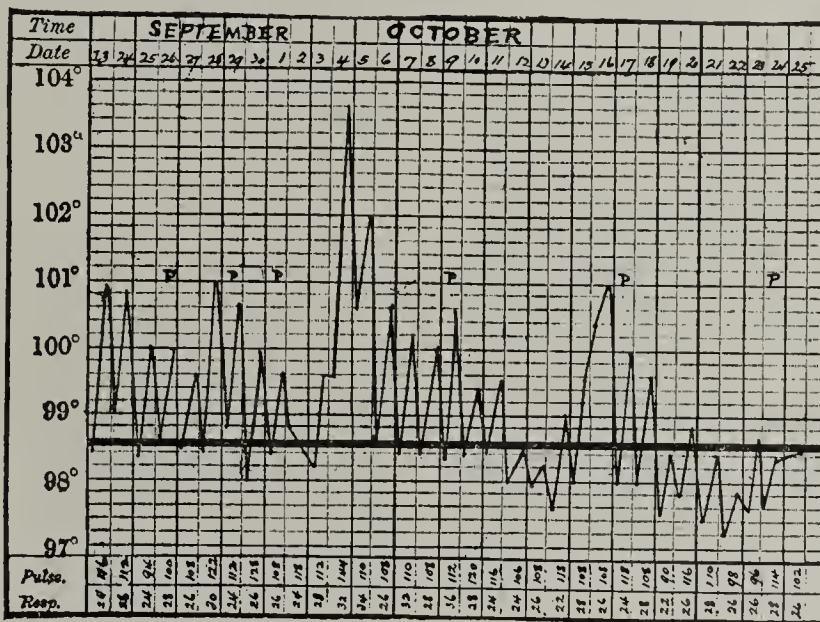
The following are some of the complications that might follow the induction of artificial pneumothorax: Pleurisy with effusion may occur in as high as 50 per cent. of the cases. The cause of this is not clear; some writers believe that it is due principally to chilling of the body, others to faulty technic, and still others to the mechanical irritation of the layers of the pleura, due to the foreign body, nitrogen gas. The fluid in a large percentage of the cases is found to contain tubercle bacilli. This complication, though rarely serious, is an annoying one. The fluid persists for a long time, but generally should not be removed unless causing disturbing symptoms; the fluid may then be withdrawn and nitrogen gas introduced to take its place. Tuberculous pyopneumothorax occurs in a small percentage of these effusions, but does not necessarily give a bad prognosis under the expectant treatment. Some instances of secondary infections have been reported, in which cases the outlook, unfortunately, must be regarded as very serious.

Shock: While numerous cases of shock have been reported in literature, and the real cause is still in doubt, this can probably be avoided by careful cocainization of the tissues and by the initial injection of morphin.

Gas Embolism: If the manometer is carefully consulted, and a good free oscillation is observed before any gas is introduced, this danger may be considered remote.

Emphysema: Emphysema, superficial or deep, may be encountered, but rarely produces any serious symptoms. The subcutaneous variety is due either to too great intrapleural pressure, or to the patient coughing

CASE 8 (1274).—F. W., aged 45. Admitted May 13, 1913, involvement throughout the greater part of the left lung, cavity at top, right lung clear. Moderate amount of cough and expectoration, tubercle bacilli present. Temperature range from 100 to 101. Pneumothorax begun June 18, 1913. Sixteen refills were given in all and a fairly good collapse was obtained. Cough and expectoration lessened. Last treatment was given Dec. 1, 1913. Owing to the disease



Temperature chart, Case 4. P, pneumothorax treatment: September 26, injected 350 c.c. of nitrogen gas; September 29, 425 c.c. of nitrogen gas; October 1, 650 c.c. of nitrogen gas; October 9, 575 c.c. of nitrogen gas; October 17, 575 c.c. of nitrogen gas; October 24, 400 c.c. of nitrogen gas.

developing in the right lung, patient was discharged unimproved.

CASE 9 (1191).—C. M., aged 24. Admitted Oct. 14, 1912, consolidation upper part of left lung, infiltration throughout the rest of lung and a few indistinct râles throughout the right lung anteriorly; temperature range from 99.5 to 100; cough and sputum present, tubercle bacilli found. Pneumothorax treatment begun Dec. 3, 1912; two days following temperature rose to 102 in the afternoon; later dropped to practically normal, with an occasional rise to 99.5 to Feb. 22, 1913. Since that time practically normal temperature until May, 1913, when patient developed pleurisy with effusion, temperature 100 to 103, and the gas treatment, which had been given every two or three weeks, was now discontinued until July 13, 1913, when some of the fluid was removed and replaced with nitrogen gas. This procedure was repeated twice during August. Subcutaneous emphysema developed after one injection, causing some pain, but this entirely disappeared in three days. From July to Sept. 23, 1913, temperature of patient was normal. An extensive laryngeal tuberculosis which she had on admission disappeared. The last time this patient was heard from she was seemingly in good health and working.

CASE 10 (1156).—L. B., aged 39. Admitted July 6, 1912, with consolidation throughout the greater part of the left lung, cavity at top, infiltration top of right lung, a few small râles after cough. Temperature 99.5 to 100, cough troublesome and sputum increasing. As the disease was steadily progressing in the left lung, pneumothorax was given, February 17, and a good collapse was obtained; twenty-seven injections were made in all. Patient developed pleurisy with effusion in June. Treatment consisted at times of removing some of the fluid and replacing with nitrogen gas. Shortly after the treatment was given the temperature dropped to normal, practically no cough, slight sputum, tubercle bacilli absent, signs at the top of the opposite lung improved. Patient gained $11\frac{3}{4}$ pounds and was discharged much improved; fluid still present at base of left lung.

CASE 11 (1437).—B. S., aged 35. Admitted Aug. 26, 1914; left lung had previously been partially collapsed. Treatment was continued from September, 1914, to January, 1915. During residence patient had an occasional rise of temperature to 99.5; small area of infiltration which was found on admission at the base of right lung remained practically unchanged; slight cough and sputum present on admission disappeared. Discharged improved.

CASE 12 (1307).—M. W., aged 25. Admitted Aug. 4, 1913, slight cough, no expectoration, slight infiltration left apex, right lung clear. Patient did fairly well until April, 1914, gaining 12 pounds. From this time the disease progressed steadily. Beginning Aug. 17, 1914, signs of softening, top of left lung, right clear, cough troublesome, profuse expectoration with tubercle bacilli present, temperature ranging from 100 to 103. Pneumothorax was begun August 18 and was repeated at intervals of a few days to from one to two weeks. A good collapse of the lung was obtained, cough improved, temperature ranging somewhat lower. In October, patient developed tuberculous enteritis, which grew steadily worse, and while the symptoms referable to the lungs improved considerably, patient lost weight steadily and was discharged March 9, 1915, unimproved.

CASE 13 (1260).—M. P., aged 24. Admitted April 19, 1913, with an infiltration of the upper half of the left lung and right apex, moderate amount of sputum, tubercle bacilli present, temperature range from 99 to 99.5. Did fairly well until June, 1914. Pneumothorax treatment begun July 10, 1914; fairly good collapse obtained, nothing heard over left lung, except bronchial breathing and subcrepitant râles at apex. Eighteen refills have been given to date; cough has practically disappeared. Beginning with September, 1914, only one or two spots of mucoid sputum daily, tubercle bacilli not found, temperature normal. Patient is now at the sanatorium receiving the treatment every three to four weeks, and is clinically well.

CASE 14 (1266).—R. H., aged 19. Patient was referred to us by Dr. Fred H. Heise, resident physician, Adirondack

Cottage Sanatorium, Trudeau. The following is his report of the case while the patient was under his supervision: "Right lung clear, with the exception of slight changes in voice and breathing at apex; left lung showed infiltration to the third rib anteriorly and to ninth vertebral spine. It was decided to collapse the left lung owing to persistent hemoptysis, and treatment was begun Nov. 24, 1912. Refills were given at intervals of three to three and a half weeks, and two months later the patient had no symptoms and improved so much that she was allowed five minutes' exercise, which was gradually increased to one hour twice daily, when she was discharged from the sanatorium the latter part of April, 1913." Patient was admitted to Stony Wold Sanatorium May 1, 1913, and treatment was continued every three weeks. During residence here, patient had no symptoms and was discharged, Oct. 29, 1913, clinically well. She has been working ever since, and the last time we heard from her she was apparently well and still receiving the pneumothorax treatment.

CASE 15 (1304).—R. S., aged 16. Admitted July 24, 1913. Right lung negative, left lung active infiltration upper half. Cough, profuse expectoration, tubercle bacilli present. Disease was steadily progressing in the left lung, with temperature ranging from 99.5 to 100. Pneumothorax treatment was begun Oct. 8, 1914, eleven refills in all being given. Two days after the initial injection temperature dropped to 99, with only an occasional rise to 99.5, practically no cough, slight expectoration, once or twice a week, tubercle bacilli absent. Patient was discharged March 20, 1915, much improved.

CONCLUSIONS

It is most gratifying that at last we have a rational treatment that can be used in the far-advanced cases. A comparatively few years ago symptomatic treatment, with the hope of temporary relief, was the only one given. The present status of artificial pneumothorax is that in a fair percentage of these hopeless cases we can offer either an arrest of the disease, or a chance of returning to good health. The procedure is, like any other operation, attended with slight dangers, but these are insignificant as contrasted with the fatal outcome if the disease is allowed to go on unchecked. The duration of treatment is one offering the greatest problem. It is impossible, of course, to determine whether the tuberculous foci in the collapsed lung have become entirely cicatrized, even though the patient is clinically well. It is far better to continue the treatment for an indefinite period, extending over years, than to discontinue the compression and discover after a few months that the disease is becoming active again, and when an attempt is made to readminister gas, that the layers of the pleura are densely adhered.

Elements of American Mortality.—Returns available for the United States for the registration area, which includes about 65 per cent. of the total population, show that the general death rate has fallen from 20.8 per 1,000 in 1890 to 14.1 in 1913. Throughout the period under observation the male rate has been in excess of the female rate, and in 1913 the rates were 15.0 for males and 13.1 for females. For the white population the mortality was 14.0 per 1,000, and for the colored 22.9. For white males the rate was 14.9, and for white females 13.1. For colored males the rate was 24.9, and for colored females 21.0. For certain principal causes the comparative death rates for the two sexes were as follows: tuberculosis of the lungs, males, 14.9, females, 12.0; pneumonia, males, 14.7, females, 12.6; accidents, males, 12.8, females, 4.0; urinary diseases, males, 10.8, females, 8.8; cancer, males, 5.8, females, 9.3; typhoid fever, males, 2.5, females, 1.7; suicides, males, 2.5, females, 0.8. The urban death rate for the registration area for the period 1908-1912 was 15.5 per 1,000, and the rural death rate was 12.9.

DIAGNOSTIC THESES IN PULMONARY TUBERCULOSIS

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Since the time of Hippocrates, many medical aphorisms have been published, and as they convey in a concise and at times a clear manner the experience of the writer, they are often read. Such theses must include many well-known facts to which all subscribe, and their *raison d'être* lies in the fact that assent or dissent is at once forthcoming. For the beginner in work in pulmonary tuberculosis, succinct opinions on diagnosis are of great assistance.

DIAGNOSTIC THESES

1. An appearance of ruddy health does not exclude tuberculosis.

2. In any patient with constitutional symptoms, no matter of what he complains, the possibility of tuberculosis must be kept constantly in mind.

3. Prolonged and intimate exposure at any time of life, but especially in childhood, and in home or workshop or office, is vastly more important in diagnosis than "unassociated" or "noncontact" heredity.

4. Prolonged contact with tuberculosis may lead to infection, but debilitating conditions are necessary usually to cause this to develop into clinical tuberculosis.

5. Constitutional or general symptoms lead us to a diagnosis of tuberculosis, while the localizing symptoms point out the organs involved.

6. The history or presence of certain complications, as fistula-in-ano, pleurisy, dry or especially with effusion, adenitis, a discharging ear, coming on painlessly, are all strongly suggestive of tuberculosis.

7. Loss of color, prolonged exposure to tuberculous infection, especially in childhood, with a history of swollen glands at that time, the more recent subjection to debilitating conditions, the presence of unequivocal constitutional and localizing symptoms, with or without the aforementioned complications, demand a diagnosis of pulmonary tuberculosis even though no abnormal physical signs are present in the lungs.

8. *Your patients, your friends, your family* are as prone to contract and develop pulmonary tuberculosis as hundreds of others.

9. The importance of physical examination in the diagnosis of pulmonary tuberculosis has been over-emphasized.

10. Symptoms are a better and more accurate guide to activity than physical signs.

11. Symptoms without physical signs demand treatment, while physical signs without symptoms require only careful watching.

12. Slight but persistent rise in temperature and increase in rapidity of pulse are often present early in the disease.

13. The usual weight of a patient who develops pulmonary tuberculosis is often 10 pounds below the normal weight for his height and age.

14. Failure to interpret rightly the significance of symptoms, to detect the presence of abnormal physical signs, can be condoned; but failure to ask for and examine the sputum repeatedly in any patient with chronic cough is inexcusable.

15. Absence of tubercle bacilli in the sputum means only that bronchial ulceration has not occurred.

16. Auscultation and inspection are the most important procedures in the detection of abnormal physical signs.

17. Inspection reveals localized retraction of the chest wall and limitations of the chest movement.

18. Auscultation is more important than inspection, and the detection of râles by the auscultation of the inspiration following cough is the most important procedure in the detection of physical signs of early pulmonary tuberculosis.

19. Changes in the relative lengths and intensity of the inspiration and expiration are valuable but less easy to detect.

20. The disease is practically always more extensive than the physical signs indicate.

21. Abnormal physical signs in one apex should be considered as due to pulmonary tuberculosis until proved not to be, while those at the base should be looked on as nontuberculous until definitely proved so.

22. The fluoroscope, the roentgenogram and stereoscopic plates may reveal and locate pathologic pulmonary changes to be detected by no other means.

23. When sputum is lacking, or when tubercle bacilli are absent on repeated examinations, the possibility of the presence of bronchiectasis, hyperthyroidism, syphilis and influenza, and more rarely pulmonary tumor and Hodgkin's disease, should be borne in mind.

24. No modification of the tuberculin tests as yet devised differentiates clearly clinical tuberculosis that demands vigorous treatment from nonclinical tuberculosis that requires only a God-fearing life.

25. It may be impossible to determine definitely the presence or absence of clinical tuberculosis.

MEASURES FOR PROMOTING THE NUTRITION IN THE PSYCHOSES *

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CHICAGO

At a time when biochemistry and microscopy are achieving such brilliant results in demonstrating the etiology and pathology of disease, a discussion of time-honored methods of treatment may naturally be expected to provoke only a more or less modified interest. Nevertheless, I regard such a discussion as seasonable, and all the more so since the fascinations of science logically tend to diminish confidence in and thus lead to neglect of measures which, though their value may have been ever so amply attested by many years of experience, in their inception at least, were essentially empiric. Not to be misunderstood, I wish to express my most sincere respect and admiration for the efforts that are being put forth with a purpose of discovering a palpable cause of insanity, and hence rational plans of prevention and cure; pending such discovery, however, it is expedient to make the most of what we possess, even though it falls ever so far short of what we desire.

My purpose is to describe briefly certain measures for promoting the nutrition and the manner of their application in cases of insanity, as I commonly employ them in practice. No claim of novelty or originality is made.

* Read at the Seventy-First Annual Meeting of the American Medical Psychological Association, held at Fortress Monroe, Va., May 12, 1915.

The ingenious hypothesis that a given case of insanity may be due to infection and that hypernutrition might promote a cure by facilitating the formation of antibodies, or any other theory that may be set up to account for its favorable effect on the course of the disease, does not call for discussion here. The assumption is simply made that in a large proportion of patients suffering from various forms of the acute psychoses, promotion of the nutrition is a prominent indication of treatment. It is further assumed that the nature of the patient's malady is such as to impair more or less his cooperation with efforts made in his behalf, or even to induce him to offer the most determined resistance to them. Under the conditions postulated the effective application of any and all measures demands that the patient be all the time surrounded with adequate provisions for his control, or indeed be subjected to the exercise of arbitrary authority resting on a basis of physical force, either active or potential. For various reasons largely economic, because a physician experienced in such cases, the only proper source of arbitrary authority, should be always at hand to relax, or reinforce this, according to circumstances, these patients are best treated in a specially equipped institution.

THE STOMACH PAD

The procedure to which I wish first to call attention is the use of the stomach pad. My practical acquaintance with it was gained many years ago from a masseuse who conducted a very successful rest cure, and who regarded the employment of this measure as one of the principal factors which had contributed to the establishment of her reputation. Patients who had become emaciated to the last degree, through inability to digest their food, though they had been quite refractory to the most skilful medication, lavage and what not, promptly responded to the so-called rest cure, of which the stomach pad constituted one of the essential components, when all medicine, with the exception of indicated laxatives, was withdrawn. To be sure, these patients differed in many particulars from those under consideration. Their cooperation could be relied on. The full effects of rest in bed, thorough mastication and massage were available. Nevertheless, since the therapeutic problem is identical in each instance, if the stomach pad has any considerable utility in promoting digestion and assimilation, its claims should certainly command respectful attention.

The elaborate and convincing investigations of Henry Head¹ demonstrate that the functional activity of the several abdominal and thoracic organs or viscera is sensibly promoted by stimulation of the skin lying over them. There are pathways for the passage of nervous stimuli from the skin through the spinal cord and thence to the underlying viscus; hence it would appear that the empiric, and for centuries at least popular practice of counterirritation, after all, rests on a sound scientific basis.

The heat is conveniently applied by means of dry wheat bran, as follows: A cotton or linen container of the proper size and shape is filled with bran. I advise having it extend the whole width of the abdomen from the nipples to the pubes, and made with a box border about 2½ inches in depth. The pad should not be stuffed so full that it cannot easily conform to the contour of the body. It may be heated in an oven at a

temperature of about 300 F. to be made ready for application. When applied, it may be covered with oiled silk and blankets to retain the heat. This is much lighter, and patients usually pronounce it more comfortable than the various forms of moist or wet heat as, for instance, the flaxseed poultice. Though I was originally strongly prejudiced in its favor, the electric pad as a means of applying heat has for several reasons quite disappointed my expectations.

Incidentally it may be stated in this connection, although hardly a matter of minor importance, that the tranquilizing effect of the hot stomach pad, in cases characterized by considerable excitement, is sometimes quite striking. It was long ago demonstrated that in natural sleep the volume of blood in the extremities is sensibly increased and that consequently the brain becomes correspondingly anemic; hence for the purpose of dilating the vessels of the extremities and the portal circulation and thus facilitating sedation and hypnosis, the application of heat to the extremities and the epigastrium is a rational procedure. And, while in a large majority of highly excited cases when not used in conjunction with medicinal remedies it cannot be relied on to induce promptly either sleep or sufficient sedation, it embraces a principle of very wide application and enormous value in the treatment both of the psychoses and the neuroses, or combinations of them. The maximum sedative and hypnotic effect of the principle is of course attained by employment of the full hot bath, in conjunction with cold to the head.

FEEDING

When the food is well relished, the solids and semi-solids thoroughly masticated, and liquids slowly sipped, no doubt the process of digestion progresses much more easily and satisfactorily than when opposite conditions prevail. Unfortunately, in the psychoses it only too frequently happens that none of these aids to digestion are available; even in those cases in which by persuasion, scolding, coaxing, or what not, enough food may be swallowed, all of them are commonly wanting. In these patients the use of the stomach pad is of distinct value. If it can be kept in position while the meal is being given, the patient meanwhile lying on his back, as is the ordinary practice when mental disorder does not have to be reckoned with, so much the better; the application is continued from forty-five minutes to an hour after the meal is finished.

When liquid food must be introduced artificially, let this, at or slightly above normal bodily temperature, pass into the stomach very slowly through a small tube, the pad being employed as indicated above. To be sure, since there are numerous and wide variations in the phenomena presented by individual cases of the psychoses in which "building up" measures are urgently demanded, as well as in others, no fewer or less pronounced modifications have to be made in the practical application of any procedures intended for their relief. Long and intimate experience with these phenomena and their individual variations is essential to a reasonable comprehension of their significance; hence such experience is likewise essential to the exercise of sound judgment in the employment of any and all means that may be advocated or made use of in the treatment of the psychoses.

REST IN BED

In a very considerable proportion of patients afflicted with various forms of the acute psychoses,

1. Head, Henry: *Brain*, 1893, iv, 6.

whose symptoms are such as to present formidable obstacles to the problem of satisfactorily meeting the nutritional indications, intense and inveterate restlessness is one of the most common and prominent morbid manifestations. Even when a liberal amount of nutritious food is introduced and well digested, the patient may steadily lose weight on account of the exhaustive character of his restlessness or agitation together with the concomitant loss of sleep; hence an effort to secure even a modicum of rest should never be neglected. It almost never happens that rest in bed, as it is carried out in the so-called rest cure, is feasible; even in the most favorable cases, modifications or compromises have to be made. And since patients will rarely accept massage in lieu of exercise, even in those rare instances in which absolute rest might be secured, it would be of doubtful advantage.

Unhappily, in practice we are usually obliged to content ourselves with making the attempt, in each case, to strike a balance between the damage the patient is sustaining from the excitement incident to the natural course of his disease, and the injury he might suffer from employment of some of the various resources at our command for the purpose of reducing the morbid activity. As an exceedingly general proposition, if in the course of a few days by dint of intelligent and persevering effort a patient can be successfully trained to remain in bed till noon without persisting in exhaustive efforts of resistance, a position of enormous advantage has surely been gained in the nutritional struggle. After dinner the desired amount of outdoor air and exercise may be prescribed.

FRESH AIR AND SOUNDPROOFED ROOMS

The value of an abundance of fresh air as an essential element in the promotion of nutrition can hardly be overestimated; and unfortunately it only too frequently happens that, from various considerations, the class of patients under discussion cannot be much if at all outdoors for weeks or months together; and, indeed, at the same time it may be expedient to keep the doors and windows of their rooms closed. Since it has been demonstrated over and over again that continued close confinement in poorly ventilated rooms is by far the most potent etiologic factor of pulmonary tuberculosis, that this cause operates by reducing the nutrition, and that the nutrition is most effectively restored and the disease cured by keeping the patient continuously in the open air, the vast importance of sound-proof or muffled rooms with ample forced ventilation in attaining the end in view is obvious. Observed from a still different angle, the enormous advantage of these rooms in the solution of the difficult nutritional problem which many cases of the acute psychoses present is plainly seen. The more or less profound disorder of digestion inevitably produced by the regular administration of full doses of sedatives and hypnotics is too well understood to require comment. In the practical operation of a hospital, however, it is manifestly unjust to permit the disturbance made by, say, 5 per cent. of the patients to deprive the remaining 95 per cent. of perhaps several hours' sleep at night and seriously interfere with their comfort and tranquillity by day as well. Without the resource which these rooms supply when instances of individual excitement occur, the principle of "the greatest good to the greatest number" has to be brought into requisition. When these rooms are available, however, the

physician is relieved of all obligation to administer a harmful remedy to one of his patients for the benefit of others. And though the degree of sound proofing falls far short of what might be desired, ten years of experience with these rooms has confirmed the conviction which prompted their installation; this conviction is that they are indispensable to the fair and proper treatment of a considerable proportion of cases of the acute psychoses. Unfortunately, candor compels me to confess that the conclusions I have reached in this connection and the facts on which I have based them are all ignored, almost entirely, both by our profession and the laity. It may be asserted without much fear of contradiction that no instance can be cited in which either a patient's family or his physician in selecting accommodations for treatment ever gave the slightest weight, in reaching a decision, to the considerations here advocated. The installation and operation of these rooms involves a considerable expense, and in the existing attitude of the public and our profession regarding their value, whoever makes use of them may indeed augment his own sense of satisfaction and self respect, but from a financial standpoint he places himself in a position to be called a fool for his pains.

As a means of improving the nutrition, it is altogether feasible to keep a considerable proportion of patients suffering with various forms of the acute psychoses outdoors during the day time, using the same methods to protect them against inclemencies of weather as are followed in tuberculous cases. For various reasons, however, as a reliable measure of treatment in these cases, it would rarely if ever be expedient to attempt to inaugurate outdoor sleeping. For the satisfactory application of the outdoor method of treatment, enough pavilions are desirable to permit of proper classification. These should open to the south and be provided with concrete floors and walks leading to them so that weather conditions do not have to be reckoned with. The salutary effects of outdoor life in promoting nutrition do not demand the services of an advocate.

HYDROTHERAPY, MASSAGE AND OCCUPATION

Although hydrotherapy, massage and occupation may be regarded as somewhat less direct in aiding the nutritional process than some of the agencies previously mentioned, when conditions are favorable to or perhaps even admit of their exhibition, any or all of them may be of great service. The indications for their use, and the form and manner of their application, especially with reference to the last, could be easily expanded to the dimensions of a chapter. In conclusion and somewhat by way of digression, and at the same time as a note of caution, permit me to state briefly a concrete case, illustrating the unfortunate effects that may result from insufficient supervision of prescribed occupation.

Some years ago while in state service, I prescribed a review of her school work for a young woman formerly a teacher. This patient of the dementia praecox type had been comparatively comfortable for several years, with some supervision dressed herself properly, was able to participate in the various forms of diversion usually provided in state hospitals, and was in a fairly satisfactory state of bodily health. She took to the work eagerly; but while her teacher and myself were congratulating ourselves on the success of our plan, the patient passed quite rapidly into an attack of

high excitement very much like that which occurred at the onset of her disease, and from which she emerged a few months later on a little lower plane than before. Whenever this circumstance has recurred to my mind, it has always been accompanied by the conviction that this defenseless patient was a victim of my misdirected enthusiasm and inadequate attention. Of course an experience of this kind does not cast discredit on occupation as a valuable resource in the care and treatment of the insane; it simply emphasizes the necessity of studying each and every case both deeply and broadly, and of maintaining a close observation of and active interest in them to the end of the chapter.

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A RAPID AND SIMPLE METHOD OF TESTING DONORS FOR TRANSFUSION *

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AND

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The increasing popularity of transfusion as a therapeutic measure has brought with it the need of a test whereby the suitability of donors may be rapidly determined. There are already many instances on record of serious symptoms or death following the rapid breaking down of blood after transfusion. The evidence is convincing that such instances may be avoided if a donor is selected beforehand by means of certain simple tests carried out in vitro. Unfortunately these, as performed at present, require time and labor. It is with the aim of providing a test rapid and simple enough to be employed even in emergencies that the following method has been devised:

* METHOD

Collection of the Blood.—The blood is taken from the patient and the prospective donors in a 1:10 mixing pipet, such as is used in counting leukocytes. The pipet is rinsed beforehand with 10 per cent. sodium citrate in water; the citrate solution is drawn up to the mark 1; the pipet is rapidly filled with blood from a puncture of the ear or finger; and without pause the mixture is expelled into a small, narrow test tube. There is thus obtained a citrated blood containing slightly less than 1 per cent. of citrate. The pipets which we have employed hold only 0.25 c.c. of fluid. This much blood is easily obtained from a single puncture. There is no objection to increasing the flow by pressure. Should it cease before the pipet is full, the blood must be at once expelled into a test tube, in order that it may mix with the citrate and clotting be avoided. The mixture is then taken up again, a new puncture made, and the pipet completely filled. After each blood is obtained, the pipet is rinsed with citrate, then with distilled water, then with fresh citrate, and it is ready for another blood. If several donors are to be tested, two pipetfuls of citrated blood should be obtained from the patient. It is best to take them from different puncture wounds, in order to avoid a possible clotting in the pipet.

Mixing.—The mixing is done in pipets with a capillary end—the so-called Wright pipets obtained by drawing out glass tubing in the flame. The citrated bloods are used as such, and two combinations are made of the patient's blood with that of each prospective donor—a mixture containing nine parts of the patient's blood to one of the donor's, and a mixture of equal parts of the two. The proportions used need be only approximate. In case of emergency the first of the

mixtures will suffice, since by its use the most dangerous possibility, namely, that the blood of the recipient may destroy that of the donor, can be ruled out. Following the technic usual with Wright pipets, the capillary tube is marked, blood is drawn to the mark, and each column of the blood is separated with an air bubble from the next that is drawn up. To insure proper mingling, each mixture should be expelled on a slide, or Widal plate, and then drawn high in the pipet, which may be sealed off in the flame in case the examination is not to be made for some time.

Incubation.—No incubation in the ordinary sense is necessary. The pipets are kept at room temperature, and readings are begun after two minutes, if there is need to hurry. The readings are for agglutination, and even within two minutes this is plainly evident, except when the agglutinating forces are notably weak. In the final choice of a donor it is safest to rely on results obtained after the mixtures have stood for fifteen minutes. But the ruling out of individuals with unfit blood may be begun practically at once.

Readings.—The capillary end of each pipet is broken, a small drop of the blood expressed on a slide, a large drop of normal salt solution superimposed without mixing, a coverslip put on, and the preparation examined for agglutination under the microscope. Fresh preparations can be made at intervals if desired. The salt solution is not absolutely necessary; but very clear pictures are obtained as the blood spreads in it. When agglutination has occurred, the red cells show a characteristic clumping, sometimes in small masses, often in large ones that are very evident macroscopically. The clumps in each preparation are fairly uniform in size. The picture is absolutely different from that in mixtures of nonagglutinating bloods under similar conditions. In these, the cells lie free or in rouleaux, just as in a single blood. But in agglutinating mixtures the cells are stuck together "every which way," and, where the film is thin, they do not separate but lie connected with one another in irregular heaps. If pressure is put on the coverslip, a very characteristic phenomenon may sometimes be seen. The agglutinated cells pull out in strands as though they consisted of some sticky substance. The most striking pictures are encountered when there are nine parts of an agglutinating blood to one that is agglutinated. Here large discrete masses lie scattered amid unclumped red cells.

If there is no clumping in the preparations made after the mixtures have stood fifteen minutes, the assumption is warranted that the bloods do not agglutinate or hemolyze each other. The experience of previous workers has taught that in such instances transfusion is safe. But if clumping is present in the 9:1 mixture and to a less degree or not at all in the 1:1 mixture, it is certain that the blood of the patient agglutinates that of the donor and may perhaps hemolyze it. Transfusion in such cases is dangerous. Clumping in the 1:1 mixture with little or none in the 9:1 indicates that the plasma of the prospective donor agglutinates the cells of the prospective recipient. The risk from transfusing is much less under such circumstances, but it may be doubted whether the blood is as useful as one which does not and is not agglutinated. A blood of the latter kind should always be chosen if possible.

For practical purposes these findings suffice. But if there is a desire to know whether *both* bloods contain agglutinins, a 1:9 mixture should be made. If this and the 9:1 mixture show large clumps, whereas the clumps are smaller when the bloods are mixed in equal parts, two agglutinins must be present.¹ Should there be only one agglutinin, little clumping or none will be observed when the blood containing the agglutinin is diluted with nine parts of the other blood.

Difficulties.—The single technical difficulty of the method is that of clotting, and to avoid it the blood should be taken as rapidly as possible. With normal blood, trouble is seldom experienced, but in pathologic instances a thin web may form in the test tube into which the blood is expelled. The clotting

* From the Laboratories of the Rockefeller Institute for Medical Research.

1. This phenomenon has been described by Ottenberg in an interesting study of the conditions under which human bloods show agglutination. He used mixtures of defibrinated whole blood. (Ottenberg, R.: Jour. Exper. Med., 1911, xiii, 425.)

begins in the calibrated tube of the pipet which, as the blood is taken, is swept free of citrate; and the use of a strong citrate (15 per cent.) will not prevent it. But the clot is always thin and may be picked out of the blood and the latter used for the tests. In the pipet even small clots are troublesome, since they form a locus for new ones when another blood is taken. They are best dissolved out with 5 per cent. potassium hydroxid.

The likelihood that something else may be mistaken for agglutination is practically nil. The presence of fibrin strands and clumps of platelets and white cells absolutely differentiates bits of clot. Dried blood will not be found except in case of carelessness, and it is unlikely to cause confusion. Its nearly homogeneous, cheesy appearance under the microscope is sufficiently distinctive.

COMMENT

The test here described has some features in common with two of the methods already in use. Therefore, to point out wherein it is an advance over these will not seem amiss. Epstein and Ottenberg² use Wright's pipets, collecting blood in them for serum, and making the ultimate test mixtures in them. But the mixtures consist of serum and washed red cells; they are incubated for two hours, and the readings are macroscopic. Weil³ employs citrated bloods, making, in test tubes, three mixtures of the same relative proportions as ours. Two c.c. of each blood are required, thus making necessary aspiration from a vein; the tubes are incubated for an hour, and the readings are macroscopic. By means of the test of Epstein and Ottenberg, aspiration from a vein is avoided; and by Weil's method the need to separate serum, wash the red cells and make reciprocal observations is done away with. In both instances, however, the time and the labor of testing donors is very considerable. Using our method, it is only necessary to obtain citrated bloods from a finger-prick, make two mixtures of them in capillary pipets, and, by reading with the microscope, the test is finished within a few minutes.

The method involves several important assumptions. They may be summed up in two questions: 1. Is the presence or absence of agglutination an index to the injurious qualities of a blood? 2. Are the microscopic findings with mingled, citrated bloods that have stood fifteen minutes at room temperature as certain in their indication as macroscopic findings after longer periods with mixtures of serum and 5 per cent. washed red cells—that is to say, as certain as the test most used at present?

The first question can be answered from the literature. Leaving from consideration disease in the donor, two injurious influences must be thought of when a foreign blood is introduced into the human body, namely, hemagglutination and hemolysis. The latter is far the more serious. Moss⁴ has found in extensive observations that agglutination frequently occurs without hemolysis, but that hemolysis is always associated with or preceded by agglutination. This conclusion he has substantiated with seventy-five successful transfusions⁵ in which the donors were selected by means of the agglutination test. It is well

known that human beings fall into four groups as regards the agglutinins in their serum and the capacity of their corpuscles to be agglutinated. Moss was careful to select for transfusion individuals of the same group. Without going deeply into the matter we may say that, when serum and washed cells are used, reciprocal observations are necessary to determine whether two individuals belong to the same group. But in mixtures of whole citrated bloods, agglutination is only absent when this is the case.

In our test, agglutination is looked for with the microscope. This does not mean that macroscopic readings are impossible, for when clumping is at all outspoken in the slide preparation, it is plainly evident to the naked eye. Observations can, in emergency, be made in this way. But with the microscope, as one would naturally suppose, the readings are more sensitive and more precise. When antirabbit goat serum is mixed with rabbit red cells, clumping is observable microscopically in dilutions of serum much higher than those in which it is evident macroscopically in the test tube. This can be noted also with dilutions of an agglutinating human serum mixed with human red cells and with undiluted human serums weak in agglutinins. An agglutinative clumping is rarely doubtful microscopically, for the cohesion of the cells, even when only two or three are concerned in each clump, is absolutely different from rouleaux formation. In the test tube an agglutination is often difficult to distinguish from sedimentation; and the shaking which throws up the clumps into the fluid that they can be viewed may break them so that they do not reform.

Our experience is that if agglutination occurs at all it will be noticeable microscopically within five minutes. But it is better to let the mixtures stand longer. We have no hesitation in saying that agglutination can be told with the microscope as certainly after fifteen minutes as in two hours with the old macroscopic method. The explanation of this is probably simple. The clumps which become visible in the test tube after an hour or more are in general not the primary clumps of an agglutination, but the result of the massing together of many such clumps, which themselves are often small. Such secondary massing requires time, whereas the primary clumps form almost immediately.

That agglutination is sometimes better at room than at body temperature is well known.⁶ Repeated trial has shown that the incubation of our agglutinating mixtures seldom increases the rapidity of the reaction. In some instances agglutination was much more pronounced after fifteen minutes at room temperature than in two hours at body heat. An altered distribution of the agglutinin may account for this.

It has been repeatedly shown that an excess of red cells may mask the presence of an agglutinin or hemolysin, and that hemolysis is much influenced by the presence of neutral serum. Agglutination is practically independent of this latter factor.⁷ The influence of small amounts of sodium citrate does not seem to have been determined. The following is one of several experiments dealing with these points in their relationship to our test:

PROTOCOL OF EXPERIMENT

By venous puncture some cubic centimeters of a human blood, *A*, were taken with citrate (1 part 10 per cent. citrate to 10 parts blood) and some obtained for serum. Graded

2. Epstein, A. A., and Ottenberg, R.: A Method for Hemolysis and Agglutination Tests, *Arch. Int. Med.*, May, 1909, p. 286.

3. Weil, Richard: Sodium Citrate in the Transfusion of Blood, *THE JOURNAL A. M. A.*, Jan. 30, 1915, p. 425.

4. Moss, W. L.: *Johns Hopkins Hosp. Bull.*, 1910, xxi.

5. Moss, W. L.: *Am. Jour. Med. Sc.*, 1914, cxlvii, 698. See also, for the bearing of agglutination on transfusion, Ottenberg, Reuben, and Kaliski, D. J.: Accidents in Transfusion, *THE JOURNAL A. M. A.*, Dec. 13, 1913, p. 2138.

6. Paltauf, R., in *Kolle-Wassermann's Handbuch der pathogenen Mikroorganismen*, ii.

7. Hektoen, Moss, Ottenberg.

dilutions of the serum were made with salt solution, and mixed in small test tubes, as also in Wright's pipets, with equal parts of 5 per cent. suspensions in salt solution of certain washed red cells, *B* and *C*, which the undiluted serum agglutinated.

Dilutions of the plasma of the citrated blood *A* were made, similar to those of the serum, but the proportion of red cells was kept the same as in the original citrated blood. For this the citrated blood was distributed in a number of graduated tubes, centrifugalized rapidly, the supernatant fluid measured and diluted appropriately, and, when the red cells had been suspended and centrifugalized, all of the fluid was pipetted away except the original volume, and the cells were resuspended. The diluent used was sodium citrate in salt solution (1 part 10 per cent. sodium citrate to 9 parts 0.95 sodium chlorid). Nine parts of each of the combinations thus obtained were mixed in Wright pipets with one part of the whole citrated bloods *B* and *C*. The microscopic findings after fifteen minutes were compared with those in the serum mixtures after one and two hours. They gave identical results. Agglutination occurred when dilutions of serum or plasma up to 1 part to 7 of the diluent had been used for the mixtures, but not when 1 part to 15 had been employed. It was slight with 1:7 plasma and no better marked with 1:7 serum.

The experiment shows that a weak agglutinin may be demonstrated quite as well with mixtures of citrated whole bloods as with serum and a diluted suspension of washed red cells in salt solution. The interference of neutral red cells does not constitute a difficulty.

CONCLUSION

The test here described compares well in delicacy with those already in use, but we wish to insist only on its practicability. It enables one to determine within a few minutes, so far as agglutination and hemolysis are concerned, whether or not the blood of a donor is suitable for transfusion.

INTRASPINAL ADMINISTRATION OF ANTITOXIN IN TETANUS

NOTES ON A SERIES OF CASES *

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NEW YORK

As the result of a series of animal experiments conducted at the Research Laboratory of the Department of Health by Dr. William H. Park and myself¹ in order to determine the curative value of the intraspinal administration of tetanus antitoxin, and by which the superiority of this method was conclusively shown, every effort has been made during the past year to get into immediate touch with physicians and hospitals in and about the city of New York having cases of tetanus under their care, and induce them to give antitoxin as soon as possible by the following method:

1. From 3,000 to 5,000 units into the lumbar region of the spinal canal, preferably under an anesthetic, the volume of fluid injected being brought up to 10 or 15 c.c. by the addition of sterile normal saline, the exact amount being regulated according to the age of the patient and the amount of spinal fluid withdrawn.
2. Ten thousand units intravenously at the same time.

3. Repetition of the intraspinal dose in twenty-four hours.

4. A subcutaneous dose of 10,000 units three or four days later.

The well-recognized adjuvants to specific treatment—quiet, subdued light, sedatives, etc.—were, of course, understood as a necessary part of the therapeutic measures.

In no case has the physician objected to giving an intraspinal injection of antitoxin when so advised. Some, however, have given it in much greater quantities and by other methods in addition to that recommended, usually before I was able to consult with them.

Reports of twenty cases have thus been collected, in all probability representing a majority recognized as tetanus during this period in and about the city of New York. I have seen about half of the patients personally, in consultation. In others, the physicians have been kept in constant touch by telephone or through a clinical assistant during the progress of the case. In four cases, the histories have been furnished by the physician on request, the treatment given being exactly that recommended by the published article referred to above. In all cases the antitoxin used was furnished by the Department of Health.

A brief abstract of the clinical histories follows:

CASE 1.—F. D., girl, aged 10 years, seen in consultation with Drs. W. B. Anderton and A. A. Smith, fell, striking her forehead on the ground, receiving a lacerated wound three-quarters inch long over one brow. This was properly disinfected and sutured, healing promptly. Seven days later there was a facial paralysis on the side on which the wound was received. Thirty-six hours later, the jaws were firmly locked. Eight hours after this symptom was noted, the patient received 3,000 units of antitoxin intraspinally and 10,000 intravenously. Several subcutaneous injections were later given. The tetanic spasms were largely confined to the muscles of the jaw and pharynx, and later, the abdominal muscles; attempts at swallowing and the slightest external irritation caused contractions of the muscles of the throat and larynx, cyanosis, general convulsions and unconsciousness. Such convulsions occurred on fifty or more occasions, together with innumerable minor spasms. Pneumonia developed later, resolution being very long delayed. After a protracted convalescence and extreme emaciation, the patient made a perfect recovery.

CASE 2.—Thomas B., laborer, was admitted April 1, 1914, to the New York Hospital, with multiple lacerations of scalp and traumatic amputation of toes of the right foot. The wounds were immediately disinfected with iodine and irrigated with iodine solution. The following day, amputation of the toes was performed. April 10 (incubation nine days), there was slight stiffness of the jaws, which was not reported until the following morning. April 11, 1,500 units of antitoxin were given in the tissues about the wound and 3,500 intravenously, later on the same day, 3,000 units into the tissues about the wound and the same amount intravenously. April 12, the patient was very much worse, and was given 13,000 units intravenously, 8,000 intraneurally and 7,000 into the tissues about the wound. April 13, I was first consulted and the patient visited. His condition was still more unfavorable. There was marked opisthotonos. Eight thousand units of antitoxin were given into the spinal canal and 9,000 intravenously. Following the intraspinal injection the temperature rose to 105; there were severe headache, convulsions and semicoma. April 14, the patient was comatose throughout the day. April 15, the patient was conscious, and there was less rigidity. April 16, there was much less rigidity; the patient swallowed fairly well for the first time. The patient continued to improve and was discharged cured, April 30.

* From the Research Laboratory, Department of Health, New York.

* Read at the Meeting of the Association of American Physicians, Washington, D. C., May 11, 1915.

1. Park, W. H., and Nicoll, Matthias, Jr.: Experiments on the Curative Value of the Intraspinal Administration of Tetanus Antitoxin, *THE JOURNAL A. M. A.*, July 18, 1914, p. 235.

Comment.—Through a series of misunderstandings, this patient received still further intravenous injections of antitoxin following the intraspinal dosage, although an examination of his blood showed a tremendous antitoxic content. How much credit should be given the single intraspinal dose for the recovery in this case it is difficult to say. It is to be noted, however, that the first real improvement followed shortly after its administration.

CASE 3.—Gustav H., aged 23, carpenter, admitted to St. Vincent's Hospital, June 27, 1914, had injured the tips of his fingers in some way, June 16. A definite history could not be obtained. Three days before this, the patient had a pustule on his neck, which was opened on the 20th. There was no other history of injury. June 21 (incubation five or eight days), he first noticed that his jaw was stiff; two days later, this was much more marked and had spread to the neck, back, arms and legs. On admission, there was marked opisthotonos, and the jaws were tightly locked. The slightest disturbance caused a convulsion. The patient's body rested on the heels and back of the head. The abdomen was boardlike. Treatment on the first day after admission consisted of 5,000 units of antitoxin intraspinally and 5,000 intravenously; June 28, 5,000 subcutaneously. The opisthotonos continued. July 1, 5,000 units were administered intraspinally, five hours after which the patient became delirious with a rise in temperature to 105. From July 4 to July 8, the rigidity decreased daily. July 18, the patient was discharged, cured.

CASE 4.—Boy, said to have been vaccinated sixteen days previously, the vaccination wound having apparently become infected one week after vaccination, developed a slight stiffness of the jaw. Four days after the onset of this stiffness, he was admitted to the Roosevelt Hospital, where it was noted that the legs were very stiff, the arms less markedly so. There was slight trismus. He was given, on admission, 2,500 units intraspinally, 5,000 units intravenously and 1,500 units intramuscularly and in the tissues about the wound. The latter two injections were repeated the next day. On the third and fifth day he received intraspinal injections. Improvement in symptoms began about the third day and continued until discharge thirteen days after admission, when patient was well.

Comment.—This case, though comparatively mild, was unquestionably one of tetanus. Many of the injections given could well have been dispensed with.

CASE 5.—G. T., boy, aged 10 years, was admitted to New York Hospital, Oct. 9, 1914. October 2, he ran a rusty nail into the sole of the left foot. October 9 (incubation seven days), there was stiffness of jaws, and some antitoxin (dose not known) was given intramuscularly. On admission, the teeth could not be separated and there was some tension in the calf of the left leg. All reflexes increased. Eight hours after admission, 3,000 units of tetanus antitoxin were given intraspinally and 1,500 about the wound, which had been opened. A few hours later, 1,000 were given intravenously. During the night, there were minor convulsions, accompanied by piercing screams every fifteen minutes. On the 12th, there were some dysphasia, abdominal rigidity and stiffness of the neck. The teeth were separated one-half inch. Intravenous injection of 9,000 units was made; there were general convulsions. October 11, there were convulsions lasting ten minutes, opisthotonos and a great deal of pain. October 12, there were convulsions for twelve minutes, stertorous breathing, cyanosis and great rigidity for half an hour following. October 13, the boy was comfortable and swallowed well. Intraspinal injection was made of 5,000 units. From October 14, there was a gradual improvement. The patient was discharged, cured, October 24.

CASE 6.—M. B., boy, aged 8 years; was admitted to Bellevue Hospital June 17, 1914. The history of injury due to a fall six days previously and the presence of an old ulcer on the right shin did not serve to establish the incubation of the disease. Five days before admission his jaw began to be stiff. This stiffness extended to other muscles day by day. On admission he was absolutely rigid from his neck to his feet. His teeth could be separated but one-fourth inch. June

18, under an anesthetic, he was given 5,000 units of antitoxin intraspinally and 5,000 subcutaneously. The mind was perfectly clear; the arms alone could be moved freely. There were incontinence of urine and feces. The boy was fed by gavage. June 25, he was very much improved. He bent at the waist when lifted. The mouth opened five-eighths inch. June 28, he moved the legs and arms freely; the spine was no longer stiff; the mouth opened widely; he ate well.

Comment.—This child was in a desperate condition at the time of giving antitoxin. On theoretical grounds we should not expect that antitoxin would be of much avail, when given at so late a period of the disease, and yet the improvement followed so soon after its administration that it would seem that antitoxin should be given the credit for it.

CASE 7.—R. M., boy, was admitted to the Hospital of the Holy Family, April 15, 1914, having run a nail in the sole of his foot at some time previously not possible to determine. There was apparently locking of the jaws three days before admission, at which time the muscles of the neck and back were rigid. The wound on the sole of the foot was opened and dressed. April 16, 5,000 units of antitoxin were given intraspinally, 10,000 intravenously and 3,000 intramuscularly. The child's condition gradually improved, and he was discharged cured about two weeks after admission.

CASE 8.—D. R., boy, aged 10 years, a patient of Dr. Ramsdell of White Plains, complained, Sept. 14, 1914, of pain in the back and slight stiffness of the jaw and of left arm. This child was vaccinated August 17. August 31, the vaccination wound not having been dressed for nine days, was in an unfavorable condition, there being considerable pus at the site of vaccination and swelling of the arm. A shield was later applied, on the mother's initiative. There was a further history of injury to the wound on several occasions. The incubation of the disease could not, therefore, be determined. The symptoms of tetanus increased until September 18, when the patient was given an intraspinal injection of 5,000 units of antitoxin and 45,000 units (through a misunderstanding) intravenously. Following this, there was a marked exaggeration of all the symptoms; a rise of temperature and opisthotonos, lasting about forty-eight hours. The patient gradually improved and was discharged cured in two weeks.

CASE 9.—Boy, aged 6 years, a patient of Dr. Joseph Wheelwright, gave a history of trauma nine days before the locking of the jaws. Forty-eight hours later an intraspinal injection of 5,000 units and intravenous injection of 10,000 units of antitoxin were given. Subsequently this was repeated. The case was a very severe one with many convulsions, and the patient recovered fully in the fourth week.

CASE 10.—A., male, at St. Vincent's Hospital, following a traumatic amputation of finger fourteen days previously, developed severe spasms of the abdominal muscles; later his jaw became locked and the rigidity was general; there were a number of convulsions. Thirty-six hours after the development of symptoms, 5,000 units of antitoxin were given intraspinally and 10,000 intravenously. There was marked anaphylaxis immediately following the injection, with urticaria covering the entire body and suggestion of edema of the glottis and lungs. This passed away shortly after the administration of a large dose of epinephrin. The intraspinal dose was repeated forty-eight hours afterward, as the patient had grown worse and had had a number of convulsions. The serum reaction following this was not so severe as in the first instance. Improvement in symptoms began to show in two or three days, the patient making a perfect recovery from his tetanus, but developed mental symptoms consisting of intermittent attacks of acute mania and delusions of persecution. After a number of weeks this completely disappeared and his condition was normal.

CASE 11.—T. D., woman, aged 30 years, was seen by Drs. William H. Ross and H. E. Chauvin of Brentwood, N. Y., September 30, 1914. She had given birth to a child two weeks previously in very dirty surroundings. The symptoms of tetanus were very marked, and many convulsions continued for five days. Two days after the onset of symptoms, 10,000 units of antitoxin were given intraspinally and 5,000 intravenously; the later dose was repeated three times in

three successive days. The patient was discharged cured except for a slight trismus which lasted for three days longer, October 11.

CASE 12.—R. W., boy, aged 11 years, was seen by the physicians mentioned above, Sept. 6, 1914. There was a wound over one patella, received eleven days previously. Five thousand units of antitoxin were given intraspinaly and 5,000 intravenously on the day following the development of symptoms. The intravenous dose was repeated. Eight convulsions occurred during the first three days, the temperature running high during this time. The patient was discharged cured eight days after admission.

CASE 13.—W. M., man, aged 20, seen by the same physicians Jan. 3, 1915, had received a punctured wound of the instep three weeks previously. There was complete trismus and stiffness of the whole body. Ten thousand units of antitoxin were given intraspinaly and 5,000 intravenously the day after the symptoms were noted. The intravenous injection was repeated the next day. The patient was discharged cured in two weeks.

CASE 14.—M. G., woman, aged 22, gave no history of traumatism. Four days before admission to the Lebanon Hospital, there was slight rigidity of the neck and difficulty in opening the mouth. The next day the jaws were completely locked. On the day before admission she had general convulsions. On the day following admission, five days after the onset of symptoms, she was given 5,000 units of antitoxin intravenously and 750 units intraspinaly. On the second and third days she was given 5,000 units intraspinaly under an anesthetic. The patient also received injections of magnesium sulphate (25 per cent.) subcutaneously and intramuscularly three times a day in doses of 30 c.c. for seventeen days, without apparent relaxing effect. The course of the disease was rather protracted with many convulsions. The patient was discharged cured seven weeks after admission.

CASE 15.—L. M., male, aged 18 years, was admitted to St. Peter's Hospital, March 27, 1915, with a crushed and lacerated wound of the great toe. The wound was immediately disinfected and properly dressed. March 30, the tip of the toe sloughed off. April 6, the patient had a severe chill and complained of sore throat. There was noted a slight stiffness of the jaw. In the afternoon there were marked stiffness of the back, and occasional slight convulsions when the patient was disturbed. Twenty thousand units of tetanus antitoxin were given intraspinaly four hours after the occurrence of the chill. On the 7th, the symptoms increased in severity, convulsions occurring on the slightest irritation. There were marked opisthotonos and rigidity. Ten thousand units of antitoxin were given intraspinaly under an anesthetic. On the 8th, the patient's condition was about the same. Ten thousand units of antitoxin were given intravenously. After the tenth day, the convulsions stopped; the rigidity continued some time longer. April 22, the patient was up and about with slight rigidity. He was discharged cured a few days later.

CASE 16.—M. S., man, aged 24, admitted to Bellevue Hospital Feb. 4, 1915, with very indefinite history, was said to have run a splinter into his foot three weeks previously. Two days before admission he complained of great pain in his back and neck, which was stiff; later he could not open his mouth. On examination the day after admission, it was found that his jaw was markedly locked, the abdominal muscles of a boardlike rigidity, and the back slightly arched. He was given 5,000 units of antitoxin in the spinal canal and 10,000 in the vein. The intraspinal dose was repeated two days later. The symptoms increased in severity for a day or two, frequent tonic spasms causing the patient to cry out with pain. After a few days all symptoms began to ameliorate, and he was completely well in about two weeks.

FATAL CASES

CASE 17.—O. R., man, aged 34, was admitted to Bellevue Hospital, Nov. 5, 1914, for a lacerated wound of the sole of the foot, which, although treated, became infected with a foul-smelling, purulent discharge. November 12, seven days later, the patient complained of difficulty in swallowing, and

the jaws were stiff. He received 1,500 units of antitoxin intramuscularly, and twenty-four hours later, 10,000 units intraspinaly and 10,000 intravenously. November 14, the temperature was lower, the jaws less stiff and the general condition improved, when the patient became markedly cyanotic, went into a condition of status epilepticus and died in twenty minutes. No necropsy was held. The exact reason for the sudden death of this patient, when the course of the disease had apparently been arrested, is by no means easy of explanation.

CASE 18.—J. O., man, aged 32, admitted to St. Peter's Hospital, Nov. 13, 1914, had stepped on a rusty nail, November 1. Seven days later, his jaw became stiff. This stiffness increased until the time of admission, when his teeth could hardly be separated. The muscles of the back and neck were stiff. November 13, five days after the onset of symptoms, he received 6,000 units of antitoxin intraspinaly and 5,000 intramuscularly, the next day, 5,000 intramuscularly and 5,000 intravenously, and on the following day, 5,000 units intravenously and 7,000 intramuscularly. The patient had tonic and clonic convulsions in great numbers throughout the course of his illness. On the day before his death, the tonic of the neck, jaws and abdomen had greatly diminished. He died following a convulsion, November 17. The short incubation in this case and long delay before beginning treatment are sufficient reasons for the failure of the antitoxin to save this patient's life.

CASE 19.—E. C., boy, aged 13 years, admitted to Bellevue Hospital, June 30, 1914, fourteen days previously had fallen and cut his head. Eleven days later he had abdominal pains and vomiting, which were regarded as due to appendicitis. On admission to the hospital he had marked opisthotonos, locked jaws and inability to swallow. A convulsion occurred on the slightest disturbance. He received 10,000 units of antitoxin intraspinaly and 10,000 units intramuscularly. The patient's condition grew worse from the time of his admission and he died within twenty-four hours. The disease had evidently progressed too far to be influenced by antitoxin.

CASE 20.—W. R., physician, aged 53, was admitted to the French Hospital for herniotomy, which was performed, April 25. May 3, the patient complained that his neck felt stiff; May 4, this symptom was more pronounced and there was some rigidity of the jaw. Toward evening he could not open his mouth fully. He was given about 9,000 units of antitoxin intramuscularly. May 5, he had a general convulsion and became quite cyanotic; this was repeated twice, convulsions lasting about ten minutes. Five thousand units of antitoxin were given intraspinaly and 15,000 intravenously. May 6, the patient had four convulsions, one lasting fifteen minutes. Five thousand units of antitoxin were given intraspinaly. May 7, there were no further convulsions. The patient was able to take fluids by mouth, and there was much less rigidity. At 8 o'clock in the evening he had a sudden attack of pulmonary edema and rise of temperature. Later there were signs of acute cardiac dilatation. He died on the morning of May 8. This patient was very stout, and had chronic bronchitis and recurring attacks of asthma.

In judging the effect of antitoxin given intraspinaly in this series of cases, it must be remembered that the patients were not selected, but that every case of tetanus reported was given the benefit of the treatment regardless of the clinical condition. The series, therefore, may be said to be fairly representative of the type of the disease occurring in and about the city of New York. A few of these patients would undoubtedly have recovered if the intraspinal injection of antitoxin had not been given or, indeed, without any treatment other than symptomatic. The results obtained, however, in the saving of life are so much more favorable than those in previous years, when large doses of antitoxin were recommended to be given by the intravenous and subcutaneous methods, that there can be no reasonable doubt that the low death rate, 20 per cent., here obtained was largely due to intraspinal dosage.

THE USE OF KAOLIN TO REMOVE
BACTERIA FROM THE THROAT
AND, NOSE *

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AND

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Kaolin is used in immunologic and other investigations on account of its great adsorptive powers. The idea occurred to us that, on account of this adsorptive power, kaolin might be of use in removing bacteria from the nose and throat, especially in diphtheria carriers. Accordingly, with the cooperation of Dr. George H. Weaver, tests have been made in suitable cases in the Durand Hospital of the Memorial Institute for Infectious Diseases.

We have found that, when properly applied, kaolin in the form of a dry powder removes not only diphtheria bacilli, but also practically all bacteria from the nose in the course of from three to four days. For this purpose the kaolin is blown into the nose six or seven times a day at two-hour intervals by means of a rubber bulb attached to a glass tube, the free end of which tapers a little. The insufflation is repeated several times at each treatment. The success of this treatment appears to depend largely on the free and thorough distribution of kaolin over the nasal surfaces. In cases of more or less obstruction of the nasal passages, the removal of bacteria by kaolin insufflation is more difficult.

In order to secure the most thorough application of kaolin to the mucous membrane of the throat, patients, if old enough, are instructed to swallow as slowly as possible one-third teaspoonful of kaolin four or five times an hour during the day. In the case of adults and older children who are anxious to get rid of diphtheria bacilli, this method, which has been selected after trial of several others, involves no special difficulty. In the case of small children, it is more difficult to apply enough kaolin, and the plan of mixing the kaolin with sugar in the form of tablets is being considered. In a number of cases, in some of which there were a great many diphtheria bacilli in the throat, complete and apparently permanent removal has been accomplished by means of kaolin in the way described in from two to four days, the throat to a large extent being freed from all bacteria.

We have found also that the insufflation of kaolin into the nose in cases of rhinitis in scarlet fever appears to improve the condition rapidly and to remove streptococci and other bacteria quite promptly.

We have not found kaolin to be irritative; when taken into the mouth it gives rise to a feeling of grittiness.

It seems, then, that kaolin, and probably also other substances of a similar nature, may prove of value in removing bacteria from various surfaces of the body by virtue of mechanical adsorption. This may prove of advantage, not only in carriers, but also in conditions of acute infection. Our experience indicates that by means of kaolin, diphtheria bacilli and other bacteria are removed quite easily, especially from the nose.

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SODIUM FLUORID POISONING *

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Several cases of hydrofluoric acid poisoning have been reported.¹ Two well-known chemists were killed by the inhalation of the poisonous fumes of this acid.² But so far as we are aware, there is no case of sodium fluorid poisoning on record. The toxicologic effects of the metallic fluorids were studied by Rabuteau,³ Müller,⁴ Tappeiner,⁵ Schulz,⁶ Hewelke,⁷ Siegfried⁸ and Schwyzer.⁹ Witthaus calls attention to the fact that notwithstanding its toxicity, sodium fluorid is used as a food preservative.

From the pharmacologic experiments it is clear that sodium fluorid is a general protoplasmic poison. It is strongly irritant to mucous membranes and usually produces corrosions. Owing to the fact that the fluorid ion precipitates soluble calcium salts, its toxic effect is similar to that of the oxalate ion. In mammals it causes salivation, gastro-enteritis, dyspnea, convulsions and stoppage of respiration and heart.¹⁰ The fluorids on administration are deposited in the bones, which usually become white and brittle and contain crystals of calcium fluorid. It is well to call attention to the fact that fluorin, in very small traces, is a normal constituent of bone, teeth, milk, eggs, etc.¹¹

Intravenous injections of from 0.05 to 0.1 gm. sodium fluorid per kilogram of dog are fatal. A 0.03 per cent. solution of this fluorid will destroy epithelium. A frog will be killed by 0.040 gm. of this salt.

The following is the history of a case of sodium fluorid poisoning:

V. R., girl, aged 19 months, swallowed some of "Peterman's Roach Food" which, according to the label on the box, contains from 40 to 50 per cent. of sodium fluorid. The child immediately began to feel bad and vomited. The child had partaken of food just before she swallowed the poison. The pulse was normal and the temperature normal. A tube was inserted into the stomach of the child and the stomach was washed repeatedly with a solution of lime water and calcium chlorid. About a gallon of lime water and calcium chlorid was used in this operation. It was noticed that there was some bleeding from the gums when the tube was inserted.

The child seemed to feel well after the stomach wash. A specimen of urine collected the following day showed a trace of acetone, but no albumin or casts. A few white blood cells were found. Seventy-two hours later the urine showed albumin, a few granular casts and some red and white blood cells. Fluorin was present in both specimens of urine, which were evaporated and tested according to the method given by Witthaus.

On the third day the temperature rose to 102 F., and the pulse became rapid. Analysis of a catheterized specimen of urine showed no albumin. A few white blood cells and a trace of acetone were present. This specimen did not contain any fluorin. The blood count revealed: hemoglobin,

* From the Biochemical Department of the Pathological and Research Laboratories of the Western Pennsylvania Hospital.

1. King: *Tr. Path. Soc.*, London, 1873, xxiv, 98; Stimson: *Brit. Med. Jour.*, 1899, ii, 1145, 1376.

2. Witthaus: *Manual of Toxicology*, New York, William Wood & Co., 1911, p. 309.

3. Rabuteau: *Thèse de Paris*, 1867.

4. Müller: *Dissertation*, Greifswald, 1889.

5. Tappeiner: *Arch. f. exper. Path. u. Pharmacol.*, 1890, xxvii, 108.

6. Schulz: *Arch. f. exper. Path. u. Pharmacol.*, 1889, xxv, 326.

7. Hewelke: *Deutsch. med. Wchnschr.*, 1890, xxii, 477.

8. Siegfried: *Arch. internat. de pharmacod.*, 1901, ix, 225.

9. Schwyzer: *Jour. Med. Research*, 1903, x, 301.

10. Sollmann: *Text Book of Pharmacology*, 1913, p. 573.

11. Jodlbauer: *Ztschr. f. Biol.*, 1901, v, 487.

74 per cent.; red blood cells, 4,000,000; white blood cells, 15,200; polynuclears, 69 per cent.; lymphocytes, 22 per cent.; large mononuclears, 8 per cent.; eosinophils, 1 per cent. Microcytes were present. High colonic irrigation was resorted to, and the patient was given a dose of castor oil. The temperature fell on the following day and the pulse became normal. On the fourth day a specimen of urine was collected. It was acid in reaction, contained a trace of albumin, and gave quite a heavy acetone reaction. Microscopically a few red and white blood cells were present, but no casts. The urine did not reduce Fehling's solution, and did not react positively for diacetic acid. No fluorin could be demonstrated in this specimen. Since that time, examinations of a number of specimens of urine showed no albumin and but a very faint trace of acetone. On the eighth day the child was taken home from the hospital, to all appearances entirely well.

GANGRENOUS APPENDICITIS ON THE LEFT SIDE

A CASE OF VISCERAL TRANSPOSITION

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Gangrenous appendicitis occurring with visceral transposition is so uncommon that it is thought well to report the following case:

A married woman, aged 18, who had had no pregnancies and whose previous history was negative, had irregular menses during the past year. Jan. 30, 1915, she took a course of calomel. Next day she felt well. At 11 p. m. she was awakened by a sudden, severe abdominal pain, of a cramping, colicky nature, in the midabdomen, which continued all night and was accompanied by vomiting. Pain continued all next day, but became localized in the left iliac region and there remained constant with occasional vomiting. She took castor oil and applied hot applications with no relief.

February 2 she was driven to town. The trip took four hours. She vomited once and suffered much. Examination forty hours after onset revealed a medium-sized woman, plainly in severe pain; she leaned to the left side and kept the left thigh flexed. The menses were two days overtime. Temperature was $99\frac{1}{2}$, pulse 120. The abdomen was full and tympanitic. The right side of the abdomen was not tender, and there was little or no muscle spasm. The patient was extremely tender and sensitive over the left side of the abdomen; percussion was almost unbearable; muscle spasm was pronounced. The patient complained of constant pain over the left lower abdomen. Urination and urine were normal.

The uterus was in second degree retroversion, a little large and softer than normal. There was no discoloration of the vaginal membranes. The cervix was soft. Deep palpation of the right adnexal region was not painful. There was some pain in the left adnexal region, and suspicion of a mass felt high up on left side. The breasts were normal.

A diagnosis of probable tubal gestation was made, and operation advised. This was not accepted till next morning, when, owing to increase in pain and fever, and after consultation, operation was accepted and performed fifty-eight hours after onset.

A median incision disclosed the intestines distended and a mass in the left iliac region and no sigmoid found there. The sigmoid was found in the right side and entered the pelvis from that side. The ascending colon and ileum were on the left side, and a gangrenous and perforated appendix lay under the cecum on the pelvic brim. The great omentum surrounded the cecum and appendix and was gangrenous, forming a mass the size of a goose egg. Peritonitis was already present. The appendix, greenish-black and partly liquefied, was removed and drainage inserted. No exploration of the upper abdomen was made, but later by palpation the liver was located on the left side and the apex beat of the heart was in the right fourth interspace. The case, therefore, was one of complete situs transversus. No pregnancy existed. Death occurred fifteen days later from peritonitis.

Special Article

PRACTICAL PHARMACOLOGY*

(Continued from page 1913)

XXIII

EVACUANTS—(Continued)

3. EVACUANTS ACTING ON THE SMALL AND LARGE INTESTINES

THE MERCURIALS

The insoluble purgative mercurials, including calomel (mild mercurous chlorid), mass of mercury, (blue mass), and mercury with chalk (gray powder), have little action on the stomach unless their passage through it is delayed; their action on the intestine is mildly irritant, increasing peristalsis directly, and possibly increasing the secretion of the intestinal glands, thereby promoting peristalsis indirectly and causing soft stools with little or no pain, or with larger doses causing watery stools with some colic.

Only a small part of the dose of a mercurial is absorbed when evacuation is induced promptly, but when there is interference with the movement of the intestinal contents the mercurials are absorbed. If there is great interference with the passage of the intestinal contents after a large dose of calomel, or other mercurial salt, diuresis is induced. This interference is sometimes secured by administering opium or morphin with small doses of calomel, but if it occurs after large doses toxic symptoms referable to the irritant action of mercury on the kidneys may result.

Other steps should be taken to induce purgation should one of the mercurials fail to act, except when small doses are taken for their diuretic action.

The mercurials were long supposed to increase the secretion of bile, but this error arose from the fact that they protect the bile from decomposition by the intestinal flora, and prevent its absorption by hastening its passage through the intestines, so that it appears in the stools, if the dose be large enough to cause liquid evacuations. The green color of the stools in such cases is sometimes attributed to bile, but it is probably due to the formation of a sulphid of mercury.

There is much uncertainty concerning the reputed antiseptic action of calomel in the intestine. It does not destroy the bacteria in all probability, or greatly inhibit their growth during their stay in the intestine, but great numbers are removed during the purgation. It is a matter of common experience, however, that the condition commonly called "biliousness" (which does not require further description) is often relieved far more effectually even by a merely laxative dose of calomel, than by other evacuants which act as promptly as calomel. On the other hand, many persons find that headaches which are attributed to the products of intestinal putrefaction resulting from bacterial activity, are relieved quite as well by a quickly acting saline purge as by calomel. This does not disprove the claim that calomel has an especial action in the condition mentioned, for obviously, an active cathartic which sweeps out the intestinal contents with a large amount of water in a very short time must remove undigested and putrefying food and enormous numbers of bac-

* This is the twenty-third of a series of articles on useful drugs—on practical pharmacology for the general practitioner. As soon as completed, these articles, elaborated by additional subjects, will be published in book form.

teria, and thus give relief, but stress is laid on the fact that a mildly acting dose of calomel or other mercurial, which causes only a soft, not liquid stool, gives decided relief from certain forms of headaches which are not relieved by vegetable laxatives.

Calomel often fails to relieve the diarrhea of infants which is caused by bacterial activity, but this does not prove that calomel is not bactericidal. The hypersecretion of mucus in such conditions affords excellent opportunities for the multiplication of bacteria after the calomel has passed through the intestine, and it is not feasible to keep the entire intestinal canal supplied with the drug, since so much would have to be used that systemic poisoning would ensue.¹

Calomel is more useful in preventing the development of the more severe symptoms when taken in time, than in curing them after full development.

Mercury with chalk is less irritating than calomel; the chalk is said to interfere with peristalsis sometimes.

Calomel has little action on the uterus and is therefore not contraindicated in pregnancy. The action of blue mass is much like that of mercury and chalk.

THERAPEUTICS

The therapeutic indications for the use of the mercurial purgatives is sufficiently indicated in the discussion of their actions. Calomel, blue mass or mercury with chalk may be used when there is need for a mild laxative, or in somewhat larger doses when a cathartic is required. Headache due to intestinal putrefaction, the condition called "biliousness," putrefactive diarrhea, and in fact any condition attended with intestinal putrefaction, may serve as an indication for one of the mercurial purgatives unless there is a specific contraindication for their use.

DOSAGE

Calomel was used formerly in enormous doses for a variety of conditions and salivation was a common result, but with a more rational and more limited use of calomel this condition is now rare.

As a result of the reaction following the use of such large doses of calomel physicians went almost to an opposite extreme, and minute, but frequently repeated doses came into favor. If one desires to use such small doses from 3 to 5 mg. ($\frac{1}{20}$ to $\frac{1}{10}$ grain) may be given every fifteen minutes until ten doses are taken. This method of administration sometimes induces nausea without any apparent advantage in the action, but it is possible that it secures a more prolonged, or more frequently repeated, antiseptic action in the intestine.

A dose of from 30 to 60 mg. ($\frac{1}{2}$ to 1 grain) will often act as a laxative after from eight to twelve hours, but it is preferable to give a saline laxative about four to six hours after administering the calomel unless purgation has taken place. Doses of from 0.15 to 0.30 gm. ($2\frac{1}{2}$ to 5 grains) of calomel induce severe purgation with copious watery stools attended with severe griping and a considerable degree of nausea, but such doses have little advantage over smaller doses followed by a saline purgative which causes an equally active purgation with much less discomfort.

From 8 to 15 mg. ($\frac{1}{8}$ to $\frac{1}{4}$ grain) of calomel given to a child at the beginning of an attack of diarrhea, and followed by doses of 5 mg. ($\frac{1}{10}$ grain) twice a day for several days, will often avert more serious symptoms.

It is probable that doses of calomel larger than 0.12 gm. (2 grains) are never required for an adult; should this fail to cause purgation dependence should be placed on other evacuants, particularly the salines.

Sodium bicarbonate is commonly added to calomel under the mistaken idea that it is necessary to combine an alkali with the mercurous salt to prevent its conversion into a mercuric salt by the gastric juice. The amount of sodium bicarbonate usually employed is wholly inadequate to neutralize more than a small part of the gastric juice in the stomach, and no such change takes place when calomel is subjected to the action of the gastric juice without neutralization.

Mass of mercury or mercury with chalk may be given in doses of 0.25 gm. (4 grains).*

SALINE EVACUANTS

When a concentrated solution of one of the slightly diffusible salts is taken into the stomach it becomes diluted with the gastric secretion, or, if the stomach was previously empty, it withdraws fluid from the cells of the stomach, causing irritation, with nausea and vomiting at times.

The rate at which this dilution in the stomach occurs in the absence of a sufficient amount of fluid previously present, will depend to a considerable degree on the relative amount of fluid in the blood and tissues. If they contain an abundance of water, secretion will be active as a rule, and when the solution of the salt has become fairly dilute it will pass into the intestine, but if the blood and tissues contain relatively little water gastric secretion is slow and nausea and vomiting may result. This is best illustrated by the protocols of two laboratory experiments (hitherto unpublished).

Two dogs, A. and B., received an equal amount of sodium sulphate. Dog A. received the salt in concentrated solution after having been deprived of water for twenty-four hours, and vomited within about five minutes; he even refused water owing to nausea, but when enough water was passed through a tube into his stomach to dilute the salt somewhat, he drank water almost immediately. Dog B. was given the same amount of salt in dilute solution after having had the usual allowance of water; he showed no signs of nausea, and ate food at once (showing absence of nausea).

When a solution of salt has passed into the intestine it retains its water of solution until its concentration has been so reduced as to be approximately equal to that of the blood, the distention of the intestine by the fluid causing peristalsis, the action being exerted in the small and large intestine.

The salts of this group are not absolutely non-absorbable, and when peristalsis is prevented by any means the solutions may be absorbed into the circulation completely. If the absorption takes place, as it always does to some slight extent, the salt is excreted by the kidney, and it may induce diuresis if the absorption has been sufficiently rapid, for the renal epithelium, in marked contrast to that of the intestine, is readily permeable to most of these salts.

Occasionally, large doses of magnesium sulphate have been absorbed in pathologic conditions of the bowel more rapidly than they could be eliminated by the kidney, and have given rise to symptoms of poisoning, and in a few instances death has resulted, but this accident is not to be feared except when obstruction of the intestine exists, and, of course, no purgative should be given in such conditions.

1. For a discussion of the subject of intestinal antiseptics see Harris, Norman M.: Intestinal Antisepsis, THE JOURNAL A. M. A., Oct. 12, 1912, p. 1344.

* Owing to lack of space the materia medica of this group is omitted from THE JOURNAL. It will be included when this series is published in book form.

When magnesium sulphate (Epsom salt) is absorbed rapidly, or is injected intravenously, in sufficient amounts, it depresses the nervous system and induces complete narcosis with muscular relaxation. The depressant action following the subcutaneous injection is now being utilized in the treatment of the chronic form of tetanus with reported success. The absorption from the intestine is probably too slow in any case to induce serious poisoning unless the kidneys are diseased or marked depression of the central nervous system previously exists. The other purgative salts are devoid of toxic actions after absorption. Magnesium citrate should be open to the same objection as the sulphate, but no cases of poisoning have been reported after its use, so far as we are aware.

The precise mechanism of the purgation induced by these salts is not understood fully, but there is no reason to doubt that their action results largely from their capacity for retaining water and thus distending the bowel. This also explains why concentrated solutions require so much longer time than dilute before causing purgation, and twenty hours may elapse before their effect is induced, whereas dilute solutions are commonly effective within three hours.

The purgative salts have a disagreeably bitter taste, and not infrequently concentrated solutions are taken in order to lessen the time required to drink them; when they are taken in this way a glass of water should be taken immediately to dilute them in the stomach, unless the removal of an excess of water from the tissues is the object in view, in which case concentrated solutions are usually employed.

It is probable that moderately dilute solutions would be more serviceable in such cases than the concentrated ones commonly used. The amount of fluid which can be removed by purgation is very much greater than that required for the moderate dilution of the salt, and the absence of gastric disturbance and the much more rapid effect of the dilute solutions suggest that they might be employed even in dropsical conditions.

Magnesium sulphate is partly converted into carbonate in the intestine, and the liberated sulphuric acid combines with the alkalis which are absorbed and excreted in the urine; thus depriving the body of them. This becomes a matter of importance when the salt is administered continuously for some time, and it is customary in such cases to administer sodium bicarbonate to make up the deficiency. This loss of alkali does not occur with the use of sodium sulphate or the other purgative salts.

The administration of the sulphates (Epsom salt or sodium sulphate) is followed by the formation of some hydrogen sulphid in the small intestine, and this may give rise to some discomfort, with rumbling.

The insoluble magnesium carbonate and the oxid, or calcined magnesia, are partly converted in the stomach into the soluble chlorid, and in the small intestine partly into the soluble bicarbonate. Should they fail to undergo the change they do not cause purgation, and an accumulation of the insoluble carbonate may occur after large doses and cause intestinal obstruction.

Magnesium oxid has an advantage over the carbonate in that it does not yield carbon dioxide gas when neutralized in the stomach. The oxid and carbonate have the advantage over the soluble salts of this group, being tasteless, and requiring a less bulky dose.

Potassium citrate and bitartrate are absorbed somewhat more rapidly than the other purgative salts, so

that small doses induce diuresis without purgation, while large doses cause both, but at best they are only mild laxatives, rarely giving rise to watery stools, but they are active diuretics.

Sodium chlorid or the ordinary table salt in proper dilution is also useful as a laxative and may at times advantageously replace other objectionably bitter salines. The dose, about an even teaspoonful (from 4 to 5 gm. or about 60 grains), should be dissolved in half a liter (1 pint) or more of water and taken on an empty stomach.

Various acid fruits are mildly laxative, partly because of the citric and malic acids which form citrates and malates in the intestine, and partly because of their cellulose, pectin and sugars which are in part indigestible and absorb liquid, thus increasing the bulk of the intestinal contents in much the same way that the purgative salts do.

THERAPEUTIC USES

The uses of the saline laxatives are indicated largely in the discussion of their actions. They are useful when for any reason a rapid evacuation of the bowels is indicated, as in poisoning by slowly absorbable substances which cannot be removed from the stomach; to remove bacteria and fermenting masses of food; to remove dropsical effusions, and in simple constipation.

They have an especial usefulness in that they do not cause irritation when used in dilute solutions.

This would be an appropriate place to discuss the use of purgative mineral waters were it not for the fact that there is no obvious advantage in their use. There can be little doubt that the extraordinary reputation enjoyed by many of these waters depends on the success attained in the treatment of patients at the springs, where special attention is given to all the habits of life, and where only the most pleasant conditions obtain. There is no satisfactory evidence that the ordinary purgative mineral waters have any important action not possessed by a simple solution of the same salts made artificially, and, in fact, many of the mineral purgative waters are more or less artificial, since some are mixtures of waters from different springs while others consist of evaporated spring water, and during the process of evaporation changes occur in the salts present.

One especial advantage which natural mineral waters have over the solutions of purgative salts as they are too often taken is that they are very dilute, and the patient is thus required to take a fairly large amount of water with them. This advantage can be secured so easily, however, by attention to the proper dilution of purgative salts that it is not sufficient to justify the expense of the natural waters.

Magnesium sulphate is largely used in obesity because the magnesium ion combines in part in the intestine with fatty acids which are thus prevented from being absorbed. The tasteless magnesium oxid and carbonate are often used as laxatives in children, especially when it is desired to neutralize the hyperacidity of the stomach.

The normal sodium phosphate is alkaline in reaction and when it is desired to increase the acidity of the urine the acid phosphate, NaH_2PO_4 , is to be preferred, or the official di-sodium phosphate may be used adding about three times as much dilute phosphoric acid to it.

A concentrated solution of magnesium sulphate is used as a local application in inflammatory conditions.

DOSAGE

The amount of the several salines required to accomplish a given purpose depends largely on accompanying factors, such as the degree of dilution and the susceptibility of the individual, which vary considerably.

Epsom salt or magnesium sulphate, the effervescent preparation of this substance and sodium sulphate, or Glauber's salt, are usually given in doses of 16 gm. (240 grains) or more, dissolved in from one-half to a full tumbler of cold water. Potassium and sodium tartrate, or Rochelle salt, is given in doses of 8 gm. (120 grains). Sodium chlorid, or ordinary "table salt," and sodium phosphate are given in doses of approximately 4 gm. (60 grains), well diluted with water. The effervescent preparation of sodium phosphate is usually given in double the dose of the simple salt or about 8 gm. (120 grains).

Magnesium oxid—heavy or light—is given in doses of 2 gm. (30 grains) and the carbonate in somewhat larger amounts, 3 gm. (or 45 grains). Because of the fact that these two substances are insoluble in water they must be administered in the form of mixtures with water or in the case of the heavy magnesium oxid the dry powder can be placed on the tongue and washed down with cold water.

The solution of magnesium citrate is usually dispensed in bottles sufficient for one dose which is drunk as an effervescing draught. Potassium bitartrate, one of the more agreeable of the salines because of its acid taste, is given in doses of 2 gm. (30 grains) mixed with water. Potassium citrate may be given in about the same dose 2 gm. (30 grains) and the effervescent preparation in double this dose—4 gm. (60 grains).

The administration of the salines is somewhat simplified in that their action is enhanced by the presence of water and that, whether water-soluble or not, they are preferably given with copious draughts of water.

ALKALOIDAL EVACUANTS

Physostigmin

It is apparent from the discussion of the physiology of the gastro-intestinal movements that any drug which stimulates the parasympathetic nerves (vagus and erigens) will cause intestinal peristalsis, or contraction of the muscles of the intestinal walls.

We have a number of agents which stimulate the endings of these nerves, or which increase their excitability to the normal stimuli which reach them through the blood, but these drugs have other actions which usually overshadow their actions on the intestine and prevent their use as evacuants.

Pilocarpin and physostigmin stimulate the vagus and erigens, and induce active movements, not only in the intestine but also in the stomach and uterus. Physostigmin probably acts directly on the smooth muscle of the intestine rendering it hyperexcitable to normal stimuli, and thereby promoting peristalsis. Large doses cause tonic ring-like contractions of the intestine and interfere with the passage of the contents.

Large doses of physostigmin cause violent uterine contractions which may be tonic in character.

There seems to be little reason for the use of any of the pharmaceutic preparations of physostigma, since they contain eseridin and calabar in variable amounts in addition to physostigmin. Eseridin resembles physostigmin in its physiologic actions, but it is weaker, and calabar has a strychnin-like action.

Physostigmin sulphate is hygroscopic and the solution decomposes rapidly with the formation of a ruby-red substance known as red resin. The salicylate is soluble in about 150 parts of water. It is somewhat more stable than the sulphate in solution but it also undergoes the same decomposition.

THERAPEUTIC USES

The actions of physostigmin on the intestine are usually overshadowed by its effects on the central nervous system, and it is far from satisfactory as an evacuant, its use as such appearing to depend rather on a forlorn hope in the search for a dependable purgative after abdominal operations. The use in man has been encouraged perhaps by the observation that it is a very much more valuable purgative for the herbivora.

The indication for which physostigmin is used as a purgative is atony of the intestine. It should not be used in the presence of inflammation of the intestine or when there is mechanical obstruction. The local and systemic actions of physostigmin are counteracted by atropin in doses of 1 mg. ($\frac{1}{60}$ grain), which may be repeated once or twice if necessary.

DOSAGE

Physostigmin salicylate is used as an evacuant in doses of 1 mg. ($\frac{1}{60}$ grain) and doses of even 2 mg. ($\frac{1}{30}$ grain) are sometimes given, but Sollmann states that such doses are somewhat dangerous, this being especially true in the presence of depression of the central nervous system.

Atropin; Strychnin

Atropin and strychnin are never used alone as evacuants, but both of them are added to other substances which induce purgation, and atropin is used to relieve spasm of the intestine which interferes with the passage of the intestinal contents.

Small doses of atropin are said to stimulate Auerbach's plexus, while large doses depress it, and all doses which have any effect depress the parasympathetic (vagus and erigens) endings in the intestine. This is of benefit when overstimulation causes tonic contraction instead of normal peristaltic waves.

There is a possible disadvantage in the long-continued use of even very small doses of atropin which is generally overlooked or disregarded, but which is worth considering. Atropin depresses the vagus endings in all of the organs which it supplies, and even small doses tend to abolish those parts of the gastric, pancreatic and biliary secretions which are under nervous control. It is certain that the minute amount of atropin ($\frac{1}{10}$ mg.— $\frac{1}{650}$ grain) commonly used with aloin in laxative pills has no very pronounced action on these secretions when a single dose is taken, but, on the other hand, we have no knowledge of the effects of its long-continued use, and in the absence of definite advantages it would be better to omit it when laxative pills are to be taken for prolonged periods.

Strychnin is used in doses of 1 mg. ($\frac{1}{60}$ grain), which are correspondingly larger than those of atropin, and it seems to be useful through its stimulation of Auerbach's plexus.

Extremely small doses of nicotin stimulate, large doses paralyze, the ganglia of the enteric system, and it is a matter of common observation that smoking often promotes peristalsis. Nicotin is not used therapeutically, however, for this purpose.

(To be continued)

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A TEST OF PHYSICAL FITNESS

The conservation of national vitality has become a popular theme in this country. It is a part of a still greater problem which is designated as national efficiency. The old fatalistic belief in the inevitable occurrence of ill health and early death in certain instances has given way to the rapidly growing conviction that premature death and disease are for the most part avoidable and that it is within the power of man to rid himself of many of the enemies to comfort and good health. The aim of hygiene is to approximate, with respect to health, the ideal of a life free from illness and disability of every kind.

In this effort to bring about a maximum fitness of mankind, many agencies are being brought into play. Our physical environment is being subjected to closer scrutiny; and by means of private and public regulation, a protection is frequently rendered to mankind in ways more important than that provided by the work of police or fire departments. The abatement of nuisances, inspection systems, regulation of labor and trades—these are a few reminders of the vigorous attempts at the conservation of health through public hygiene. To this may be added the improvement of the social environment and the effects of what has been called semipublic hygiene, that is, the disciplines relating to institutions and the medical profession. The diffusion of knowledge regarding the laws of health and its control, the care of individuals who are for some reason unfitted to adjust themselves to the needs of the day, along with numerous other potential agencies for bringing about health, are illustrative of the prophylactic tendencies of the times. It is being found that "philanthropy and profit are not always antagonistic." Finally, public hygiene is receiving the support of personal hygiene, without which it must remain ineffective. Here nutrition, fresh air, exercise and rest, sports, and the combat with the social diseases find their place. Some one has well remarked that the present world-wide interest in personal hygiene and physical education is not due to any startling discoveries, but to the rediscovery of the importance of truths long insisted on by the medical profession. The

knowledge of the value of fresh air and good food is old. It is the application which is new.

A healthy organism calls into play almost innumerable functions, both physical and mental. How to measure the efficiency with which they are carried out and the fitness of the individual to undertake or endure them has become a problem of the day. Mental capacity has been investigated by a variety of standards, some of which have gradually become widely accepted. As an instance of how the quantity and quality of intellectual product per unit of time can be studied, we may refer to such psychologic tests as the naming of colors, cancellation, addition, mental multiplication, typewriting, grading of various performances, and exercises in English composition. The ability to accomplish set tasks of this sort varies with environmental as well as personal and hereditary conditions. The physical working capacity of the individual can likewise be measured by a variety of apparatus designed to test muscular strength.

The fitness of man involves something more than the ability to do sums or lift dumb-bells. The propaganda for health and increased vitality obviously calls for some added mode of measuring the results of supposed benefits and menaces, long-continued activities, such as physical training, gymnastics, play, athletics and good ventilation on the one hand, and fatigue-producing activities on the other. The record of the incidence of disease, the school record, the blood count, etc., are not a sufficient criterion. Among the added tests which are intended to show the beneficial or depressive effect of various conditions supposed to affect health is the "blood ptosis test."¹ This has been designed by Dr. C. Ward Crampton of the Bureau of Educational Hygiene in the New York City Department of Education to measure a function easily wearied and damaged by unhygienic influences. It is based on the fact that the vasomotor control of the splanchnic area in man experiences a change of adjustment when the body is moved from the horizontal to the upright standing position. According to Crampton, the efficiency of this control is measured by placing the subject in a horizontal position and taking the systolic pressure in the brachial artery. The subject is then required to stand, and without removal of the cuff, the blood pressure is taken in a vertical position. In a perfectly strong and vigorous subject the splanchnic vasotone will increase and the blood pressure will be found raised about 10 millimeters of mercury. In an individual weakened by dissipation, overwork, lack of sleep, or by the incidence of disease, the blood pressure will tend not to rise but to fall. It was found that in the vigorous subjects the heart rate did not increase on standing, and in the wearied subjects it increases as much as forty-four beats per minute. It was further found that

1. Crampton, C. W.: The Blood Ptosis Test and Its Use in Experimental Work in Hygiene, *Proc. Soc. Exper. Biol. and Med.*, 1915, xii, 119.

this difference varied with the blood-pressure differences and in some cases took the place of the blood-pressure variation. In other words, the same subject under the same conditions would show a weakness sometimes by a decrease in blood pressure, and at other times by an increase in heart rate, and vice versa. After further observation, it was determined that a decrease of 1 millimeter of mercury had a value of an increase in heart rate of approximately two.

By taking into account both of these features and adjusting the changes in heart rate into terms of corresponding blood-pressure variations, Crampton has devised a percentage scale of vasomotor tone ratings which have been put to the test by numerous observers. Experience already shows that the measurement of the changes in the performance of the heart and the vasomotor system in different postures may reveal damages before subjective or objective symptoms are apparent. For example, the New York State Commission on Ventilation has recently reported that a very high room temperature, such as 86 F., with 80 per cent. relative humidity, produces a marked fall in the Crampton value of subjects.² The use of fans afforded some improvement. The new test obviously does not measure numerous important features, such as the structural condition of the heart; yet it seems likely to have considerable value in furnishing added data for the estimation of what we may, for the want of a better term, call physical fitness.

KAOLIN IN THE TREATMENT OF BACTERIA CARRIERS

Aluminum silicate, kaolinum, fuller's earth and bolus alba are various names under which the essentially same substance is familiar to physicians. In 1906, Stumpf of Wurzburg published a detailed report of his experience with it in cholera under the title "A Reliable Method of Treating Asiatic Cholera and Severe Infectious Cholera Morbus, and the Importance of Bolus Alba (Kaolin) in the Treatment of Certain Bacterial Infections." His attention was early attracted to the possible disinfecting virtues of clay by his observation that cadavers exhumed after being buried in clay soil were always in a remarkable state of preservation in comparison with those in other soil. At that time his experience with the kaolin covered eight years. He believed that it owed its efficiency in bacterial infections to its action in depriving the bacteria of a suitable culture medium while mechanically burying them alive, separating them from the mucosa and other tissues by a protecting, comparatively impermeable coating. He applied it as a remedy to extensive septic wounds, putrid leg ulcers and the like. Stumpf experimented on himself to determine the harmlessness of the finely pulverized kaolin taken internally in large

amounts, and found that it was well tolerated. He administered it in cases of cholera, and found that colics and tendency to vomit were at once arrested. The dose given was 125 gm. of the most finely pulverized kaolin poured on top of half a tumbler of water. After the powder sank to the bottom of the glass, it was thoroughly stirred in with a spoon, and the whole amount taken at once or within a few minutes. After an interval of three hours, the same dose was repeated. Infants were given proportionately smaller doses.

More recently, kaolin has been given as a gastric astringent; it has been much used in the treatment of cholera and dysentery, and its harmlessness has suggested its use as a substitute for bismuth in taking Roentgen-ray pictures of the gastro-intestinal tract when bismuth cannot be tolerated. In the present European war, the physicians in the German and Austrian armies are using large amounts of kaolin to combat dysentery and cholera, and according to Stumpf,¹ the microscopic findings in the feces of the patients treated fully warrant its use. Wolff-Eisner,² from his experience in the war, believes that kaolin has been triumphant in the treatment of cholera. He tabulates twenty-five cases, showing almost immediate stopping of diarrhea in dysentery and typhoid after a dose of a double spoonful each of kaolin and charcoal had been taken from one to three times a day. In severer cases, the proportion of kaolin was doubled. He regards the kaolin-charcoal treatment as a kind of immunotherapy, basing his belief on Hofmeister's dictum that all the phenomena of immunity are colloid chemical reactions. He believes that the kaolin binds toxins which are beyond the reach of serotherapy. The method was applied to healthy carriers and was apparently successful, as no bacilli could be found in the stools after the treatment was administered.

Von Willuki,³ encouraged by the use of kaolin in the treatment of cholera and dysentery by the methods advised by Stumpf, has used it in two cases of paratyphoid bacteria carriers. In both cases, following treatment with bolus alba, the organisms quickly disappeared from the stools.

Of special interest, therefore, is the note elsewhere in this issue⁴ by Hektoen and Rappaport. By insufflating kaolin powder in the nose, they are able to remove the diphtheria organism as well as streptococci from the nasal mucous membranes. The swallowing of the powder is followed apparently by a rapid disappearance of the diphtheria organism from the throat. These results are significant.

1. Stumpf, J.: Bolus Alba in Diarrhea, Dysentery and Cholera, München. med. Wchnschr., 1914, lxi, No. 40.

2. Wolff-Eisner: Kaolin Charcoal Treatment of Diarrheic Processes, Therap. d. Gengenw., 1915, xvii, 92.

3. Von Willuki: Bolus Alba in Paratyphoid, München. med. Wchnschr., 1914, lxi, 2356.

4. Hektoen, L., and Rappaport, B.: The Use of Kaolin to Remove Bacteria from the Nose and Throat, THE JOURNAL A. M. A., this issue, p. 1985.

2. Some Results of the First Year's Work of the New York State Commission on Ventilation, Am. Jour. Pub. Health, 1915, v, 101.

THE COMPOSITION OF DIARRHEAL STOOLS

A diarrheal stool is an obvious symptom of some disturbance in the functions of the organism. How serious or significant the diarrhea may be usually depends on a number of attending circumstances. One can easily postulate a variety of conditions, each of which might lead to a copious or abnormal evacuation of the bowel, yet be of quite unlike moment to the organism in which they occur. A nervous reaction may thus lead to an accelerated peristalsis and result in an increased defecation without further import; the presence of toxic micro-organisms in the intestine may provoke undue secretion followed by abundant evacuations and loss of body constituents which would ordinarily be retained or reabsorbed; abnormal digestive functions with attendant putrefaction and fermentation may produce a diarrhea with the enforced loss of what would be nutrient products under normal alimentary conditions.

It seems almost unbelievable that so little is known respecting the relation of the chemical composition of abnormal stools to the general nutritive welfare of the individual. The feces are frequently the objects of careful scrutiny macroscopically and microscopically with the object of discovering some offensive invader of the alimentary canal or some harmful foreign substance. Professor Holt and his collaborators¹ at the Babies' Hospital and the Rockefeller Institute in New York have lately called attention to the paucity of data regarding the diarrheal stools of infants in comparison with those which were normal.

Superficially, one might assume that very loose stools differ from normal ones only in that they contain more water. The new investigations¹ show how far from correct such a haphazard generalization may be. Not only do diarrheal stools contain a large amount of water, but also the quantity of dry matter lost daily is much greater than that lost in stools of normal consistency. The fats in particular vary in most cases directly with the amount of water leaving by the bowel. Thus, on an average, the loss of fatty matter in the normal feces of infants at the Babies' Hospital was 12 per cent.; in the loose stools it reached 40 per cent. The nitrogenous substance also may reach an amount equal to two and a half times that lost in normal stools. A considerable amount of it is presumably not derived from the food, but represents portions drained away from the body in the intestinal secretions. This is attended by a withdrawal of inorganic salts from the body under conditions in which it might never be suspected but for the evidence secured by chemical analysis.

There are further facts which point to suggestions in the direction of dietotherapy. An equivalent of over

80 per cent. of the intake of salts in the diet may disappear with diarrheal feces. This may include, in individual cases, much of the calcium and all of the magnesium of the diet. Chlorin, potassium and sodium are rarely found in the stools of the healthy; in diarrheas they make their appearance. Holt and his co-workers have recorded negative balances for some of these elements, that is, losses from the body itself.

These facts are not entirely new in the domain of clinical chemistry; but they deserve emphasis here because practitioners too often fail to take them into account in their treatment. It is, as the New York pediatricists point out, not only water, but some of the inorganic salts that need to be replaced when an infant has been depleted by a severe and prolonged diarrheal attack.

RECENT METHODS FOR THE TREATMENT OF SEWAGE BY "ACTIVATED SLUDGE"

Experiments on an entirely new method of sewage treatment have been made during the past year in England, and are being continued in both England and the United States. The new process is known as the "activated sludge process" of sewage oxidation and sedimentation. Its significance may be made clear by a brief description of a typical sewage treatment plant making use of most of the advances in the art prior to the advent of the activated sludge experiments.

The city of Baltimore has constructed and is now operating in part one of the largest sewage treatment plants in the United States. Roughly, this plant includes about 6 acres of preliminary sedimentation tanks, varying from 13 to 25 feet deep; 30 acres of coarse stone sprinkling filters, about 8½ feet deep, and about 3 acres of final sedimentation tanks. The preliminary sedimentation tanks remove most of the settleable solids from the sewage, the sprinkling filters partially oxidize the remaining organic constituents of the preliminary tank effluent, and the final sedimentation tanks remove most of the oxidized settleable solids from the sprinkling filter effluent. In a general way, the object sought in the new activated sludge experiments is to do in a single set of tanks that which is now being accomplished by the sequence of preliminary tanks, oxidation filters and final tanks. The realization of this object would mean that proposed new sewage treatment plants could eliminate the sprinkling filters and the final tanks. It would also mean that existing plants could greatly increase their present capacity for future population at a relatively low increase in cost.

The English experiments on activated sludge, and some of the proposed American investigations have been outlined in a recent publication.¹ In Manchester,

1. Holt, L. E.; Courtney, Angelia M., and Fales, Helen L.: The Chemical Composition of Diarrheal as Compared with Normal Stools in Infants, *Am. Jour. Dis. Child.*, March, 1915, p. 213.

1. *Engineering Record*, 1915, lxxi, 288, 521.

England, in 1913, partly at the suggestion of Dr. Gilbert J. Fowler, and partly on their own initiative, Messrs. Edward Ardern and W. T. Lockett began the series of experiments from which the new process has evolved. They found that in order to nitrify completely an average sample of Manchester sewage, it was necessary to apply continuous aeration for five weeks. Experiences similar to this had caused many investigators in the past to give up the idea of tank aeration as being much beyond the economic limit. Ardern and Lockett, however, decanting the supernatant and retaining the oxidized sludge, added a further sample of crude sewage, and continued aerating. Nitrification of this second portion occurred in a much shorter period of time. Encouraged by this discovery, the experimenters continued the accumulation of larger amounts of oxidized sludge, and finally became convinced that the presence of such accumulation of sludge deposit "had the property of enormously increasing the purification effected by the simple aeration of sewage."

Some later experiments with a cask of 50 gallons' capacity showed that by four hours' aeration the free ammonia in Manchester sewage could be reduced from 34.6 parts per million to 2.1 parts per million, and the nitrates, expressed as NH_3 , increased from 0 to 16 parts per million. Subsequently, Melling and Duckworth made similar tests on a much larger outdoor scale and secured with three hours' aeration a reduction of free ammonia from 28.6 parts per million to 0.1 part per million, and an increase in nitrates + nitrites, expressed as N, from 1 part per million to 11.1 parts per million. These results are significant. Certainly the nitrification produced is ample to assure a thoroughly stable effluent.

This work, however, has all been on what is known as the "fill and draw" method of tank treatment, and the fill and draw method, as applied to the activated sludge process, consumes a large amount of hydraulic head, produces a low operation efficiency because it is an intermittent process and also necessitates periods of nonoxidation which possibly reduce the efficiency of the activated sludge. The importance, therefore, of translating the activated sludge process from the fill and draw to the continuous flow method, and of bringing the cost of operation, by this and other improvements, into the region of workable values, is obvious.

The "continuous flow" problem is the one on which attention seems to be most sharply focused at present in the current English and American experiments. In the United States, the Public Health Service is conducting, jointly with the Baltimore Sewerage Commission, experiments involving primarily a continuous flow type of tank. It is understood, also, that the Milwaukee Sewerage Commission is devoting some effort in this direction. The most important

result which will be determined by these experiments is, of course, the matter of annual cost per unit of population or per unit of sewage flow. This item will eventually decide whether the activated sludge process is to replace or to eliminate oxidation filters from the modern sewage treatment plant.

The problem of the treatment of sewage of growing communities, especially of those cities located on water courses used as a source of water supply, is one of vital importance to the public health. The great decrease in the cost of construction under the new system is so large that it is quite possible that without an increase in cost over the old methods, it may be found feasible by disinfection methods to render safe the final effluent for discharge into water courses.

WILLIAM WITHERING AND DIGITALIS

In a recent appreciation of the work of William Withering, Cushny¹ describes the way in which Withering introduced the scientific use of digitalis to the medical profession. In 1741, Withering was born in Shropshire, England; in 1762 he entered the University of Edinburgh, and graduated in 1766. He began practice at once in Stafford, became attracted to botany, and in 1776 published a "British Botany." In 1778 he published an article on scarlatina anginosa, and in 1785 a book which Cushny believes entitles Withering to lasting fame. The book is entitled "An Account of the Fox Glove and Some of Its Medical Uses; with Practical Remarks on Dropsy and Other Diseases." Previous to this period, digitalis is occasionally mentioned in medical literature, for example, as an external application in scrofula, and internally in phthisis. Since the time of publication of Withering's book, its action in dropsy and on the heart has been generally recognized.

Withering states that his attention was drawn to digitalis in 1775 by its use as an ingredient of a complex cure for dropsy. He accordingly prescribed it in his dispensary, at first as a decoction of the leaves, later as an infusion, and on some occasions as a powder. The doses prescribed were large, but they proved a sovereign remedy in the cases of dropsy which he reports. Its use quickly spread.

After ten years' trial of this new remedy, Withering published an account of his work. "The deliberation with which the discovery was brought before the world," according to Cushny, "gives a delightful impression of the easy life of the eighteenth century. Now we find a new remedy exploited after an experience of months," he says, "sometimes only of weeks. Perhaps a return to the old and more cautious method is too much to wish for, but I doubt if therapeutics would suffer from it."

1. Cushny, A. R.: William Withering, M.D., F.R.S., *Proc. Royal Soc. Med.*, 1915, viii, p. 85 of section on history of medicine.

Withering's book contains reports of 163 cases, in which he had prescribed the remedy himself, and a number of others in which his friends had used it at his suggestion. He used digitalis only as a diuretic, but seemed to realize that it acted on the heart, for he affirms that "it has power over the motion of the heart to a degree yet unobserved in any medicine, and that its power may be converted to salutary ends."

Withering began to have threatenings of pulmonary tuberculosis about 1780. In 1792 he tried the effect of a warm climate, spending the winter at Lisbon. He was not favorably impressed, however, with this place as a resort for tuberculosis. He states very strongly that "phthisis is infectious." Later he remained at his home during the winters, where he kept his library at a constant temperature of 65 F. by means of flues; the windows were double sashed, and every movement was avoided as far as possible. "This treatment," says Cushny, "is an interesting contrast to the open-air method of today." Osler, discussing these points, believes that the treatment was likely "not inappropriate for a patient in the third stage of tuberculosis."

Withering died in 1799, and was buried in the old church at his home at Edgbaston, which contains a monument inscribed with his name and encircled with *Witheringia*, and with the purple foxglove, the plants of which he wrote. He was a man of many interests: a chemist, a botanist and an antiquarian, but above all, a physician.

THE NATURE OF BACTERIA—AN EARLY AMERICAN VIEW

For many years in the earlier history of bacteriology the micro-organisms which are its subject-matter were claimed for both the animal and vegetable kingdoms by the workers in the different domains of science. To Ehrenberg,¹ the pioneer student of bacteria, who knew little else to do with them except to classify them, they were animalcules, "devoid of an intestine and without external organs." The power of movement with which many of these minute forms were endowed placed them outside of the possibility of a plant nature to the early observers. It was the more careful study of the lower fungi that first drew attention to the similarity between bacteria and these plant forms.

The current accounts of the development of our knowledge of the bacteria state that, with the possible exception of Dujardin, all observers up to 1852 had looked on bacteria as belonging to the animal kingdom. In that year Perty announced that of these minute organisms, some belong to the animal and some to the vegetable kingdom, while a certain number appeared to him to stand on the borderland between the two. It was, above all, the eminent botanist Ferdinand Cohn who, in 1854, insisted on the plant nature of these

micro-organisms. He remarked that the individuals grow and divide like plant cells; that they agree with these in structure, and particularly in the manner of fruit-forming; and that they pass through a series of intermediate steps into a higher class—that of the colorless algae. The studies of Naegeli as early as 1857 pointed in the same direction. In 1859 Davaine² also suggested the vegetal nature of the vibrio.

It has lately been asserted³ that priority in the matter of identifying micro-organisms as plant forms really belongs to a well-known American biologist, Joseph Leidy, who is today remembered in particular for his notable contributions to the science of paleontology. In a paper which he presented to the Philadelphia Academy of Natural Sciences in October, 1849, Leidy remarks how, on considering that the conditions essential to vegetable growth are the same as those indispensable to animal life, he felt convinced that entophyta would be found in healthy living animals as well as, and probably as frequently as entozoa. Then follows the description of "two species of vibrio" detected by him in the alimentary tract of animals. "Even these moving filamentary bodies belonging to the genus *Vibrio*," says Leidy, "are of the character of algaous vegetation. Their movement is no objection to that opinion, for much higher confervae, as the *Oscillatorias*, are endowed with inherent power of movement, not very unlike that of the vibrio."

Wherever the borderline between animal and plant forms may be placed in the future, these pioneer observations and the conclusions of Leidy respecting the place of what we now regard as bacteria among the diverse groups of living things deserve to be recognized and placed on record.

Current Comment

THE BRITISH MEDICAL ASSOCIATION WINS

The case of Stevens *vs.* the British Medical Association has been decided finally in favor of the Association. As will be remembered,⁴ C. H. Stevens put on the market under various names ("Sacco," "Stevens' Consumption Cure," "Lungsava") a fraudulently exploited "consumption cure" containing a hypothetical African herb "umckaloabo." The British Medical Association, in its work of giving the public facts regarding fraudulently exploited nostrums, exposed Stevens' preparation and charged him with being a swindler and a quack who had foisted on the public a worthless remedy. This was in 1909. Stevens brought action for libel against the British Medical Association, which defended its observations on the claim that they were fair comment on a matter

2. Davaine: *Compt. rend. Acad. d. sc.*, 1859, p. 58; also *Traité des Entozoaires*, Paris, 1860.

3. Leidy, Jr., J.: *Morphology of the Bacteria (Vibrio and Spirillum)*, and *Early Research*, Science, 1914, xl, 302.

4. THE JOURNAL A. M. A., Sept. 3, 1910; April 5, 1913, and Sept. 12, 1914.

1. Ehrenberg: *Die Infusionsthierchen als vollkommene Organismen*, Leipzig, 1833.

of public interest. At the first hearing of the case in 1912, the jury failed to agree; at the second hearing in 1914, the jury declared that the words were not libelous, that the comments were fair and it returned a verdict in favor of the British Medical Association. Stevens appealed the case and the appeal was heard on May 5, 6, and 7, 1915, with the result that Stevens lost. In his appeal, Stevens attempted to make much of the personal attack on him by the British Medical Association, but one of the judges before whom the appeal was taken, pointed out that "a comment may be fair, although it contains a personal attack." The rule as to fair comment in such cases, it was pointed out by the judge, had been clearly stated in the classic case of *Dakhyl vs. Labouchere*:

"A personal attack may form part of a fair comment upon given facts truly stated, if it be warranted by those facts. . . ."

The judge further pointed out that the courts had made it plain that "the defendant may go very far in imputing motives." One other of the three judges before whom the appeal was heard, stated that whatever was in Stevens' medicine the evidence indicated that it was, to all intents and purposes, valueless. The judge concluded that it was most important "that the right to comment should be freely exercised in cases such as this, where large sums were made out of proprietary medicines." In view of the fact that the investigations by the British Medical Association have been upheld by the courts and the fraudulence and general worthlessness of Stevens' nostrum have become a matter of record the following item that appeared in an Albany (N. Y.) paper last October is of interest:

"To acquire the secret process for manufacturing a remedy for tuberculosis and other diseases, discovered by Charles H. Stevens of London, the Umckaloabo Chemical Company of New York City was incorporated with the secretary of state yesterday. The capital of the concern is \$250,000. The incorporators are Samuel S. Ryckman, Edward A. Sprong and Irene V. Russell, all of New York City."

EARLY HISTORY OF TYPHUS FEVER AND PEDICULOSIS

A recent paper by Dr. Fischer¹ of Vienna gives the early history of typhus in relation to the "lice plague," now so formidable in eastern Europe. The routine history of typhus, its description by Fracastorius (1533) and as "tabardillo" by Francesco Bravo (1570), the superb account of Pringle (1752), the attempts to differentiate it from typhoid by Willis (1643), Huxham (1737), Hildenbrand (1810) and others, the final and classical differentiation by W. W. Gerhard in America (1837) and Sir William Jenner in England (1849), and the subsequent developments up to the time of Plotz are well known. Dr. Fischer lists the many curious names given to the disease during the sixteenth, seventeenth and eighteenth centuries — febris petechialis, febris maligna, febris hungarica, lues hungarica, lues pannonica, morbus castrensis and others — and states that the first description of pediculosis as a concomitant of typhus was given in a series

of observations on Hungarian camp diseases, published by Tobias Cober² of Görlitz in 1606, and reissued by the anatomist Meibom in 1685. Under the category "languor pannonicus," Cober describes a group of syndromes which he regards as prodromes of typhus, but which, Fischer thinks, have nothing to do with the disease. Lice, however, Cober signalizes as a constant plague of camps, not to be prevented by careful change of clothing, as he testifies from personal experience, and producing marked psychic unrest which, with such other etiologic factors as an unhealthy climate and atmosphere, impure drinking water and irregular mode of life, might easily bring about the languor pannonicus and even the "Hungarian disease" or typhus. In his chapter "De languore pannonica, ex variis animi pathematis," Cober sets forth that mental excitement furnishes the soil for the seed, and that war itself, with its experiences of camping on the hard ground, enduring extremes of heat and cold, torrents of rain and swarms of insects, is particularly liable to bring about such excitation of spirit. Among the insect pests of war time he specifies "culices" or mosquitoes and "pediculi." A translation of his quaint description of the latter nuisance follows:

With these foregather the most terrible pediculi, hardly to be thought of without a sense of discomfort, which in themselves, through their constant promenading and sucking of the body, are enough to stir up one's bile. For it is impossible to avoid the bites of these miserable creatures, especially in the first years in the field, as they enjoy a sort of right of citizenship in all camps. The atmosphere is so lukewarm, mild and stuffy that when clothes which have been washed in swamp water are exposed to the sunlight, they are seen to swarm with these "vermibus Syllanis." One cannot hope therefore to get away from these constant attendants and companions, as they seem to arise from the very moisture of the body itself. At first I thought to rid myself of the pest by constant change of newly washed clothing, but even this seemed to bring them more and more into play, instead of destroying them. And this phthiriasis, which even the Egyptian magi of old could not produce, but which in these localities every one can create in his own person, can, as I bear witness, drive a man into fury. For as often as I was bitten by these miserable, abject animalcules, I gave full rein to my anger, fairly gnashing my teeth with rage, and cannot even now think of them without vexation. . . . One cannot ward off these armed six-footed Turks even with iron and steel. . . . And among many soldiers I have noted the frightful spectacle that this fearful plague of lice had gone far enough to cover the whole nape with ulcers, the flesh not only excoriated to the breadth of one or two fingers, but actually excavated, the men condemned to this miserable fate dying with groans and lamentations.

SKULL FRACTURES AND "DRUNKS"

The ordinary "drunk," found on the street in a comatose condition, is thrown into a patrol wagon, allowed to achieve sobriety on the hard planks of a "lockup" bed, and usually gets but little pity on his appearance before the police court judge. The victim of a not too evident skull fracture who is found semi-conscious and refused admission to several hospitals because of a hasty diagnosis of alcoholism, often — to use a well-known bull — wakes up dead in his police

1. Fischer, I.: Wien. klin. Wchnschr., 1915, xxviii, 321.

2. Cober: Observationum castrensium et Ungaricum decas I-II, Frankfurt, 1606, reprinted at Helmstadt, 1685.

cell in the morning. The small town or village where the "town drunkard" forms an object lesson to all the growing youngsters is, of course, little concerned with this problem. In large cities where from two to ten such cases may occur in a single day the problem is an important one. In Chicago recently, a woman was struck by a street car, and taken at once to a local hospital. The receiving physician, acting on the hospital's rule against alcoholics, refused her admission because there was evidence that she had been drinking. The patient was then carried several miles to a police cell and a day later, following the appearance of severe symptoms, to a police hospital, in which she died. The postmortem showed the presence of a skull fracture. The coroner's jury which considered the case recommended the installation of an observation ward in the hospital where physicians might carefully examine, with roentgenography and other methods, all cases of the character described. The need of such facilities is obvious from a simple relation of the facts in this single case. Such an observation ward should not be considered a refinement of science but an absolute necessity for the saving of lives.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Personal.—Dr. Francis H. Mead, health officer of San Diego for eight years, has resigned, and has been succeeded by Dr. A. E. Banks, assistant health officer.—Dr. Hilo S. Musante, chairman of the public health board of the Civic League of Improvement Clubs of San Francisco, has resigned.

Hospital Notes.—A building is to be erected on Castelar Street, Los Angeles, by the Parent-Teacher Association for use as a free clinic for public school children.—The contract for the first three buildings of the new State Hospital at Norwalk has been awarded to a San Francisco firm for \$115,000. The buildings to be erected are a two-story structure, 200 by 60 feet, for general hospital purposes; a one and one-half story building, 260 by 50 feet for both kitchen and dormitory purposes, and a one-story power house, 110 by 60 feet.—The McNutt Hospital, San Francisco, has been acquired by a syndicate of San Francisco physicians and has been renamed the Fairmont Hospital.

New Appointments on Faculty.—The following appointments to the faculty of the University of California have recently been announced: I. C. Hall, formerly connected with the Cutter Laboratories, assistant professor of bacteriology.—Dr. George W. Corner of Johns Hopkins University, assistant professor of anatomy.—Dr. Ruby Cunningham, instructor in hygiene and an infirmary physician in the infirmary of the University.—Dr. Abel W. Johnson, instructor in laryngology, otology and rhinology; Dr. Olga Louise Bridgman, Berkeley, instructor in pediatrics and mental abnormalities of childhood and Drs. Alfred E. Meyers, Howard E. Ruggles and Vivian Belle Appleton, instructors in pediatrics.

Research Associateship in Pathology Endowed.—In memory of Dr. Edith J. Claypole, Research Associate in the Department of Pathology of the University of California, who died on March 26, 1915, friends of the University have offered an annual gift of \$1,200 to maintain the position of Research Associate in Pathology in the University of California, and have made definite provision for an endowment sufficient to yield this income in perpetuity. The immediate purpose of the position is to be a continuance of

investigations in which much valuable work had already been accomplished by Dr. Claypole, in collaboration with Dr. Frederick P. Gay, Berkeley, Professor of Pathology in the University of California, in regard to improved methods for immunization against typhoid and methods for the treatment of that disease.

FLORIDA

Laboratory Building Finished.—The new laboratory of the State Board of Health at Pensacola, erected at a cost of \$20,000, is now completed and ready for work.

Health Activities.—A vigorous campaign for a better milk ordinance is now being carried on in Pensacola.—The fight against the fly and mosquito is also in active progress.

Personal.—Dr. Fritz A. Brink, bacteriologist of the State Board of Health laboratory, Pensacola, is taking a vacation in South Dakota.—Dr. James R. Bean, Jacksonville, of the Jacksonville laboratory will take Dr. Brink's place until he returns.

Hospital Notes.—A building for tuberculosis patients has been completed at the Miami County farm. The building is 40 feet square and has been erected at a cost of \$1,050.—Rapid progress is being made on the construction of the Pensacola Hospital, which when completed, will cost \$400,000. It is expected that it will be ready for occupancy in September.—Articles of incorporation have been filed for the De Land Sanatorium by Frank R. Osborne and others. The institution is to have a capital stock of \$50,000. Its object is to maintain a sanatorium in or near De Land and it has stated specifically that it is a corporation not for profit.—The State School for the Deaf and Blind is to have a hospital building to cost \$10,000, which appropriation was made by the last legislature.—A plea for a new modern city hospital for Miami was made to the city council by Dr. John L. North, city physician. About \$16,000 is at present available for this purpose, but \$30,000 is required for the construction of the building.—Contracts have been let to a Tampa firm for the erection of the West Coast Hospital, Clearwater.

ILLINOIS

Hospital Incorporated.—The Evangelical Hospital and Deaconess Association of Southern Illinois which has charge of the Henrietta Hospital, East St. Louis, filed incorporation papers May 24.

Victory in House for University.—On June 2, the House of Representatives passed a bill appropriating \$5,000,000 for the University of Illinois, a portion of which, about \$100,000 will it is said, be utilized for the purchase of ground for the medical school and hospital of the university.

Highland Park Leper Returns to Italy.—Angelo Lunardi, the Highland Park leper whose name has been so prominently before the public for several months, is said to have been secretly deported to his home in Italy. He was taken to New York by his friends and put aboard a steamer for Italy which sailed June 3.

Chicago

Summer Hospital Will Soon Open.—The *Tribune* Summer Hospital for the Convalescent at Algonquin, with accommodations for from six to seven hundred sick women and their babies, will be opened for the season June 21.

Physicians Club Election.—At the annual meeting of the Physicians Club at Chicago, held June 3, the following directors were elected: Drs. Henry T. Byford, Joseph Zeisler, and Charles P. Caldwell; and Dr. Arthur M. Corwin was elected secretary.

Northwestern Alumni Election.—At the annual meeting of the Alumni Association of Northwestern University Medical School, held June 7, the following officers were elected: president, Dr. William R. Cubbins, '00; secretary, Dr. Arthur B. Eustace, '07 (reelected); treasurer, Dr. Leo G. Dwan, '07 (reelected); and necrologist and Alumni editor, Dr. Samuel C. Stanton, '92. At the alumni banquet that followed the meeting, Dr. Archibald Church presided as toastmaster and the speaker of the evening was Prof. E. R. Keedy who delivered an address on "Medico-Legal Criminal Borderland."

To Fight Rabies.—At a meeting called by Alderman Willis O. Nance, chairman of the Council Committee on Health, June 4, plans were discussed for the limitation of rabies which has increased so materially in the city of late. At the conference were present the health commissioner, chief of police, superintendent of the dog pound, coroner, a rep-

representative of the Chicago Kennel Club, Aldermen Hugo Krause and Oliver B. Watson, and Drs. James A. Clark, Frederick A. Fisher, James E. Stubbs and William A. Evans. It was suggested that an all the year muzzling law would prove effective, but no definite action was taken.

Chicago Unit for War Service Ready.—The Chicago unit leaves by the New York Central line from La Salle Street Station, Sunday, June 13, at 11:30 p. m. The unit will sail on the steamship *New Amsterdam* of the Holland American Line, Tuesday, June 15, at noon, from Hoboken, N. J., and land at Falmouth, England. The purpose of the organization is to take charge of a base hospital of 1,040 beds in England or field work on the continent. The personnel of the unit is as follows: Drs. James M. Neff, Operating Surgeon, Spokane, Wash.; Geo. G. Davis, Operating Surgeon, Chicago; W. E. Leighton, Operating Surgeon, St. Louis; Philip S. Chancellor, Medical Consultant, Chicago; Geo. P. Gill, Associate Surgeon, Rockford, Ill.; W. R. Rainey, Associate Surgeon, Salem, Ill.; Waldo Richardson, Associate Surgeon, Seattle; Ralph L. Thompson, Pathologist, St. Louis; Edward M. Auer, Neurologist, Skillman, N. J.; Geo. E. Meyer, Oral Surgeon, Chicago; Chas. Maghy, Ophthalmologist, Chicago; W. Earl Ball, Roentgenologist, Chicago; Scurry Terrell, Ear, Nose and Throat Surgeon, Dallas, Tex.; J. F. Archibald, Associate Pathologist, St. Louis; John G. O'Malley, Chicago, Surgeon and Secretary; D. F. Hayes, Chicago; R. B. Haven, Chicago; R. B. Acker, Chicago; P. M. Dale, Chicago; S. Walker, Chicago; E. L. Cavanaugh, Chicago; E. Lec, Seattle; R. D. Long, Oklahoma City; C. D. McLean, Oklahoma City; C. Smith, Kalispell, Mont.; W. G. Uppendahl, Peoria, Ill.; J. S. Fox, Silverton, Colo.; J. J. Hilton, Chicago; C. R. Stanley, Indianapolis; J. R. Taylor, Madison, Wis.; A. H. Hixson, Columbus, Ohio; Fred Moeller, Chicago; Fred S. Jacobs, Chicago.

Dr. James Neff and Dr. Chancellor sailed June 2, on the steamship *Rotterdam* to make preliminary arrangements.

Seventy nurses, most of them graduates of local training schools, will also serve with this unit.

INDIANA

Tuberculosis Survey to Be Made.—Surg. James C. Perry, U. S. P. H. S., arrived in Richmond, May 27, to conduct a tuberculosis survey in the city.

Health Officers Oppose Alcohol.—At the annual conference of the health officers of the state, held at Indianapolis, May 12, about 200 health officers were in attendance, and Dr. George W. Bence, Greencastle, was chairman. A resolution was unanimously adopted declaring that physicians and health officers should join in the campaign against alcohol.

Personal.—Dr. L. Oilar, Indianapolis, has been commissioned as first lieutenant, M. C., Ind. N. G.—Dr. Gustavus B. Jackson has been elected president of the Indianapolis City Board of Health, succeeding Dr. T. B. Victor Keene, membership expired.—Dr. Eugene B. Mumford has been appointed a member of the Indianapolis Board of Health.—Dr. Boston H. B. Grayson, Huntington, who recently underwent an operation for appendicitis in the Huntington County Hospital, has returned home convalescent.—Dr. Norman F. Peacock, Darlington, is reported to be suffering from septicemia.—Dr. Clint C. Sourwine, Brazil, who has been seriously ill with septicemia, is reported to be improving.

Prosecution of Chiropractors.—The State Board of Medical Examiners has been taking up the question of the chiropractors. At Crawfordsville, Montgomery County, William A. Summerville, after being convicted once of practicing medicine without a license, attempted it again, but on being again indicted, left before he could be arrested. William N. Tyson, a masseur, at first employed under the direction of the physicians of Crawfordsville, it is said began soliciting and treating patients on his own account, using chiropractic methods. He was indicted, tried, and on May 27 fined \$25 and costs in the circuit court of Montgomery County for practicing medicine without a license. He paid the fine and agreed not to repeat the offense. Mrs. Ellen Cunningham and Paul F. Myers, chiropractors, the latter a recent "graduate" of the Palmer School at Davenport, Iowa, were also charged at Crawfordsville with practicing medicine without being authorized to do so. Mrs. Cunningham is defended by Attorneys Morris & Hartwell of La Crosse, Wis., a firm frequently employed to defend chiropractors in

various states, it is said, in the interest of certain chiropractic schools. A motion to quash the charges in the case of Mrs. Cunningham reveals the general grounds on which the chiropractors seek to defeat the provisions of the medical practice acts where chiropractors are haled into court for illegally practicing medicine. It is declared that the court has no jurisdiction; that the Indiana practice act is not in accord with the national Constitution; that it impairs the obligation of contracts and violates the constitutional provision that all shall have equal rights in the several states; that a speedy trial is not provided for; that the law is arbitrary and attempts to give exclusive rights to some, and to show how knowledge of medicine or surgery shall be obtained, is class legislation, has been enacted for private gain, attempts to settle questions of science, declares that practice of medicine and surgery which is not such practice, and imposes unnecessary restrictions and is not a proper exercise of the police powers of the state. It is also declared that the law violates the constitution of Indiana, and that the charge against Mrs. Cunningham embraces two offenses while only one is specified in the title. The case was to have come to trial the last week in May, but a continuance was asked by the defendant. The case of Myers has not yet been reached.

IOWA

Eastern Surgeons Visit Iowa.—Dr. George W. Crile, Cleveland, delivered an address before a joint meeting of the Scott County and the Rock Island County (Ill.) medical societies in Davenport, June 8.—Dr. George L. de Schweinitz, Philadelphia, was the guest of honor at a luncheon in Iowa City, May 13, which was given by eye, ear, nose and throat specialists of the city.

Tuberculosis Sanatoriums.—At a meeting of the Pottawattamie County Medical Society held in Council Bluffs recently, formal endorsement was given to the proposed sanatorium for the treatment of tuberculosis and the proposition of a tent colony near McClelland was favored.—The Woodward County Board of Supervisors has contracted for the erection of a modern tuberculosis hospital in Sawyers Bluff, Sioux City, at a cost of from \$12,000 to \$15,000.

Kepford Resigns.—Aretas E. Kepford, for nine years state lecturer on tuberculosis, has resigned to take effect July 1, and will enter evangelistic work. During Mr. Kepford's nine years of service he has seen a decrease in the mortality from tuberculosis in the state of almost 40 per cent., has traveled several thousand miles and has delivered more than 2,000 lectures to more than half a million people, and by his efforts has greatly assisted in the establishment of the State Sanatorium, Oakdale.

Personal.—Dr. William H. Newlon, Fort Madison, has started for the Pacific Coast.—Dr. Otto J. Yelt, Colfax, sailed from New York, June 1, for service with the French army.—Dr. Albert Anderson, Estherville, was operated on, May 13, for appendicitis and cholelithiasis, and is reported to be doing well.—Dr. Floyd S. Clarke, Lemars, has moved to New York City.—It is announced that Dr. Max W. Emmert will leave Atlantic City, N. J., some time this month and will locate in Des Moines.

State Society Meeting.—The sixty-fourth annual meeting of the Iowa State Medical Society was held in Waterloo, May 12 to 14, under the presidency of Dr. Henry C. Eschbach, Albia, and the following officers were elected: president-elect, Dr. John F. Harrick, Ottumwa; president, Dr. William B. Small, Waterloo; vice presidents, Drs. John E. Luckey, Vinton, and Harvey B. Gratiot, Dubuque; secretary, Dr. James W. Osborn, Des Moines (reelected); treasurer, Dr. Thomas F. Duhigg, Des Moines; councilors, first district, Dr. John R. Walker, Fort Madison, and eleventh district, Dr. Giles C. Moorehead, Ida Grove; delegate to the American Medical Association, Dr. John C. Rockafellow, Des Moines; and alternate, Dr. Frank M. Tombaugh, Burlington. Davenport was selected as the place of meeting for 1916.

KENTUCKY

Hospital News.—The Clark County Fiscal Court on May 12 agreed to give \$5,000 toward the proposed hospital at Winchester provided that a subscription of \$25,000 is secured.—The city council of Henderson has passed an ordinance appropriating \$25,000 for the establishment of a hospital in that city.

Personal.—Dr. J. Morrison Ray has been appointed a member of the board of trustees of the Louisville Public Library, succeeding Dr. Chester A. Mayer, deceased.—Dr. R. Julian Estill, Lexington, who has been seriously ill at the Good Samaritan Hospital in that city for six weeks, is reported to be convalescent.—Dr. U. V. Williams, Frankfort, has been reappointed a member of the state tuberculosis commission.—Dr. Leon L. Solomon has been elected dean; Dr. Frank W. Fleischaker, vice dean, and Dr. Siegel C. Frankel, secretary, of the staff of the Jewish Hospital, Louisville.—Dr. Frank Fithian, Paris, is reported to be seriously ill with rheumatism in Martinsville, Ind.—Dr. W. Hamilton Lond, Louisville, has been elected president of the Interstate Association of Anesthetists.—Dr. Thomas L. Harris has succeeded Dr. James Cruce as chief resident physician at the Louisville City Hospital.—Dr. Simeon K. Fisher, Milton, is reported to be seriously ill with heart disease.

MARYLAND

Public Meeting on Cancer.—As a part of the nation-wide movement against cancer, the Baltimore City Medical Society, acting jointly with the committee on public instruction of the Medical and Chirurgical Faculty of Maryland, held an interesting meeting in Osler Hall on June 4. The speakers were Dr. Jonathan M. Wainright, Philadelphia, who is chairman of the cancer committee of the Pennsylvania State Medical Society; Dr. Julius Friedenwald, Baltimore, who spoke on "What Everyone Should Know About Cancer of the Stomach," and Dr. Fred V. Beitler, Halethorp, of the State Board of Health. Dr. William H. Welch, Baltimore, presided at the meeting.

Personal.—Dr. Burns S. Chaffee, Baltimore, will become resident physician of the Union Protestant Infirmary, succeeding Dr. Edwin G. Davis, Baltimore, when changes in the hospital staff take place this summer. Dr. Davis will remain as a member of the staff. Dr. Chaffee has been connected with the institution for several years.—Interns W. S. Bean, Jr., and W. Y. Hollingsworth, interns in the United States Marine Hospital, Baltimore, have resigned and have been succeeded by Drs. M. V. Ziegler and Harry Schmuck.—Dr. William Lee Smith, Riderwood, is under treatment in Johns Hopkins Hospital, Baltimore.—Prof. Thomas L. Patterson of the University of Maryland Medical School has accepted the position of assistant professor of physiology in the medical faculty of Queen's University, Kingston, Ont.—Dr. A. Clarence Smink, Baltimore, sustained injuries of the head in a collision between the automobile in which he was riding and a street car, May 29.—Dr. Thomas S. Cullen, Baltimore, who was operated on for appendicitis and cholecystitis, May 29, is reported to be making satisfactory progress.—Dr. Alfred Whitehead, Baltimore, is under treatment in Johns Hopkins Hospital.

Medical Schools Merge.—A plan to merge the University of Maryland Medical School and the College of Physicians and Surgeons, which has been under way for months, has been consummated. The merger applies only to the work of the first two years. The third and fourth year classes will continue to be taught separately by the two respective faculties. The combined school will receive from the regents of the Maryland State University \$15,000 for each of the years 1915 and 1916. An act of the legislature, which created the Maryland State University, gave that institution the sum named to be used for medical education in the state. Neither of the schools now receives state aid. The University of Maryland regents will be increased to include eight men as representatives of the College of Physicians and Surgeons; and the medical faculty of the university will be increased by ten from the physicians and surgeons, making twenty-one in all. There will be no resignations. The University of Maryland Medical School was established in 1807 and the College of Physicians and Surgeons in 1872. Dr. Arthur M. Shipley is dean of the former and Dr. William F. Lockwood is dean of the latter institution. The University of Maryland Medical School occupies the oldest medical building in the United States, now being actively used in medical teaching.

MICHIGAN

Holmes Guest of Honor.—Dr. Arthur D. Holmes, Detroit, past president of the Wayne County Medical Society, to whose activities were largely due the success of the enterprise of securing permanent quarters for the society, was the guest of honor at a testimonial dinner given by members of the organization, May 21, at which Dr. Wadsworth Warren, Detroit, officiated as toastmaster.

Clinic Week at Medical College.—The annual clinic week in Detroit College of Medicine and Surgery began May 26. The program of this week has already appeared in THE JOURNAL, and it remains only to say that the week was a notable success.—At the annual meeting of the Alumni Association held on the steamer *Tashmoo*, June 2, Dr. Alexander W. Blain, Detroit, was elected president; Dr. Frederick W. Robbins, Detroit, honorary president, and Dr. Charles W. Husband was reelected secretary-treasurer.

Personal.—Dr. Arthur O. Ullrey, Niles, was operated on at the Epworth Hospital, May 9, and is said to be doing well.—Dr. William J. Ryneearson, Parshallville, was seriously injured, May 31, when a runaway horse collided with the automobile in which Dr. Ryneearson was riding.—Dr. A. A. Spoor, Big Rapids, has been appointed assistant state bacteriologist, with headquarters at the new laboratory which the State Board of Health has decided to open at Houghton.—Dr. Louis Barth, Grand Rapids, has started on a trip to the Pacific Coast.—Dr. Felix J. Pzbylowski has won his suit against the poor commission for \$1,033.33, and the judge has ordered that Dr. Pzbylowski be restored to office as city physician of Detroit.—Dr. John C. Brown, Battle Creek, has been appointed a member of the State Pardon Board, vice Dr. Karl B. Brucker, Lansing.—Dr. and Mrs. John H. Kellogg, Battle Creek, returned May 20, from a tour to the Pacific Coast.—Dr. Arthur D. Bangham, Albion, underwent an operation in Battle Creek, May 20, for the enucleation of the right eye.—Dr. Ralph G. Cook has resigned as chief of the Kalamazoo Antituberculosis Society, and is succeeded by Dr. R. Genung Leland, East Le Roy.—Dr. Ralph C. Apted, city physician of Grand Rapids, who was operated on for disease of the liver at Butterworth Hospital, May 8, is reported to be improving. Dr. Allison H. Edwards is in temporary charge of Dr. Apted's work.—Dr. Thomas J. Henry, city physician of Detroit, has recovered from the effects of an accidental dose of carbolic acid.—Dr. John T. Cooper has been appointed local surgeon for the Pere Marquette Railroad Company at Muskegon, to succeed Dr. Albertus B. Poppen.

MINNESOTA

Summer Course at University.—A course for practitioners will be given by the University of Minnesota medical department, during the entire month of July. The full summer session of the medical school will begin June 14 and end July 23. The clinics in the City Hospital, Minneapolis, will be open to graduate students and practicing physicians.

Health Survey Planned.—Dr. H. M. Bracken, secretary of the State Board of Health, announces that the board will designate one county in the state in which a thorough health survey will be conducted. Beginning on July 1, a detachment of officials from the United States Public Health Service will enter the county designated, examine every householder and make a detailed report of the sanitary condition of the premises and the occupants.

Tribute to Pioneer Surgeon.—A life-sized bronze statue of the late Dr. W. W. Mayo, presented by the people of Rochester and Olmsted County, was unveiled in Mayo Park, Rochester, May 29. Rt. Rev. Thomas O'Gorman, Sioux Falls, S. D., and former Chief Justice Charles M. Stark, two of Dr. Mayo's most intimate friends, delivered addresses during the ceremonies. On the base of the statue are carved the words:

William Worrel Mayo,
Born May 31, 1819, Died March 6, 1911.
Pioneer Physician Citizen.

A Man of Hope and Forwardlooking Mind.

Time-Limit Quarantine for Diphtheria.—The director of the division of preventive diseases of the State Board of Health has issued a circular to health officers and physicians which states that owing to the closing of the State Board of Health laboratories, May 15, a time-limit quarantine for diphtheria supersedes control by the culture method until August 1, when laboratories will resume work. Quarantine must be continued for at least three weeks after the disappearance of all clinical symptoms of diphtheria.—To facilitate the distribution of free diphtheria antitoxin, throughout the state, the secretary of the State Board of Health has designated 122 stations at which the indigent may obtain free antitoxin. The attending physician in each case must determine whether the patient is entitled to the benefit of this provision.

Personal.—Dr. Charles H. Mayo has been appointed a member of the Board of Education of Rochester.—Dr. Christian Johnson, Wilmar, who underwent operation recently in St. Paul, is making satisfactory progress toward recovery.—Dr. Thomas M. Joyce, Janesville, is reported to be ill in St. Joseph's Hospital, Mankato.—Mr. L. P. Wolf, a consulting engineer of St. Paul, has been appointed a member and consulting engineer of the State Board of Health, succeeding Dr. Charles Lyman Greene, St. Paul, resigned.—Dr. Michael Sullivan, Adrian, was operated on for hernia at Luverne Hospital, recently, and is said to be doing well.—Dr. Rudolph A. Beise has been elected mayor of Brainerd.—At the fifty-seventh birthday exercises of the state of Minnesota, held in the Old Capitol Building, St. Paul, May 11, Dr. John M. Armstrong gave a review of the lives of pioneer physicians of Minnesota.

Public Health Association Meeting.—At the annual meeting of the Minnesota Public Health Association held May 18, the following officers were elected: Governor W. S. Hammond and President George E. Vincent, honorary vice presidents; James T. Jerould, Minneapolis, vice president; Dr. W. L. Beebe, St. Cloud, secretary; Dr. Paul B. Cook, St. Paul, treasurer; Drs. Paul B. Cook, St. Paul; Halvor Holte, Crookston; and Messrs. W. A. Laidlaw, St. Paul; H. L. Merrill, Hutchinson; C. C. Stillman, St. Paul, and Mrs. A. L. Robinson, Warren, directors. The executive secretary, Dr. H. W. Hill, was granted leave of absence for seven months and at the adjourning annual meeting, May 24, Dr. Ignatius J. Murphy, Duluth, was unanimously elected secretary to act in Dr. Hill's absence, and has already entered on his duties. The association proposes a stirring public health campaign to arouse interest and secure for the next legislature advances in public health work which were refused by the last legislature. County public health associations are to be formed and an active campaign for membership is to be inaugurated.

NEW YORK

Long Island Hospital for the Insane.—Governor Whitman has signed the legislative appropriation permitting the State Hospital Commission to enter into contracts for additional quarters for patients at the Long Island State Hospital to the amount of \$400,000, of which \$200,000 is available at once.

Buffalo Alumni Assemble.—The fortieth annual meeting of the Alumni Association of the Medical Department of the University of Buffalo was held at that institution June 1 to 4, and the following officers were elected: president, Dr. Lesser Kaufman, '04, Buffalo; secretary, Dr. Julius Richter, '04, Buffalo, (reelected); treasurer, Dr. Frank E. Brundage, '09, Buffalo; and trustee, the retiring president, Dr. George F. Cott, '84, Buffalo. The annual alumni dinner was held on the evening of June 3, Dr. Thomas H. McKee, '98, officiating as toastmaster.

New York City

Raising Requirements for Health Inspectors.—Dr. Sigismund S. Goldwater, commissioner of health, has announced that in the future all applicants for the position of medical inspector, to which physicians only are eligible, must show at least one year of hospital experience as an intern in addition to the medical course.

Crocker Research Fund.—The trustees of Columbia University have appointed the following board of managers of the George Crocker Cancer Research Fund: Drs. T. Matlack Cheesman, and Walter Mendelson, President N. M. Butler, Dean Samuel W. Lambert, and Profs. Warfield T. Longcope, William G. MacCallum, and Francis Carter Wood.

Geriatrists Organize.—The New York Geriatric Society was organized June 2, its object being the scientific study of senile conditions, the cause of aging, the diseases of advanced life and the home and institutional care of the aged. The following officers were elected: president, Dr. Robert Abrahams; vice-president, Dr. Edward P. Swift and secretary, Dr. Ignatz L. Nascher.

Supreme Court Sustains Muzzling Law.—The Appellate Division of the Supreme Court, on March 29, 1915, unanimously sustained the validity of that section of the Sanitary Code which prohibits any unmuzzled dog on any highway or in any public park or place in the city of New York. This finally disposes of the "Knoblauch" case and upholds Justice Lehman of the Supreme Court in his opinion that the ordinance is a valid and reasonable exercise of the police power of the Board of Health.

Systematic Inspection of Farm-Killed Meat.—After a number of conferences between the department of health and the board of aldermen it was decided to inaugurate a system of inspection of farm-killed meat, to be performed by veterinarians qualified in postmortem examinations, the cost to be met by the firms selling the goods. An ordinance on these lines was drafted and sent to the board of aldermen, and was passed by that body on May 11.

Columbia's Plan Announced.—More definite plans for the new medical plant in connection with Columbia University were announced June 1. The total cost of the project will be \$16,700,000 of which the share of the Presbyterian Hospital will be \$9,200,000. The plans include a hospital designed to contain 650 beds and seventy-five private rooms. Provision will be made for the permanent location of the George Crocker Cancer Research Foundation, and the Vanderbilt Clinic will be rebuilt as a part of the new hospital. The plans also include a students' dormitory which will accommodate 400 students. At present the College of Physicians and Surgeons has a deficiency of about \$150,000 a year. The urgently needed department of sanitation will require an additional \$40,000 per year and it is pointed out that the usefulness of the medical school along many lines is hampered by lack of funds. The university must raise a total fund of \$7,500,000 in order to carry out its plans.

Personal.—Dr. Matthias Nicoll, Jr., has been appointed assistant director of laboratories of the Department of Health at a salary of \$3,000 per year.—Dr. Abraham L. Wolbarst was the guest of honor at a dinner given May 12, by physicians who had attended his Thursday night genito-urinary clinics at the West Side German Dispensary and Hospital during the winter. Dr. Simon C. Grudberg acted as toastmaster.—Dr. Alfred Stillman, II, sailed for Europe June 5, for duty as surgeon in Mrs. Henry Payne Whitney's Hospital in France.—Dr. William V. Pascual, Brooklyn, was operated on for appendicitis May 25, and is said to be doing well.—Dr. Lucius F. Herz was struck by an automobile in New Haven May 22, and sustained a fracture of the left leg above the knee in addition to numerous cuts and bruises.—Dr. Simon Flexner, director of medical research of the Rockefeller Institute, was given the honorary degree of LL.D. by the University of Maryland, Baltimore, May 21.

PENNSYLVANIA

Gift to Hospital.—The Benjamin A. Haywood memorial dispensary and pathological laboratories, presented to the Sibly Memorial Hospital, Washington, by Mrs. Elizabeth E. Haywood of Sheran as a memorial to her husband, were formally dedicated, May 18. The laboratories are thoroughly equipped and the dispensary will be opened for free patients daily.

Philadelphia

Woman's Medical College Commencement.—The fortieth annual commencement exercises of the Woman's Medical College of Pennsylvania, Philadelphia, were held at the college, June 2. Dr. Richard C. Cabot, professor of medicine in Harvard Medical School, delivered the doctorate address.

College Commencements.—The thirty-fifth annual commencement of the Medico-Chirurgical College of Philadelphia was held at the Academy of Music, June 4. Mr. Clinton Rodgers Woodruff delivered the address to the graduates.—The ninetieth annual commencement of Jefferson Medical College was held June 5 at the Academy of Music. There were 145 graduates. The annual address to the students was delivered by Dr. Victor C. Vaughan, Ann Arbor, Mich. His subject was "The Doctor's Ideals." The degree of LL.D. was conferred on Dr. Vaughan by the president of the board of trustees.

Alumnae Election.—The election of officers of the Alumnae Association of the Woman's Medical College of Pennsylvania, June 3, resulted as follows: president, Dr. Elizabeth L. Peck; director, Dr. Catherine Macfarlane; recording secretary, Dr. Jacobina S. Reddie; corresponding secretary, Dr. Mary Buchanan; and treasurer, Dr. Ellen C. Potter. The alumnae decided to appoint a committee of five to consider the enlistment of thirty or more volunteer women physicians to be sent to Europe to aid in the care of war babies and their mothers. Dr. Harriette L. Hartley was appointed chairman of this committee and instructed to correspond with the representatives of war powers concerning the location of a hospital in the war zone for women and children.

Jefferson Alumni Meeting.—The annual banquet of the Alumni Association of Jefferson Medical College was held June 4. Dr. Francis T. Stewart acted as toastmaster and speeches were made by Mr. Potter, president of the board of trustees; Dr. William W. Keen, professor emeritus, and Prof. J. Parson Scheffer. The announcement was made of the promise of a gift of \$100,000 by one of the diners for the purpose of swelling the endowment fund, the only stipulation being the raising of an equal amount by the alumni of the institution. The name of the donor was withheld. At this time Dr. William W. Keen, emeritus professor of surgery in Jefferson Medical College, was presented with two beautiful silver platters as a token of esteem and love by the association. Dr. B. Franklin Royer, Harrisburg, was elected president for the ensuing year.

WEST VIRGINIA

New State Department of Health.—An act passed by the last legislature provided for the new organization of the Health Department and that a new Council on Health should take the place of the old board of health. The following have been appointed members of the council: Dr. Samuel L. Jepson, Wheeling, commissioner of health; and Drs. William W. Golden, Elkins, Joseph L. Pyle, Chester; Will J. Davidson, Parkersburg, and Joseph E. Robins, Charleston, who were members of the old board; and Dr. J. S. Farmsworth, Frenchton, and Wilkin B. Stephens, Kimball, new members. The Council on Health will continue to perform the function of the old board as an examining board and it is announced that the next examination will be held in Charleston, July 7.

CANADA

Personal.—Dr. Robert M. Simpson, Winnipeg, chairman of the Board of Health of Manitoba, is to go to the front and take charge of a large hospital.

Hospital News.—Temporary accommodation has been provided for 100 children of the Children's Hospital, Toronto, on Toronto Island, the summer home at that point having been destroyed by fire in April. Several portable sheet steel buildings, including a dispensary have been provided.—The Canadian Militia Department have decided to accept the offer of Laval University, Montreal, for a hospital of 1,000 beds for service in England or France.—On the first day the lists were opened for the Ontario Government Hospital to be established in England, there were 100 applications from medical men. Fifty physicians and surgeons are required.

GENERAL

State-District Medical Society Meets.—The annual meeting of the Medical Society of Northern Virginia and the District of Columbia was held, May 19, in Alexandria, Va., and the following officers were elected: president, Dr. Samuel B. Moore, Alexandria, Va.; vice presidents, Drs. John B. Nichols, Washington; and George R. Cottingham, Remington, Va.; recording secretary, Dr. Thomas A. Groover, Washington; corresponding secretary, Dr. Joseph D. Rogers, Washington; and treasurer, Dr. William I. Robey, Herndon, Va.

Bequests and Donations.—The following bequests and donations have recently been announced:

Federation of Jewish Institutions, Philadelphia, \$1,000, by the will of Dr. Henry Van Beil.

Up to May 28, the campaign fund for the Sisters of Mercy fund, West Philadelphia, had reached \$122,048.22.

Henry A. Rexler Orphans' Home, Allentown, Pa., \$60,000, by the will of Henry A. Rexler.

Jewish Hospital, Philadelphia, \$2,000, for the endowment of the Leffman and Rosalie L. Hope bed, by the will of Rosalie L. Hope.

St. Joseph's Hospital, Philadelphia, \$2,500, by the will of Annie Campbell.

Medical Jurisprudence Society Meets.—The third annual meeting of the American Association of Medical Jurisprudence was held at Hotel Trownvill, Long Beach, L. I., under the presidency of Mr. Charles A. Boston, New York, and the following officers were elected: president, Dr. D. Percy Hickling, Washington, D. C.; vice presidents, Mr. Oscar W. Earhorn, New York City, and Dr. Philip Coombs Knapp, Boston; secretary, Mr. Charles P. Blaney, New York City (reelected); treasurer, John Castree West, New York City; and councilors, Drs. Frank H. Daniels, Frank W. Robertson and A. Ernest Gallant, New York City; Donald D. MacTaggart, Montreal, and Reynold Webb Wilcox, New York

City; and Messrs. John S. Durand, Alfred E. Ommen, Theodore Sutro, Harold Hirsch and Harry V. Osborne.

Cancer in Vermont.—The New England states have been much aroused recently on account of the higher death rate from malignant diseases, which has been reported by census statistics to prevail. The general mortality rate from cancer in the United States is 78.9 per 100,000 population. In the New England states the lowest rate was 85.1 per 100,000. Rhode Island's rate was 93.3; that of Massachusetts, 101.4; that of New Hampshire, 104.4; that of Maine, 107.5, while Vermont heads the list with 111.7 deaths per 100,000 of population. Vermont was so aroused by the publication of these statistics that the State Medical Society arranged for meetings and lectures in Rutland, Burlington, Montpelier and St. Johnsbury to start a campaign of education. These meetings were held June 8 to 11. The afternoon sessions were for the medical profession, while in the evenings the general public was invited.

FOREIGN

Deaths in the Profession Abroad.—Haltenhoff, formerly professor of ophthalmology at Bern, aged 73.—Frankenberger, professor of otology at the Bohemian University of Prague.

Our Foreign Exchanges.—The August, 1914, number of the *Journal de Chirurgie* has reached us, published in April, 1915, and the four other numbers for 1914 are promised before the end of 1915. This issue contains long summaries, some illustrated, of numerous articles in THE JOURNAL and other American publications. As is evident from our Foreign Current Literature Department, the German exchanges, all the weeklies and the high grade *Archivs* and *Zeitschriften*, have never suspended publication, and except that their contents are devoted mostly to military surgery and hygiene, there is nothing in their aspect or make-up to suggest that their country is at war.—The *Zeitschrift für Geburtshilfe und Gynäkologie* has just been received, the first since early in the spring. This *Zeitschrift* is one of the journals issued irregularly, only as material accumulates. This number bears a mourning border on account of the death of its editor in chief, Prof. R. Olshausen a few months ago.

Chair of Tropical Diseases in Italy.—Naples was selected as the best location for the newly founded university professorship of tropical diseases, and A. Castellani has been placed in charge. Since 1903 he has been chief of the clinic for tropical diseases on the island of Ceylon, a British institution, after having worked long with Sir Patrick Manson at London. Castellani was sent to Uganda in 1901 to 1903 by the British authorities and his work there was crowned by the discovery of the causal agent of sleeping sickness. The *Riforma Medica* of Naples states that he has described about thirty new forms of tropical diseases, including endemic funiculitis and forty new species of pathogenic bacteria, such as that of Ceylon paracholera, besides several protozoa. He has also contributed much to improve bacteriologic technic and methods of vaccination.

WAR NOTES

Typhus Checked.—Reports were received by the state department in Washington, June 3, that the campaign against typhus in Serbia is going steadily forward and that the disease is being rapidly suppressed.

Training Official Disinfectors.—The state authorities in Germany have ordered all communities to make arrangements for a trained corps of disinfectors in readiness for an invasion of typhus. The training must include instruction in vermin extermination. The three-day courses are to be taken in some state disinfection training school.

Red Cross Notes.—The American Red Cross reports under date of June 5, that there were 10,000 wounded soldiers in Constantinople as long ago as May 8, and that more were arriving daily. The two Red Cross hospitals in Constantinople are absolutely filled with wounded soldiers and many of the colleges and Greek schools have been taken over by the authorities and converted into hospitals.—The Beirut, Syria, chapter of the American Red Cross has equipped a field hospital which is actively at work.

Aid for Belgian Physicians.—The report of the treasurer of the committee of American physicians for the aid of the Belgian profession, for the week ending June 5, 1915, lists the following contributions:

Dr. Arthur G. Larkin, New York, N. Y.	\$ 10.00
Dr. John A. Hawkins, Pittsburgh, Pa.	10.00

Medical Society of the Co. of Greene, Catskill, N. Y.....	15.00
Wilson County Medical Society, Fredonia, Kans.....	15.00
Dr. Robert C. Davis, Johnstown, Pa.....	5.00
Dr. Emery Marvel, Atlantic City, N. J.....	25.00
Dr. G. J. Hagens, Chicago, Ill.....	15.00
Medical Society of the County of Westchester, White Plains, N. Y. (second contribution).....	2.50
Rockland County Medical Society, Nyack, N. Y.....	28.00
San Luis Valley Medical Society, Alamosa, Colo.....	25.00

Receipts for the week ending June 5.....\$ 150.50
Previously reported receipts..... 7,008.50

Total receipts\$7,159.00
Previously reported disbursements:
1,625 standard boxes of food at \$2.20.....\$3,575.00
1,274 standard boxes of food at 2.30..... 2,930.00
213 standard boxes of food at 2.28.... 485.64

Total disbursements 6,990.84

Balance\$ 168.16

F. F. SIMPSON, M.D., Treasurer,
5 Jenkins Arcade Bldg. Pittsburgh, Pa.

FROM SIR WILLIAM OSLER

OXFORD, May 26, 1915.

Medical Notes on England at War

FUNCTIONAL NERVOUS DISORDERS

Types rarely seen in males in this country or in the United States are very common, and an explanation is to be found in the extraordinary stress and strain of the trench fighting.

Shell-Shock Paraplegia.—Without actual injury, the close proximity of the explosion causes loss of consciousness or a dazed condition which lasts for some hours or longer, with a paraplegia persisting for days or even for weeks and gradually disappearing. In the cases which I have seen, the reflexes have been present or have been increased. In one there was hypertonus of the muscles; sometimes there have been hyperesthesia and transient difficulty with the bladder and bowels. In severe cases following partial burial by the explosion, even without bruising, there may be hemorrhage and a much more serious type of paraplegia, with the legs completely flaccid and abolition of the reflexes.

Psychic "Knock-Out."—This condition, due to shell shock, is a remarkable one in which the victim remains in a state of stupor, with loss of memory and complete speechlessness or stammering, recovery following in a few days; but a condition of nervous irritability may persist for weeks.

Involvement of the Special Senses.—This is common. One man near whom a shell had exploded, but who was not struck by any fragments, had headache and a blinking tic, a constant quivering blepharospasm, so that he could not open his eyes; the conjunctivae and media were clear and there were no retinal changes. He kept the head depressed, and the photophobia was extreme, but he gradually recovered. A very puzzling case which interested us greatly at Clevedon was a man with monocular amblyopia, without visible changes in the fundus or in the reflexes; there was in the left eye complete defect of vision, except a very small area in the temporal field. Mr. Lawford, ophthalmic surgeon to the St. Thomas Hospital, who made a careful examination, concluded it was a functional defect. I see that Dr. Turner mentions a somewhat similar monocular case with ptosis.

Functional Dysbasia.—All sorts of anomalous gaits are encountered. One of the most remarkable was a tight rope walker's type in a functional dysbasia following shell shock. The subject, an intelligent young officer, wrote down the following statement about the accident:

"The Germans had been shelling our dummy trenches, which were about 20 yards to the rear of the trench in which I was. The oncoming shells give just enough warning to allow one to lean against the front wall of the trench—the position of least danger from shell fire. I heard my particular shell coming, and from force of habit leaned toward the front wall and looked toward the rear dummy trench to see the shell burst as the others had done. Suddenly there was a tremendous red bang, and the world seemed to stop stock-still for a moment. Then things started with a rush. I realized that I was clinging, sprawling, to the wall, and that men were hurrying and scrambling out of the trench. I followed them out. This was about 11:30 a. m. I was in a queer 'semidetached' sort of condition. I just clung des-

perately to the idea, 'I must finish my turn of duty.' (I was on duty at the time.) This idea obsessed my mind to the exclusion of all others. I did in fact finish my turn, and then returned to my dug-out and slept or dozed until I was roused by my company commander to take a turn of duty at 1 o'clock next morning until 3, which I did. I then returned to my dug-out and slept and dozed until we came out of the trenches. I walked, carrying all my equipment and pack, for about 100 yards, and then had to be supported to headquarters, where a stretcher conveyed me to the advanced dressing station. I had a headache at the base of my skull from ear to ear, and the ground behaved like the deck of a sailing yacht in a stiff breeze: that is, it seemed to slant sharply away to the right and at the same time to pitch. During the time in the trenches I had a curious freak of memory. A number of events occurred which I remember quite well, but not as having occurred then. If I may employ a simile, they are like beads of a broken necklace, which have slipped from the thread and are lying loose. For instance, one of the other subalterns recalled to my mind that I had paid him a flying visit in the trenches subsequent to my accident. I then remembered perfectly well having paid the visit, but I had no idea that it was in that time. He also reminded me of our colonel dodging shells. I quite remember the incident, but cannot place it in that time.

"One other rather horrible feature of this business has been a sort of nightmare. I have not had it for some time now, for which I am profoundly thankful. These things were not nightmares, and they occurred several times. I would allow myself to doze in the dark at night and I would suddenly realize that I was sinking slowly to a most unthinkable, dreadful place, and there were things there that were too unpleasant to even write about. I knew that if I did not make an effort to get out I would never manage it. I made prodigious struggles and broke away from it, but in the dark I couldn't be sure whether or not I was quite clear of it, and I would find myself partly out of bed and in a state of most childish alarm. I therefore tried to avoid sleeping at night and succeeded quite well. The only other symptom of any interest is that when I turn about to the right, the horizon rushes past with an unsteady effect: whereas the other way is not abnormal."

Recumbent, the examination was negative in every particular. Dr. Ashdowne, under whose charge he was, thought the reflexes on one side were perhaps a little increased; but the point of special interest was the extraordinary gait, with the feet far apart, the arms out, the man balancing himself, and making several attempts with the hind foot before taking a step. Not long after the accident he was seen by Dr. Gordon Holmes, who thought possibly there was a cerebellar shock. He is gradually recovering, and the gait has now become much nearer natural.

Functional Spasm of Leg Muscles.—After a slight attack of trench rheumatism in the middle of February, a man had frost-bite which did not proceed to necrosis, but which left him with both feet very painful, so that he could not walk. The right foot has recovered, though the sole is still a little sensitive. On examination, May 18, he was a very healthy looking man; recumbent, the legs looked normal, but perhaps the left was a little smaller. When he was asked to lift the leg from the bed, the muscles immediately went into spasm and remained rigid. The vastus externus stood out with great prominence, and when the effort was relaxed, the spasm evidently remained in it for a longer period. The muscles were not painful; the stocking anesthesia was gradually disappearing. He could walk, but carried the leg very stiffly, and could scarcely take a step on account of the pain in the sole. The other leg had not been involved. The deep and superficial reflexes were present, perhaps a little exaggerated.

At Blenheim there was a man, aged 23, who had rheumatism and cold-bite in the feet in December, with great tenderness. For several months he had persistent spasm of the anterior tibials on both sides. He could not straighten the foot voluntarily, and passively it could be done only with the strongest effort. The anterior tibials stood out with great prominence: The knee jerks were ++. There was no Babinski or ankle clonus. He could walk on his heels, but with difficulty. There was plantar hyperesthesia. He gradually improved, and the spasm lessened with massage and electricity.

At Milton Hill, a man after frost-bite had a spasm of the muscles causing talipes, so that he walked on the outer edge of the foot. Any attempt to straighten it caused him pain and spasm. He, too, had had a stocking anesthesia and symptoms of neurasthenia. Evidently the trench warfare is a nerve-racking business, causing all forms of troubles from mild nervous break-down to the severest types of functional disorder. In many cases, tobacco is a factor. The hardened veteran may smoke from twenty to thirty cigarettes a day without inconvenience, but the unseasoned soldier cannot stand such excess. Among the convalescents, many cases of rapid pulse and slight anemia are, I believe, due to tobacco. Special provision is to be made for the nervous cases, on which a group of experts is already at work.

GAS POISONING

I have referred to the inefficiency of the modern rifle bullet as a weapon of war. The high-explosive shells, the hand grenades and the shrapnel do damage enough; but now comes the barbarous device with which men try to kill each other by the use of poisonous gases. Under date of May 4, General French reported the use of gases ejected from pipes laid into the trenches. "The effect of this poison is not merely disabling or even painlessly fatal, as suggested in the German press. Those of its victims who do not succumb on the field, and can be brought to hospital, suffer acutely, and in the larger proportion of cases die a lingering and painful death. Those of its victims who survive are in little better case, as the injury to their lungs appears to be of a permanent character." The reports of acute cases describe a suffocative edema of the lungs of an appalling character. Both the Hon. Robert Bacon, late minister to France, and Dr. Harvey Cushing speak of the sufferings of the victims as passing all belief—an incessant gasping for breath, cough, and the expectoration of a thin, blood-stained albuminous fluid. The mortality is high, but in a great many mild cases there is recovery, and the patients have been sent across. I have seen about thirty. Only three cases were severe; one patient had slight cyanosis, dyspnea, and many fine bronchitic râles; two had bronchitis. The other patients were convalescent, and nothing amiss could be determined on physical examination; but in several cases there was functional disability, shown by dyspnea on the slightest exertion. One man had suppression of the breath sounds; neither the inspiratory nor the expiratory murmurs could be heard distinctly. I should say that the prognosis was good in a majority of these cases. Anatomically, it is an acute bronchitis and bronchiolitis with exudation of a highly albuminous fluid into the tissues and air cells. In Dr. Haldane's laboratory I was shown sections from two lungs which presented the most extraordinary fragmentation of the alveoli. Macroscopically, the cut surface looked like emphysema, and there were air blebs beneath the pleura. The gas appears to be chlorine, which is irrespirable in dilutions of 1:10,000. Masks saturated with solutions of sodium hyperchlorid, with glycerin to keep the material moist, appear to be an efficient protection. Certainly the gas is a great addition to the "frightfulness" of war, but it is to be hoped that the Allies may not be forced to adopt such measures of scientific barbarism.

PARIS LETTER

PARIS, May 20, 1915.

The War

THE WAR AND THE MEDICAL STUDENTS

A decree of 1902 authorizes the appointment to the grade of assistant physician (which corresponds to the grade of noncommissioned officer), in case of mobilization, medical students who have taken not less than three years of medical work toward their doctor's degree. Accordingly, all medical students who have this amount of work to their credit have been, except in cases in which there were special reasons for the contrary, appointed to this grade. Notwithstanding, the number of these medical officers has become insufficient because of the losses undergone by the medical service, which have borne heavily on the assistant physicians, and also because of the appointment of a certain number of these phy-

sicians to the grade of *aide-major* (sublieutenant). To supply the ever-increasing need of the medical service, it has been decided to reduce the requirements for the position of assistant physician. The president of the republic has therefore signed a new decree which authorizes the appointment during the war as assistant physicians, either in the field or in hospitals, of medical students who have had two years' work.

The minister of war has decided that medical students who have had not less than a year's work and who are at present mobilized either in the interior zone or in the zone of the armies may be released from their present duties to be employed in the medical service either as litter bearers or as nurses.

THE WAR AND ADVERTISEMENTS FOR FOODSTUFFS

The head of the service at the prefecture of police for the suppression of frauds has been designated by the minister of agriculture to institute investigations into the quality of milk, foods and drinks sold in the zone of the armies either to the soldiers or to the inhabitants.

Since the beginning of hostilities a certain number of manufacturers have been exploiting special food products which are offered to the public as possessing remarkably superior nutritive qualities and as supplying in small volume the place of large quantities of foods which have the reputation of being nutritious. These products are advertised particularly as foods for soldiers and children. The service for the suppression of frauds has analyzed these specialties with results which should be generally known. While none of these preparations seems to be actually harmful and while some—the minority—have actual nutritive advantages, analysis shows that most of them have no such especial nutritive value as is claimed for them in the advertisements. The documents in about twenty of these cases have been laid before the attorney-general, and the manufacturers in question have been notified to cease manufacturing and selling these products immediately.

INTOXICATION BY IRRITATING GASES

Drs. A. Dujarric de la Rivière and J. Leclercq had the opportunity of seeing at Calais a number of soldiers who have been subjected to the action of irritating gases (bromine and chlorine vapors) used by the Germans at Langhemarch. Frequently, in addition to the bronchial or pulmonary phenomena, there was hepatic or renal involvement. In many patients, the pulmonary phenomena consisted of an inflammation of all the respiratory tubes, including even the finest bronchial ramifications. Two patients presented the clinical picture of hemolytic icterus and a third during several days had hemoglobinuria. Several others had persistent attacks of albuminuria. Dr. Henrot of Reims has presented before the Académie de médecine a valved respiratory mask which protects the wearer from the asphyxiating vapors.

WOUNDS OF THE HEAD BY BALLS AND FRAGMENTS OF SHELLS

At one of the last sessions of the Société de chirurgie de Paris, Dr. Vinay, surgeon of Mont-Dore, called attention to the fact that men wounded in the head should receive a very strict examination. Many such patients during the first few days show no symptoms likely to arouse suspicion of an underlying lesion of the skull and brain; often it is only after the appearance of secondary infectious phenomena that operation is performed, and then it is frequently too late. There is, therefore, good reason for early operation, but, to avoid useless exploration and operation in cases in which no good can be done, Vinay advises the following line of procedure: In bullet wounds of the head, except lesions which are evidently superficial, a large flap of the scalp should always be turned back so that the skull may be examined. In the majority of cases a lesion of the skull will be found and will then be trephined. Wounds produced by fragments of shell should be explored with a probe and the skull should be systematically examined if the probe strikes directly on a bone. In most cases this will lead to a trephining operation which would have become imperative a few days later. By following these rules one is sure to extract fragments, disinfect the wound and drain it in season. If one happens to find an uninjured skull (which is the case about one time out of ten) a few stitches will repair all the damage without injury to the wounded.

MILITARY PHYSICIANS AND THE LEGION OF HONOR

Among the physicians on the rolls of the Legion of Honor are Dr. Quénu, professor of clinical surgery at the Faculté

de médecine de Paris and principal physician of the second class (which corresponds to the grade of lieutenant-colonel) in the military government of Paris, and Dr. Potherat, surgeon of the hospitals of Paris, who as head physician of an ambulance at first at Nancy, then on the Marne and finally on the front of his army corps, "has rendered truly exceptional service."

DEATH OF DR. ALBERT BILLET

Dr. Albert Billet, principal physician of the first class and director of the medical service in the fifteenth army corps, has just died at the military hospital of Val-de-Grâce of the results of a disease contracted in service. He was a distinguished scientist and has left a great number of works dealing chiefly with the prophylaxis of epidemic and exotic diseases which have won him numerous distinctions from the Académie de médecine and the Académie des sciences.

BERLIN LETTER

BERLIN, May 11, 1915.

Personal

Prof. F. Külbs, the present assistant at the first medical clinic at Berlin, has been called to Strassburg as director of the medical policlinic, to succeed Prof. Erich Meyer.

May 4, Ernst Haeckel completed his fiftieth year as regular professor of zoology at the University of Jena. The anniversary was saddened for him by the death of his second wife a few days before. He is 81 and is still in full mental vigor. Since 1907 he has been entitled to be called *Excellenz*.

The ophthalmologist, Prof. J. Stilling, died at Strassburg, May 3, aged 73. He was the son of Benedikt Stilling, a leading anatomist and surgeon in his day. Professor Stilling's most important works were on color blindness. His tables for testing vision for colors in candidates for railroad and marine positions are in common use not only in Germany, but in other countries, and have already passed through sixteen editions. Other popular works of his are a manual on the principles of ophthalmology and reports of research on the origin of myopia, glaucoma, etc.

Causes of Death in Prussia, 1913

The vital statistics for Prussia show that the death rate during 1913 from diseases of the digestive organs was 17.39 per 10,000 inhabitants (15.94 in 1912); from old age, 15.71 (17.37); from diseases of the circulatory organs, 15.09 (15.44); tuberculosis, 13.65 (14.58); pneumonia, 12.03 (13.48); cerebral hemorrhage and other affections of the nervous system, 10.31 (10.57); congenital debility, 10.25 (10.55); cancer and other neoplasms, 8.24 (8.15); diseases of the respiratory organs, 7.85 (8.69); accidents, 4.06 (4.07); diseases of the urinary and genital organs, 2.87 (2.86); suicide, 2.21 (2.12); whooping cough, 1.89 (2.31); diphtheria and croup, 1.81 (2.04); measles, 1.75 (0.46); scarlet fever, 1.08 (1.04); puerperal fever, 0.96 (0.99); erysipelas and other wound infections, 0.92 (0.97); influenza, 0.72 (1.12); typhus, 0.34 (0.38); other contagious diseases, 0.34 (0.33); violent deaths, 0.21 (0.20); contagion from animals' diseases, 0.01 (0.01); other known causes of death, 15.89 (16.30), and unknown causes, 3.39 (3.94).

The War

THE FOOD SUPPLY

A number of recent decrees demonstrate that the food supply is becoming more fully assured. The price of flour has been reduced, and for wheat flour more than for rye flour, in order to bring the comparatively ample supply of wheat flour within the reach of the less well to do. An order was promulgated a while ago that communities should put up meat so that it would keep, but this order has been rescinded, as the supply of cattle is ample in every respect, so that precautionary measures of this kind are unnecessary.

At Berlin the bakers are no longer permitted to mix fresh potatoes in their bread dough, but potato flour can still be used. Our bread consequently begins to taste nearly natural once more. The price of all the other foodstuffs and delicacies is but little above ordinary prices, and there is no lack in any direction, the fluctuations at first being now all straightened out.

FINANCING THE FAMILIES OF PHYSICIANS ABSENT ON MILITARY SERVICE

The efforts of the profession to come to the timely financial aid of the physicians serving in the field are continued in different parts of the country. At Berlin, the Kuratorium for

war absentees, organized for this purpose, has realized remarkably successful results already with the associations with which it has had dealings. The organized free-choice insurance physicians have agreed to pay the Kuratorium 10 per cent., and the Verein of Berlin insurance physicians has agreed to pay 5 per cent. of their insurance fees for the year 1915. The central organization of insurance physicians has also commended to its affiliated groups that they place 5 or 10 per cent. of their income from the insurance societies at the disposal of the Kuratorium for the period of one year. By this means, including the 55,000 marks already subscribed by the medical chambers, there will be approximately 300,000 marks on hand for the war relief emergency fund for the absentees. All the other physicians of greater Berlin are now being solicited by a subcommission to learn how much can be depended on from others outside of those under contract with the insurance societies. It is anticipated that several times the amount subscribed by the Aerztekammer will be pledged.

LONDON LETTER

LONDON, May 21, 1915.

The War

THE KING GEORGE HOSPITAL

Though all the permanent hospitals of the country have placed a large part of their accommodation at the service of the War Office, the number of wounded from this colossal war is expected to be so great that special hospitals are being erected. Of these the largest is the King George Hospital in London, which, as mentioned in a previous letter to THE JOURNAL, is the result of the conversion of a building intended for the new Stationery Office of the government. It will accommodate 1,600 patients, and the floor space is so great that 9½ acres of linoleum are required. The hospital is divided into five floors, the first being medical and the remaining four surgical. There are two operating theaters on each floor, one for septic and the other for non-septic cases. There are special departments of all kinds and a magnificent Roentgen-ray department in the basement. The vast roof is converted into a garden with revolving shelters in which the sick can enjoy in the long summer days the coolness of a high altitude without discomfort from the wind.

PRECAUTIONS AGAINST AIR RAIDS

The German method of attack has rendered necessary the taking of precautions in London against a Zeppelin raid. The following steps have been adopted on the recommendation of the Royal Society of Medicine: It has been ascertained what hospitals, infirmaries and dispensaries could do in the event of civilians being injured in their neighborhood, first, in the matter of provision for first aid, how many individuals they could receive and treat, then to be transferred as quickly as possible to their homes, to hospitals, or to nursing homes; and secondly, how many they could receive for complete treatment. A map of the London area has been prepared and marked, showing these receiving centers with the number of cases receivable. If the map revealed that any district had no receiving center, say within a radius of one mile, application was made to the local authorities inviting them to provide some suitable place—a town hall, a public bath, a library or a school—to which the police and helpers might be directed to convey the injured. The local authorities would provide an adequate supply of the material required for first aid, and the committee have drawn up a list of such material with prices, and have arranged with some surgical supply company to provide it at cost price. Emergency centers have been marked on the map, and copies of the map or full topographic particulars have been sent to every police office. A list of surgeons, physicians and district nurses willing to help in each district has been prepared, with names and full addresses, and (when possible) telephone numbers, and a copy of each district list has been sent to each police office in the district.

THE SONS OF PHYSICIANS KILLED IN THE WAR

The medical profession has already a considerable death roll of its members killed in the discharge of their duties at the front. To this must be added the sad bereavement of the loss of sons who are combatants, in some cases only sons. Among the well-known members of the profession who have thus lost their sons are Dr. Lewis Jones, Sir Wilmot Herringham; Dr. Norman Moore, Dr. H. D. Rolleston, Sir James Barr, Mr. W. H. Battle, Dr. A. E. Garrod and Dr. Lauriston Shaw.

Association News

THE SAN FRANCISCO SESSION

An Invitation from Tacoma

The Pierce County (Washington) Medical Society extends a cordial invitation to the Fellows of the American Medical Association who attend the San Francisco session to stop over in Tacoma on their way to or from San Francisco. Dr. James R. Yocum, Box 1040, Tacoma, chairman of a committee of this society on entertainment, advises that if a few days' notice can be given, it will be glad to take visitors for a short trip on Puget Sound, or if preferred, on automobile rides about the city. The committee especially requests that parties, traveling by special train or by special car, give notice of the time when they are likely to reach Tacoma. The committee will also be glad to assist in making arrangements for trips by either rail or automobile to Rainier National Park or Mount Tacoma. For this trip, the railroad fare is \$5; fare by automobile for the round trip to the inn, \$6; to the foot of the glacier, \$7; to Paradise Valley, \$8. The trip by train takes part of each of two days. The automobile trip can easily be made in one day.

Marriages

GEORGE WARD DISBROW, M.D., Newark, N. J., to Miss Virginia W. Sprecher of Sykesville, Md., in Washington, D. C., May 23.

CAPT. FLOYD KRAMER, M. C., U. S. Army, to Miss Dorothy Millikin Bevans, at Fort H. G. Wright, Fisher's Island, N. Y., May 25.

EDWARD NEWMAN ROBERTS, M.D., Pocatello, Ida., to Miss Florence Bloom of West Burlington, Ia., May 27.

DAVID LINN EDSALL, M.D., Boston, to Miss Pendleton Kennedy of Washington, D. C., June 2.

ALFRED HOFF, M.D., St. Paul, to Mrs. Merrun Dyer, at St. Luke's Hospital, St. Paul, recently.

THOMAS JOSEPH TONER, M.D., Gary, Ind., to Miss Alma M. Hoffmeister of St. Louis, June 8.

ISAAC W. BREWER, M.D., to Miss Charlotte Underhill of Bath, N. Y., June 8.

ERNEST LACKNER, M.D., to Mrs. Carrie Klein, both of Chicago, June 3.

ISIDOR HELLER, M.D., to Miss Ida Engel, both of Brooklyn, June 1.

Deaths

Lewis C. S. Turner, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1882; a Fellow of the American Medical Association and once president of the Jasper County (Ia.) Medical Society; for thirty years a practitioner of Colfax, Ia., and for fourteen years of that time medical director of the Victoria Sanitarium; for many years health officer of Colfax and for three years a member of the local school board; died in the Mount Pleasant (Ia.) State Hospital, May 18, from arteriosclerosis, aged 60.

Fayette Hamilton Peck, M.D. New York University, New York City, 1881; a Fellow of the American Medical Association; surgeon in chief of the Utica and Mohawk Valley Electric Railway Company; local surgeon of the New York Central Lines; senior surgeon to St. Luke's Hospital and gynecologist to and president of the medical staff of the Utica City General Hospital; formerly health officer of Utica, N. Y.; died at his home in that city, May 24, from heart disease, aged 59.

James MacArthur, M.D. Queen's University, Kingston, Ont., 1878; president and for many years a member of the Ontario Medical Council; one of the founders of the London (Ont.) Medical Association; jail physician of London for more than fifteen years; died at his home in London, May 23, from heart disease, aged 60.

William James Gills, M.D. University College of Medicine, Richmond, Va., 1901; a member of the Medical Society of Virginia and secretary of the Mettauer Medical Society; formerly surgeon of the Third Battalion, Seventieth Infantry, Virginia Volunteers; physician to the almshouse of Prince Edward County, Va.; formerly a member of the town council of Farmville, Va.; died in the Johnston-Willis Sanitarium, Richmond, Va., May 22, from pellagra, aged 37.

Henry Bak, M.D. University of Vienna, Austria, 1872; formerly a surgeon in the Austro-Hungarian army and later a surgeon of volunteers during the Spanish-American War; president of the faculty and professor of practice of medicine and pediatrics in the Southern College of Medicine and Surgery, Atlanta, Ga.; for several years a practitioner of Chicago; died in the Michael Rees Hospital in that city, May 25, from carcinoma of the bladder, aged 68.

James Orton Edie, M.D. Jefferson Medical College, 1874; a member of the Michigan State Medical Society and Grand Rapids Academy of Medicine; formerly local surgeon at Grand Rapids of the Lake Shore and Michigan Southern Railway; consulting surgeon to the Butterworth Hospital and consulting physician to the Union Benevolent Association Hospital, Grand Rapids; who recently moved to Everett, Wash.; died in that city, May 25, aged 77.

James Francis Jacob, M.D. Jefferson Medical College, 1893; of Throop, Pa.; a Fellow of the American Medical Association and one of the best known Mid-Valley practitioners; one of the leaders in the work of caring for the widows and orphans of the great Pancoast disaster and since that time instructor in first aid at the mines; died in the Burns Private Hospital, Scranton, May 24, two days after an operation for gallstones, aged 44.

William Monroe Carling, M.D. Medico-Chirurgical College of Philadelphia, 1897; of Battle Creek; a member of the Michigan State Medical Society and the Southwestern Michigan Triological Society; formerly clinical assistant in ophthalmology in the Denver and Gross College of Medicine of the University of Denver, Colo.; a specialist on diseases of the eye, ear, nose and throat; dropped dead while playing golf at Battle Creek, Mich., May 30, aged 42.

Orange Pomeroy, M.D. Cincinnati College of Medicine and Surgery, 1860; Bellevue Hospital Medical College, 1871; of Chardon, Ohio; assistant surgeon of the Sixteenth Ohio Volunteer Infantry during the Civil War; manager and for twenty years president of the Chardon Telephone Company; died at his winter home in St. Petersburg, Fla., May 17, aged 79.

Melvin S. Jones, M.D. Western Reserve University, Cleveland, 1877; for several years a practitioner of Battle Lake and Dead Lake, Minn.; a member of the legislature from Ottertail County, Minn., in 1902; for the last year a resident of Orange, Calif.; died at his home in that place, May 19, from heart disease, aged 60.

Julia W. Carpenter, M.D. Woman's Medical College of Pennsylvania, Philadelphia, 1870; a Fellow of the American Medical Association; president of the Cincinnati Obstetrical Society in 1902, and vice-president of the Cincinnati Academy of Medicine in 1904; died at her home in Walnut Hills, Cincinnati, May 23, aged 74.

William S. Stewart, M.D. Hospital College of Medicine, Louisville, Ky., 1895; of Pine Bluff, Ark.; a Fellow of the American Medical Association and secretary of the State Board of Medical Examiners of the Arkansas Medical Society; died in Hot Springs, Ark., May 31, from acute nephritis, aged 45.

Paul H. E. Sloan, M.D. Medical College of the State of South Carolina, Charleston, 1859; surgeon in the Confederate service throughout the Civil War, and later a physician and druggist of Pendleton, S. C.; for many years secretary and treasurer of Clemson College, Pendleton; died at his home, May 15, aged 79.

Charles Henry Rosenthal, M.D. Cooper Medical College, San Francisco, 1881; University of Leipzig, Germany, 1884; a Fellow of the American Medical Association and one of the most prominent practitioners of San Francisco; died at his home in Berkeley, Calif., May 24, from angina pectoris, aged 58.

William Marion Forman, M.D. University of Louisville, Ky., 1877; for many years a practitioner of Nelson County, Ky., and at one time deputy internal revenue collector in that county, but since 1896 a resident of Louisville; died at the home of his son in that city, May 24, from heart disease, aged 59.

J. F. Coughenour, (license, Mont., 1889); a veteran of the Civil War and a pioneer of Montana; in the early days clerk of the district court at Deer Lodge; later a practitioner of the Bitter Root Valley at Corvallis; died at his home in Hamilton, Mont., May 18, from cerebral hemorrhage, aged 71.

Reuben Robinson, M.D. University of Nebraska, Lincoln and Omaha, 1896; also a graduate in pharmacy; for several years a member of the teaching staff of his alma mater; formerly a member of the State Medical Association of Texas; died at his home in San Antonio, Texas, May 20, aged 54.

John Robertson McIntosh, M.D. University of Edinburgh, Scotland, 1888; of St. John, N. B.; a member of the American Ophthalmological Society; a specialist on diseases of the eye, ear, nose and throat; died at his home in St. John, May 20, from cerebral hemorrhage, aged 53.

John E. McCuaig, M.D. Queen's University, Kingston, Ont., 1891; well known as an alienist of northern Pennsylvania; for several years a member of the staff of the Danville (Pa.) State Hospital; died at his home in Erie, Pa., May 18, from uremia, aged 47.

Daniel E. Berryman, M.D. University of Edinburgh, Scotland, 1873; for more than forty years a practitioner of St. John, N. B., and since 1883 coroner for the City and County of St. John; died at his home in St. John, May 17, from cerebral hemorrhage, aged 68.

Francis P. Troxell, M.D. University of Pennsylvania, Philadelphia, 1865; a veteran of the Civil War; a practitioner of Allentown and later in the fire insurance business; for several years owner of a fruit farm at Pomona, Calif.; died in Los Angeles, May 14, aged 80.

David Ballantyne Anderson, M.D. Johns Hopkins University, Baltimore, 1913; of Salt Lake City, Utah; an intern in Mount Sinai Hospital, New York City; aged 27; was accidentally drowned during a heavy windstorm, May 26, while canoeing on Lake George.

Henry Martin Rising, M.D. Yale University, New Haven, Conn., 1868; a member of the Connecticut State Medical Society; for forty-five years a practitioner of South Glastonbury, Conn.; died at his home in that place, May 18, from arteriosclerosis, aged 71.

Emil Kunz (license, Illinois, 1891), a practitioner since 1877; a member of the German Medical Society of Chicago and a well-known anatomic draughtsman; died at his home in Chicago, May 25, from cerebral hemorrhage, aged 66.

William Green Torrence, M.D. Dearborn Medical College, Chicago, 1907; Leonard Medical College, Raleigh, N. C., 1908; a respected colored practitioner of Asheville, N. C.; died at his home in that city, about May 24, aged 34.

Henry Dare Moore, M.D. Jefferson Medical College, 1887; a Fellow of the American Medical Association and a member of the surgical staff of the Philadelphia Stomach Hospital; died at his home in Philadelphia, May 27, aged 50.

Sumner Carruth Saville, M.D. Harvard Medical School, 1894; a Fellow of the American Medical Association; and a well-known practitioner of Boston; died at the home of his mother in Cambridge, Mass., May 27, aged 47.

John Rice Eldridge, M.D. Cooper Medical College, San Francisco, 1894; a specialist on nervous and mental diseases; formerly a member of the faculty of his alma mater; died at his home in Berkeley, Calif., May 23, aged 50.

Hilliard J. Yarbrough, M.D. Eclectic Medical University of Kansas City, Mo., 1905; of Dallas, Tex.; formerly a member of the Board of Health of Ada, Okla.; died at the home of his niece in Dallas, Tex., May 23, aged 63.

James Henry Joyce, M.D. Tufts College Medical School, Boston, 1903; formerly a member of the Massachusetts Medical Society; city physician of Salem, Mass., since 1906; died at his home in that city, May 28, aged 34.

Alexander Ault, M.D. McGill University, Montreal, 1886; for more than forty years a practitioner of Oshkosh, Wis.; but since 1908, a resident of Brooklyn; died at the home of his daughter in that city, May 19, from cerebral hemorrhage, aged 77.

Thomas William Nave, M.D. Tulane University, New Orleans, 1900; formerly a Fellow of the American Medical Association; a member of the State Medical Association of Texas; died at his home in Galveston, Tex., May 13, aged 37.

Max A. Boesger, M.D. Western Reserve University, Cleveland, 1884; formerly a member of the city council of Cleveland and coroner of Cuyahoga County, Ohio; died May 18, at his home in Cleveland, from appendicitis, aged 54.

Isaac T. Rand, M.D. Tulane University, New Orleans, 1886; a member of the Louisiana State Medical Association and once president of the Attakapas Medical Society; died at his home in New Iberia, La., May 14, aged 49.

John Samuel Hood, M.D. University of Michigan, Ann Arbor, 1867; a veteran of the Civil War and in 1898 a member of the legislature from Fleming County, Ky.; died at his home in Nepton, Ky., May 14, aged 75.

William T. S. Duvall (license, District of Columbia), a practitioner since 1865; from 1867 to 1882, an employee of the postoffice department, Washington; died in Garfield Hospital, Washington, D. C., May 16, aged 80.

Alfred Bland Tucker, M.D. Southern Medical College, Atlanta, Ga., 1886; Long Island College Hospital, 1887; a member of the Medical Society of Virginia; died at his home in Berryville, Va., May 14, aged 58.

Gilbert L. Parker, M.D. Jefferson Medical College, 1874; a veteran of the Civil War, at the close of which he retired from service with the rank of lieutenant-colonel; died at his home in Philadelphia, May 19, aged 82.

Daniel E. Fuller, M.D. University of Buffalo, 1878; a member of the Michigan State Medical Society; died at his home in Hastings, Mich., May 12, from a fever contracted during a sojourn in Florida, aged 58.

William Neilson, M.D. Harvard Medical School, 1872; a member of the Massachusetts Medical Society and for many years a practitioner of Leominster, Mass.; died in the Leominster Hospital, May 14, aged 74.

Hugh Thomas D'Arcy, M.D. Wisconsin College of Physicians and Surgeons, Milwaukee, 1897; for several years a practitioner of Bloomington, Ill.; died at his home in Chicago, May 13, from sciatic rheumatism.

T. J. Murray, M.D. Kentucky School of Medicine, Louisville, 1878; for many years health officer of Somerville County, Tex.; died at his home in Glen Rose, Tex., about May 6, aged 78.

Alexander S. Johnson, M.D. Southern Medical College, Atlanta, Ga., 1881; a physician and druggist of Bowman, Ga.; died at his home in that place, May 5, from cerebral hemorrhage, aged 59.

William S. Pearsall, M.D. New York Homeopathic Medical College, New York City, 1886; died at his home in Brimfield, Mass., February 18, from interstitial nephritis, aged 54.

Dudley O. Wedge, M.D. Jefferson Medical College, 1874; formerly of Ipava, Ill.; but since 1908 a resident of Chicago; died at the home of his daughter in that city, May 11.

C. W. Gotcher, M.D. Memphis Hospital Medical College, Memphis, Tenn., 1900; died at his home in Garza, near Denton, Tex., May 8, from heart disease, aged 41.

John M. Scott (license, Pa., 1881); a practitioner of Cabot, Pa., since 1871; died at his home in that place, May 20, from cerebral hemorrhage, aged 65.

Marion C. Castleberry, M.D. Gate City Medical College, Texarkana, Tex., 1904; died at his home in Harmony, Tex., April 4, from lobar pneumonia, aged 41.

Joseph Olmstead Allen, M.D. University of Buffalo, 1851; a retired practitioner of Fayette, Ohio; died at his home, May 20, from arteriosclerosis, aged 85.

Stephen Townsend, M.D. University of Wooster, Cleveland, 1891; died at his home in Columbus, Ohio, May 15, from cerebral hemorrhage, aged 67.

J. W. Bandel, M.D. Memphis Hospital Medical College, Memphis, Tenn., 1903; died recently at his home in Ramona, Okla., from cerebral hemorrhage.

Robert Roy McCall, M.D. Barnes Medical College, St. Louis, 1900; formerly of Fulton, Mo.; died at his home in Alameda, Calif., May 8, aged 36.

John Franklin Holt, M.D. Rush Medical College, 1884; of Assumption, Ill.; died at St. Mary's Hospital, Decatur, May 17, from diabetes, aged 75.

J. W. Bozeman, M.D. Medical College of Georgia, Augusta, 1849; died at his home in Marietta, Ga., March 6, from senile dementia, aged 89.

William C. Raynor, M.D. Hahnemann Medical College, Chicago, 1881; a veteran of the Civil War; died at his home in Milwaukee, Wis., May 12.

William Veloss Huffman, M.D. Jefferson Medical College, 1887; died at his home in Millersburg, Ky., May 16, aged 56.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

MORE EPILEPSY CURES

Some of the Less Important Nostrums of This Type

E-LEP-TINE.

E-Lep-Tine is an epilepsy cure of the usual type. It is put on the market by the Miller Medicine Company, St. Mary's, Kan. This concern apparently has connected with it:

George Miller, M.D.
A. DeDonder
R. G. Erbacher

George Miller, according to our records, was graduated by the University of Pennsylvania in 1878. In addition to its "cure for fits" the Miller Medicine Company also puts out a purgative tablet "Rellim"—a rather obvious inversion of Miller. E-Lep-Tine has been marketed under the usual misleading claims, and there is nothing about the advertising matter to lift this product above the mediocrity of fraudulence common to epilepsy nostrums. "A large number of so-called 'cures' have been offered to afflicted persons," says the Miller Medicine Company, "but very few of them have effected any absolute cures." But:

"Dr. Miller has to his credit now more cures than any practicing physician."

The references in the advertising matter to the fact that taking E-Lep-Tine will produce drowsiness in the patient and, in certain instances, "cause small pimples to show on the body" naturally leads one to conclude that the essential drug in E-Lep-Tine, as might be expected, is some form of the bromids.

The Indiana State Board of Health in the second edition of its bulletin on "Medical Frauds" gives the following information regarding E-Lep-Tine:

Sodium and potassium bromides.....16 per cent.
Alcohol 6 per cent.
Ammonium valerate.

The Indiana chemists also state that while the price of this nostrum is \$1.75, its value is 10 cents.

HERBETTA CURINE

Herbetta Curine is put on the market by the Herbetta Medicine Co., Indianapolis, Ind. According to the advertising matter:

"Herbetta Curine is not an old remedy worked over. . . . it is not a nostrum or patent medicine. It is a scientific combination of four tablets discovered only after prolonged and diligent experience and research."

The company says that Herbetta Curine is not a cure-all; it is merely intended:

"To improve the digestion and assimilation of food."
"To restore tone and vigor to the wornout and exhausted nervous system."
"To restore the natural action of the liver, kidneys and bowels."
"To make rich blood."
"To put health and life into the whole body."
"To restore the sexual organs to their natural functions."

A specimen of Herbetta Curine was received from a correspondent recently. The package contained three envelopes labeled 1, 2 and 3, respectively, and in addition a number of red tablets. The following examination is reported by the Association's laboratory:

ENVELOPE No. 1:—This contained small, light green tablets. Tests indicated that these tablets contained a water-soluble phosphate of iron.

ENVELOPE No. 2:—This contained small gray tablets which were very bitter and probably consisted essentially, or largely, of some "bitter tonic."

ENVELOPE No. 3:—This contained small green tablets which responded to tests for aloes or aloin. These tablets constituted the laxative agent in the "treatment."

RED TABLETS:—These had a strong odor of sassafras and tests indicated that they were essentially strontium and potassium bromid.

Each "treatment" costs \$5 and the company offers to issue a "guarantee" to the effect that after thirteen treatments are taken the victim may have subsequent treatments for \$1.50 each "as long as treatment may be needed."

LEPSO

Lepso is sometimes advertised under the name of M. Lepso, Box 226, Milwaukee, Wis., and at other times by the Lepso Company, Island Avenue, Milwaukee. In addition to advertising in the cheap magazines the Lepso Company has obtained the names of victims by purchasing them from letter brokers. In this connection the following paragraph from a circular letter sent out by the Lepso Company is interesting.

"A dealer in lists of names informed me that he had some names of people who are afflicted with Epilepsy for sale and he thought that I could use these names. I inquired as to how he happened to get his list of names and was informed that a so-called Epileptic Remedy company had sold them to him. So evidently once upon a time you must have answered an advertisement of a so-called company. It was certainly surprising for me to learn that these companies have no more loyalty or respect for the confidence of their customers than to betray them in this manner. As for myself, I would never think of selling the names of people who answer our ad. We keep all letters strictly confidential as any firm ought to have honor enough to do. Well, I got this list of names from this dealer because I know that our 'Lepso' is a real fit remedy."

After a cursory analysis of Lepso in 1911 the Association's chemists reported:

"Contains bromids equivalent to about 6.8 grams potassium bromid in each fluidounce."

As the dose recommended was one-half ounce, this was equivalent to giving 3.4 grams (51 grains) of potassium bromid to the dose. Such a dangerous mixture may be sold indiscriminately to the public without warning or even mention of presence of bromids.

Correspondence

Venarsen—A Disclaimer

To the Editor:—I enclose a pamphlet, received from the Venarsen Company, which states that venarsen is being used in the Vanderbilt Clinic by several men including myself.

Several weeks ago an agent of the Venarsen Company called to see me and I promised to give venarsen an experimental trial. The enclosed advertisement was sent to the profession actually before I had received the samples of venarsen. When the samples were received, they were not even opened, but were sent back to the company by express. You can see, therefore, that the Venarsen Company had no right whatsoever to use the names of any of the men associated with the Vanderbilt Clinic. Even if we had experimented with the drug and found it to be a valuable product, we would not allow our names to be used in this way. You can see therefore, that the company is entirely unscrupulous, and deserves to be severely chastised for misusing the names of reputable physicians.

I wish to say also that the publishers of the *Journal of Cutaneous Diseases* accepted a venarsen advertisement on a short contract. A short contract was given so that the advertisement could be discontinued if the Council on Pharmacy and Chemistry of the American Medical Association reported unfavorably on the product. We understand that the Council has reported unfavorably, and therefore, the

venarsen advertisement will be removed from the *Journal of Cutaneous Diseases*.

This letter is approved by every physician you find on the pamphlet, and who belongs to the staff of the Vanderbilt Clinic. I wish that you would feel at liberty to publish this letter if you so desire, or to use it in any way you think advisable.

GEORGE M. MACKEE, M.D., New York.

Editor, *Journal of Cutaneous Diseases*.

The Opera Glass in Roentgen Examination

To the Editor:—For the past year I have had occasion to examine a great many roentgenograms, mostly of the chest. I observed that certain shadows were more or less constant in the hilum of both lungs, more on the right than on the left. Trabeculae extending in all directions could be seen in most plates, but very indistinctly. It occurred to me that if one could magnify the plate in some way, the finer shadows could be brought out. I procured an ordinary pair of opera glasses, and placed the plate where a strong light, either artificial or natural, would bring out the shadows. Standing about 15 feet away and focusing the glasses, I obtained a much enlarged view of the plate, clearer in outline and an almost stereoscopic picture.

The advantages of this method of inspecting roentgenograms are:

1. A small picture could be taken to bring out the detail of the part to be examined and could be enlarged merely by looking at it with the opera glasses.
2. A clearer view will be obtained.
3. The picture is almost stereoscopic.
4. No expensive apparatus is necessary.

J. J. SINGER, M.D., St. Louis.

The Treatment of Lice of the Eyelashes and Brows by Hydrogen Peroxid

To the Editor:—In view of the increased interest in body parasites as a cause in transmitting disease, I wish to call attention to the great value of hydrogen peroxid in the treatment of pediculi ciliaris, or lice of the eyelashes and brows. My experience in the treatment of this disgusting pest with the various mercurial solutions and ointments usually recommended and employed for the purpose of destroying these parasites has not been satisfactory. While it is possible after a few days' use of mercurial preparations to destroy the lice, this does not rid the patient of the ova or nits. The treatment must be continued for days and weeks—until all of the ova are hatched. The ova cling tenaciously to the hairs, and the cause of the trouble is controlled if the ova are removed at once. By the application of a ten volume strength of hydrogen peroxid simply by mopping the eyelashes or brows with the solution on absorbent cotton and then passing the hairs through a pair of sterilized Kuhnt's or Noyes' trachoma forceps, the living parasites and ova will be removed in a few minutes, thus putting a quick end to the affection. There is no danger of bleaching the hair, from this limited use of hydrogen peroxid.

EDWARD L. MEIERHOF, M.D., New York.

Preventive or Prophylactic Packet in the Navy

To the Editor:—Apròpos of the recent circular letter of the Secretary of the Navy to the commanding officers, in which that official refuses to authorize the issue of the "preventive or prophylactic packet" to the sailors on our war ships, I wish to inquire whether it is not possible to change the method of furnishing this packet so that the responsibility for its use would be squarely placed where it belongs—wholly on the men who use it? I grant that it is questionable whether the government should countenance immorality by providing against the consequences thereof. At the same time if the use of this packet is discontinued, this discontinuance will indubitably have as a practical result a greater incidence of disease. On the other hand its use, as is well

known, has resulted and would continue to result in conserving health and effecting a considerable economy.

It is manifest that sailors must have the same use of their freedom as the ordinary citizen and every man must determine his conduct for himself. The Secretary of the Navy must admit that in the present state of human progress, we have only a choice of evils and in such a case, duty bids us choose the least.

Could not the government, as represented by its officers, emphatically warn the soldiers and sailors of the dangerous results from illicit indulgence and while absolutely refusing to countenance any infraction of the moral law, place within the reach of all the "preventive packet" in such a manner that its use would be absolutely the individual act of the sailor or soldier?

I have only the knowledge of a civilian and a medical man on this subject, but am of the opinion that, if it is not already done in the Army and Navy, arrangements should be made whereby every man would have brought home to him a knowledge of the dangers and fateful consequences of venereal diseases. After this is done, every man must decide for himself as to his conduct.

I wish to raise the above question for consideration and discussion.

Yours very truly,

RICHARD DEWEY, M.D., Wauwatosa, Wis.

Sphygmomanometer Cuff in Intravenous Injections and Hyperemic Treatment

To the Editor:—In THE JOURNAL, Jan. 9, 1915, p. 182, was an abstract of an article on the use of the cuff of the sphygmomanometer to cause a venous stasis, in introducing a needle for intravenous injection. I have used this method for a couple of years, and I believe the main part of its usefulness is the fact that by covering the release valve with a sterile towel, the pressure in intravenous injection can be relieved without breaking aseptic technic or requiring the assistance of a second person.

Also I find this apparatus to be very efficient in giving Bier's hyperemic treatment, because a definite venous stasis can be regulated by the definite pressure in the arterial supply, thus eliminating the guesswork which is evident with the old tourniquet method for producing hyperemia.

ARTHUR A. RANG, M.D., Washington, Ind.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

THE HARRISON NARCOTIC LAW A PROTEST AGAINST THE ANNUAL FEE

To the Editor:—I have addressed the following inquiry to the Secretary of the Treasury. I have no fault to find with the provisions of the Harrison law, and in line with your editorial suggestions I believe that the profession should willingly give what time and trouble is necessary to carry out its provisions. I do believe, however, that it is time for the profession to rise in mighty protest against the petty exactions which are being piled on by the authority "Regulation" (and even without), for it is news to me that laws can be amended and amplified by any executive power, as is most certainly being done. H. S.

"To the Secretary of the Treasury:—Inasmuch as the Harrison law reads that 'on and after the first day of March, nineteen hundred and fifteen, every person . . . shall register, etc. . . . and on or before the first day of July, annually thereafter, . . . shall pay to the said collector a special tax, etc.' I have the honor to inquire by what authority of law we are now required again to register, with the attendant trouble, expense and absurdity of being required to make personal affidavit to a fact which is a matter of public record—i. e., our legal qualifications to practice medicine.

ANSWER.—The protest of our correspondent is evidently called out by a circular letter recently sent out by the collectors of internal revenue of the various districts to all persons liable for internal revenue taxes. Physicians registered under the Harrison law are called on for the payment of

the annual special tax of \$1 imposed by that law. The law provides that at the time of registration and on or before the first day of July annually thereafter, every person who handles any of the specified drugs shall pay to the collector of his district a special tax at the rate of \$1 per annum. As has been previously explained, the law went into effect March 1, 1915. The fiscal year of the United States government runs from July 1 to June 30. Consequently, the tax for the fraction of the year from March 1, 1915, to July 1, 1915, was prorated, each person registering paying 34 cents for the fraction of the year. It was explained at the time that a further payment of \$1 would be necessary on or before July 1. This payment will cover the special tax until July 1, 1916, when another payment will be necessary. Consequently, the letter sent out by the collectors of internal revenue of the different districts is not a demand for reregistration, but is simply a notice for the payment of the annual tax. The receipt for the payment of this tax, like all internal revenue taxes, is in the form of a special tax stamp. This method of collecting taxes is the same for all persons affected by internal revenue measures. The letter sent out by the collector of internal revenue for the Chicago district went to 70,000 taxpayers in this district alone, including proprietors of theaters, shows, billiard and pool tables, bowling alleys, dealers in tobacco, liquor, oleomargarin, physicians, druggists, dentists and others. It was not a special measure applicable to physicians alone.

The application of an internal revenue tax to physicians is an entirely new proposition. It is not strange, therefore, that many physicians, like our correspondent, resent the necessary routine measures unavoidably connected with the collection of such a tax. It is well for a physician to remember, however, that the imposition of this small and nominal tax marks the first effort which has been made by the federal government to control the use of habit-forming drugs and to restrict them to legitimate purposes. The collection of this registration fee each year is a necessary part of the operation of the law. The circular to which our correspondent objects is simply a notification to persons registered under the law that the annual tax under the law is due and payable.

ALLEN METHOD OF TREATING DIABETES

To the Editor:—Can you send me or tell me where I can get literature on Allen's method of treating diabetes?

P. H. GREELEY, M.D., Farmington, N. H.

To the Editor:—Please describe in full Allen's treatment for diabetes.

G. G. WHITE, M.D., Elkaden, Iowa.

To the Editor:—How may I learn enough about the Allen starvation plan to use it?

E. M.

ANSWER.—According to Allen, the first step is to fast—preferably in bed—until glycosuria ceases, and then for from twenty-four to forty-eight hours longer. Acidosis, if present, is thus rapidly reduced. Alcohol may be given during the fast, in the form of whisky or brandy. When the fasting patient has been free from glycosuria from twenty-four to forty-eight hours, the next step is to begin feeding very slowly and cautiously. A fixed program is unnecessary. It is desirable to establish the diet to suit the needs of the individual patient. The one requirement is that the patient must remain free from both glycosuria and acidosis. Any trace of sugar is the signal for a fast day. The original fast, to clear up the urine, may be anywhere from two to ten days in length, but after that no fast need be longer than one day. The factors to be considered in the diet are protein, carbohydrate, fat and bulk. Frequently the first thing given after the fast is carbohydrate. No distinction is necessary between different forms of starch, but there are advantages in using vegetables. The first day after fasting, the only food may be 200 gm. of vegetables of the class containing 5 and 6 per cent. of carbohydrates. This is increased day by day until a trace of glycosuria appears, which is checked by the fast day. The purpose of such a program is to learn the carbohydrate tolerance and to clear up the least trace of acidosis.

After the carbohydrate period, according to Allen, or sometimes in place of it, protein may be given. On the first day perhaps one or two eggs are given and nothing else. More protein, such as eggs and meat, is added day by day until the patient either shows glycosuria or reaches a safe protein ration. The purpose is to learn the protein tolerance and to regain protein lost as quickly as possible. Fat is somewhat less urgently needed except in weak and

emaciated patients. It can be added gradually as conditions seem to indicate. An element of bulk in the diet is necessary to give a comfortable feeling of fulness and to prevent constipation. For this purpose, green vegetables are advantageous. When they are fed raw, cooked in steam, or boiled and evaporated, so that no water is thrown away, it is possible to estimate the quantity of carbohydrate, and the valuable salts remain. If the case is so severe that even green vegetables cannot be tolerated, the vegetables may be boiled through three waters, throwing away all the water. Nearly all starch is thus removed, and the most severe cases may take these thrice-cooked vegetables.

One result of the initial program described is loss of weight. The attempt to put on too much weight, according to Allen, is one of the sure ways of bringing back all symptoms, and is probably one of the chief causes of past failure in treating severe cases.

In brief, it is necessary to restrict all classes of food, and to test the tolerance of each patient in each particular class. Carbohydrate is given if possible, but is kept safely below the limit of tolerance. The following articles may be consulted:

Allen, F. M.: *Studies Concerning Glycosuria and Diabetes*, Boston, Harvard University Press, Cambridge, Mass., 1913, \$9. (Theoretical and experimental; does not deal with treatment of patients.)

Allen, F. M.: *Studies Concerning Diabetes*, *THE JOURNAL*, Sept. 12, 1914, p. 939.

Allen, F. M.: *Treatment of Diabetes*, *Boston Med. and Surg. Jour.*, Feb. 18, 1915.

Hill, L. W., and Sherrick, J. L.: Allen's Treatment of Diabetes, *Boston Med. and Surg. Jour.*, May 13, 1915; abstr., *THE JOURNAL*, May 29, 1914, p. 1875.

DENTAL CLINICS

To the Editor:—In *THE JOURNAL*, May 22, 1915, p. 1782, the statement is made, in reply to the inquiry of "R. B.," that "New York City has a number of school clinics maintained by the board of education, and there are four clinics in connection with the various hospitals, maintained by cooperation of the dentists and various philanthropic organizations of that city."

The facts are that the board of education has no dental clinics for schoolchildren. The board of health has seven dental clinics, six with paid dentists and one with a volunteer dentist in attendance. There are in New York City, aside from these municipal dental clinics, twenty-one clinics for the free dental treatment of schoolchildren.

I feel sure that there has been some misunderstanding on Dr. Ebersole's part regarding this matter and, on behalf of the Bureau of Child Hygiene of the Department of Health of New York City, I should like to have this correction made in the same column in which the original letter appeared.

S. JOSEPHINE BAKER, M.D.,
Director, Bureau of Child Hygiene, New York.

LITERATURE ON MASTITIS

To the Editor:—Please give me references to articles on mastitis, with special consideration of the bacteriology, prophylaxis and treatment.

ADAM P. LEIGHTON, JR., M.D., Portland, Maine.

ANSWER.—The following is a list of articles on this subject:

Eicher, S.: *Acute Mastitis*, *Beitr. z. Geburt. u. Gynäk.*, 1912, xvii, No. 2; abstr., *THE JOURNAL*, July 13, 1912, p. 150.

Strong, R. A.: *Mastitis*, abstr., *THE JOURNAL*, May 18, 1912, p. 1538.

Bertels, A.: *Chronic Septic Mastitis and Malignant Degeneration*, *Deutsch. Ztschr. f. Chir.*, September, 1913; abstr., *THE JOURNAL*, Nov. 1, 1913, p. 1669.

Keyes, A. B.: *Mastitis Lactantia*, *Surg., Gynec. and Obst.*, September, 1914.

Hauch, E.: *Treatment of Puerperal Mastitis*, *Ugesk. f. Læger.*, April 23, 1914; abstr., *THE JOURNAL*, May 30, 1914, p. 1766.

Mastitis in Mumps, *Queries and Minor Notes*, *THE JOURNAL*, May 23, 1914, p. 1681.

Whitcher, B. R.: *Mastitis in Pregnancy*, Report of Case, *Boston Med. and Surg. Jour.*, Dec. 24, 1914.

Van Lier, E. H.: *Chronic Septic Mastitis*, *Nederlandsch Tijdschr. v. Geneesk.*, 1915, ii, No. 8.

Muller, G. P.: *Chronic Septic Mastitis*, *Ann. Surg.*, November, 1914.

Capps, J. A., and Davis, D. J.: *Epidemic of Streptococcus Sore Throat in Jacksonville, Ill. Traced to Milk of Cows with Streptococcus Mastitis*, *Arch. Int. Med.*, November, 1914; abstr., *THE JOURNAL*, Dec. 5, 1914, p. 2071.

Human Evaluation.—The study of human values can only be made in the light of mankind's regard for itself. This has been, in all times, all ages and all countries, the lightest of human considerations. My observations lead me to believe that mankind has not improved the treatment of itself. The human sacrifice is required just as much today as it ever was in the Temple of Baal or on the altars of the Aztecs.—Seitz.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALABAMA: Montgomery, July 6. Chairman, Dr. W. H. Sanders, Montgomery.

ALASKA: Juneau, July 6. Sec., Dr. Harry C. DeVighne, Juneau.

ARIZONA: Phoenix, July 6-7. Sec., Dr. John Wix Thomas, Phoenix.

CALIFORNIA: San Francisco, June 15-18. Sec., Dr. Charles B. Pinkham, 727 Butler Bldg., San Francisco.

CONNECTICUT: New Haven, July 13. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven; Eclectic: New Haven, July 13. Sec., Dr. T. S. Hodge, 19 Main St., Torrington; Homeopathic: New Haven, July 13. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

DELAWARE: Dover and Wilmington, June 15-17. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

DISTRICT OF COLUMBIA: Washington, July 13. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

FLORIDA: Jacksonville, June 15-16. Sec., Dr. E. W. Warren, 102 Front St., Palatka.

ILLINOIS: Chicago, June 24-26. Sec., Dr. C. St. Clair Drake, Springfield.

INDIANA: Indianapolis, July 13-15. Sec., Dr. W. T. Gott, 120 State House, Indianapolis.

MAINE: Augusta, July 6-7. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

MARYLAND: Baltimore, June 21. Sec., Dr. J. McP. Scott, Hagerstown.

MARYLAND: Homeopathic, Baltimore, June 15-16. Sec., Dr. O. N. Duvall, 1817 N. Fulton Ave., Baltimore.

MASSACHUSETTS: Boston, July 13-15. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

MISSISSIPPI: Jackson, June 15-16. Sec., Dr. E. H. Galloway, Jackson.

MISSOURI: St. Louis, June 21-23. Sec., Dr. J. A. B. Adcock, State House, Jefferson City.

NEW HAMPSHIRE: Concord, July 6-7. Regent, Mr. H. C. Morrison, Concord.

NEW JERSEY: Trenton, June 22-23. Sec., Dr. H. G. Norton, 429 E. State St., Trenton.

NEW MEXICO: Santa Fe, July 12. Sec., Dr. W. E. Kaser, East Las Vegas.

NEW YORK: Albany, Buffalo, New York and Syracuse, June 29-July 2. Mr. Harlan H. Horner, Chief, Examination Division, State Education Bldg., Albany.

NORTH DAKOTA: Grand Forks, July 6-9. Sec., Dr. G. M. Williamson, Grand Forks.

OKLAHOMA: Oklahoma City, July 13. Sec., Dr. Ralph B. Smith, 502 Daniel Bldg., Tulsa.

OREGON: Portland, July 5. Sec., Dr. L. H. Hamilton, Medical Bldg., Portland.

RHODE ISLAND: Providence, July 1. Sec., Dr. Gardner T. Swarts, State House, Providence.

SOUTH DAKOTA: Pierre, July 12. Sec., Dr. Park B. Jenkins, Waubay.

TENNESSEE: Memphis and Nashville, June 25, 26. Sec., Dr. A. B. De Loach, 426 Scimitar Bldg., Memphis.

TEXAS: Austin, June 22-24. Sec., Dr. M. P. McElhannon, Belton.

UTAH: Salt Lake City, July 5. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

VERMONT: Burlington, July 1-3. Sec., Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, June 22-25. Sec., Dr. J. N. Barney, Fredericksburg.

WASHINGTON: Seattle, July 6. Sec., Dr. G. N. Suttner, Baker Bldg., Walla Walla.

WISCONSIN: Milwaukee, June 29-30-July 1. Sec., Dr. J. M. Beffel, 3200 Clybourn St., Milwaukee.

WYOMING: Laramie, June 28-30. Sec., Dr. H. E. McCollum, Laramie.

UNIVERSITY OF MINNESOTA AND THE MAYO FOUNDATION

Last February it was announced that William J. Mayo and Charles H. Mayo of Rochester, Minn., had set aside \$1,500,000 to establish what was called the Mayo Foundation for Medical Education and Research and had offered to turn this foundation over to the University of Minnesota. A special committee was appointed by the board of regents of the university to make a thorough investigation of the matter and that committee has reported. The following is an abstract of the report:

ABSTRACT OF REPORT

The committee recommends that for a trial period of six years the university establish a part of its graduate work at Rochester, appoint investigators and teachers, set standards of work and graduation, and accept the maintenance funds, quarters, equipment and other opportunities offered by the Mayo foundation.

The committee further recommends that in case the experiment proves successful the work be continued on a permanent basis under these conditions: (1) complete control by the regents of endowment funds and income; (2) appointment by the regents of all directors, teachers, investigators and others connected with the Mayo foundation; (3) the maintenance at Rochester, Minn., of quarters and administration for

the foundation work, with right to make from the endowment income appropriations for medical investigation anywhere inside or outside the state.

It is believed that through this policy the university would fulfil a public duty by: (a) providing notable facilities for advanced medical training; (b) standardizing and controlling in the public interest the preparation of medical specialists; (c) fostering medical research not only on a state but on a national basis; (d) furthering the growth of graduate work on the university campus, and (e) increasing the efficiency of undergraduate teaching at the university.

The committee presented the following educational considerations as the basis of its recommendations:

GRADUATE WORK IN MEDICINE

There seems to be uncertainty in many minds as to just what is meant by graduate work in medicine. So-called "postgraduate" courses in "polyclinic" schools are brief courses for busy practitioners who desire to keep "up to date," but these courses do not approach true graduate work in seriousness, or length of time or advanced character of instruction.

A graduate student in chemistry, history or any other branch of learning spends from two to five years in thorough training, and devotes a good part of his time to original investigation of a chosen topic. Graduate instruction in this sense is being extended to medicine.

Unlike undergraduate teaching, graduate instruction is not given in classes or in a fixed course of study. The essential point of the training is its individual character. Opportunities for such work are measured by the number and control of properly selected cases, by the character of the teachers, and by the character of the organization conducting the work.

In graduate work of any kind research plays a large part. Originality and ability to conduct investigation must be demonstrated.

The studies of a medical graduate in any given specialty should consist of: (1) Further work in the fundamental sciences of anatomy, physiology, etc.; (2) adequate practice in the technical procedures of diagnosis and treatment; (3) a thorough acquaintance with the literature of the specialty and related branches; (4) original investigation relating to his specialty.

Medical knowledge has become too extensive for any one to become a master of all of it. Such knowledge is still being increased by the discovery of new facts coming from systematic study by trained investigators. Investigators are trained by doing original work under critical and inspired leadership. This is the prime function of the graduate school. Again, adequate training must be provided for the men who desire to follow teaching as a career.

Heretofore, so far as special training is concerned, the best specialists have been, by force of circumstances, self-made. Success has depended more on native ability than on systematic training.

Not only does the profession lack standards, but the public has no way to judge as to the competency of special practitioners. The establishing of authoritative standards is needed for the protection of the public.

It is the duty of the university to extend the bounds of knowledge in this difficult field of medicine, and to do so, trained investigators are necessary. Again, it is the duty of the university to standardize graduate medical instruction.

The first duty of the medical school is to provide a thorough undergraduate course for the training of general practitioners, and as a basis for advanced work. Such a course demands laboratories, clinics and a highly trained staff. The provision of a first-rank undergraduate course involves a margin of leadership and facilities which can be used for a limited amount of graduate work also, and this cannot be developed beyond a certain point without great expense.

COST OF MEDICAL EDUCATION AT MINNESOTA

The medical plant of the University of Minnesota has already cost approximately \$1,100,000. The clinical facilities have cost \$300,000. The present annual budget of the medical school is \$150,000, which includes a considerable expense for teaching done for other divisions of the university.

The cost of hospital and dispensary maintenance is \$80,000 per annum. At least four-fifths of this amount is chargeable to the care of the indigent sick of the state, but by the legislature and in the public mind this is regarded as a part of the cost of medical education. On this basis the present total budget of medical education is \$230,000 per annum.

The administrative board of the medical school have estimated that to round out the medical plant and double the present hospital facilities will cost for buildings \$600,000 and for increased maintenance \$60,000. To provide also for instruction and investigation a further annual cost of \$40,000, which will bring the totals for plant and annual maintenance to \$1,700,000 and \$330,000, respectively.

It is evident that there must be a limit to the amount of state support. The extension of hospital facilities; the building and support of pavilions for women and for children, and the housing of the school for nurses ought to appeal to individual donors. If therefore the university is to provide graduate instruction and research for Minnesota and the Northwest, it must utilize all available facilities which can be controlled and standardized. But none of these latter can be regarded as substitutes for a university-controlled hospital and laboratory system for undergraduate instruction.

USE OF PRIVATE AND MUNICIPAL HOSPITALS

Municipal and private hospitals can be used in both undergraduate and graduate medical education to a limited extent and better arrangements may be made as time goes on. In the twin cities, however, the development of adequate facilities for clinical instruction of the advanced type in the municipal hospitals appears impracticable for some time to come. In private hospitals the work is rarely coordinated under one organization, the patients being considered as the individual cases of particular doctors. There is nothing which renders the private pay patient any less valuable for study than the charity patient, and in graduate teaching, where the student is a qualified and legalized physician and is the assistant of the teacher, there seems no reason why private patients should not be used. All the laboratory branches have conducted graduate work for several years. The work is standardized as a regular part of the graduate school of the university.

GRADUATE WORK AT MINNEAPOLIS AND ROCHESTER

In the clinical departments this type of work has recently been undertaken. All departments are now offering graduate work excepting those of dermatology and genito-urinary diseases. Six "teaching fellows" with aggregate stipends of \$3,000, are giving their full time to the university. They do a small amount of teaching but devote the larger share of their energies to advanced study and research. There are two "graduate scholars" exempt from tuition fees, who devote half their time to graduate work.

The total number of graduate students in the medical school is twenty-one, of whom nineteen are candidates for the degree of M.S., Ph.D., or D.Sc.

Graduate work in the medical school is of importance not only for itself but also because of its stimulating effect on the faculty. It counteracts the deadening effect of undergraduate work, with its yearly repetition of elementary courses. It adds interest to teaching and keeps the faculty in active contact with research. Moreover, by such work the demand of the public for trained service is being met.

The Mayo foundation has well equipped laboratories in charge of full-time and thoroughly competent men. It has adequate library, museum, autopsy and editorial facilities, and it has at its disposal a wide range and large amount of clinical material in most respects representative. Although the patients are not charity patients the arrangements are admirable for affording graduate students the fullest advantages. They act as assistants to the permanent heads of clinical and laboratory services and are shifted from service to service so as to get full experience in all branches related to their major interest.

Under these conditions thirty salaried fellows and six voluntary workers are engaged in graduate medical study of a high degree of excellence. These men are qualified for enrolment in the graduate school of the university.

The staff of the foundation is composed of high-grade men. Several are recognized leaders in their special fields. Many of the staff have had teaching experience, and the group as a whole is scientifically and professionally on a par with medical facilities in the larger universities.

There is in Rochester a large amount of material in surgery, surgical pathology, gastro-intestinal diseases, goiter and Roentgen ray. There is also a large collection of clinical records systematically kept and so cross referenced as to be available for statistical studies. When it is realized that conclusions as to the causes and relations of diseased conditions can be drawn only by the comparison of large numbers of cases, the value of these records for medical research becomes apparent.

ADVANTAGES OF THE AFFILIATION

The facilities of the two institutions in large measure supplement each other. For all the specialties the university can furnish training in anatomy, physiology and pharmacology not available at Rochester. Thus the scientific foundation of the graduate students in both places would be assured. These students would constitute one body under the educational guidance of the dean of the graduate school. Such guidance is essential and cannot be supplied outside the graduate school of a university.

If the graduate work at Rochester passes to the control of the university, medical education in Minnesota will become a unit under the state university.

Advantageous cooperation between the clinical departments in the two places, with increased efficiency as a result of united facilities, are numerous. The following may be mentioned: In medicine the student would get at the university training in acute diseases and other conditions ordinarily found in the medical wards. This would be supplemented by experience at Rochester in the diagnosis and treatment of diseases not so frequently found in the University Hospital. The student desiring to specialize in women's diseases would be trained in obstetrics at the university and in gynecology both at the university and at Rochester. The training afforded in orthopedics at the hospital for the crippled and deformed at Phalen Park, under supervision of members of the university faculty, would be supplemented by the study of a somewhat different class of cases at Rochester. This is true in varying degree in all branches, for the quantity and kind of cases vary in the two clinics.

Educational efficiency would be improved by a freer exchange of staff members between the two institutions. Research workers could combine the appropriate materials of both places. The reciprocal stimulus of generous rivalry would be of value to both groups.

THE UNIVERSITY TO CONTROL ALL MEDICAL EDUCATION

All forms of medical education in Minnesota, including graduate medical instruction, should be centralized in the university. The university should enter this new movement with conviction, extend to it the educational leadership which is needed and see to it that a university diploma shall be the recognized mark of proficiency in the medical specialties. It is reasonable to expect that the interchange of work between Minneapolis and Rochester, the possibilities of research and the presence of graduate students in both places would make it easier for the university to attract to its staff the best men from all parts of the country.

The effect on the undergraduate student body would be good. Ideals of research would be constantly before them. Able and ambitious students would be attracted to the undergraduate course because, while the graduate school is open to all medical graduates, those who come up through the university's own course of study and who establish high records would be most directly in line for fellowships and for laboratory appointments.

The extension of graduate teaching proposed would enable the university to serve the state by insuring more expert medical service to its people, by furthering research into cause, cure and prevention of disease, by protecting the public by a system of education, examinations, diplomas and degrees for specialists against incompetence and exploitation. The committee recommends, therefore, that the university establish graduate work at Rochester, Minn.; that such work be directed by the graduate school through its dean and the medical school graduate committee; that professors and other teachers be appointed on the nomination of the same committee, to carry on graduate teaching and research at Rochester, and that the offer of clinical and other facilities and gifts made by the Mayo foundation be accepted.

ABSTRACT OF FORMAL AGREEMENT

1. The agreement is made between William J. Mayo and Charles H. Mayo as Founders; the Mayo Foundation; Burt W. Eaton, George W. Granger and Harry J. Harwick, Trustees of the \$1,500,000; and the University. It sets forth copies of the articles of the Foundation and of the two trust agreements and asserts or provides:

2. That the Mayos and their associates have entered into an agreement with the Foundation for the period of six years after Sept. 1, 1915, to pay all moneys and provide all subjects, facilities and material necessary to enable the Foundation to carry out its agreement with the University.

3. That the Board of Regents is by law required to manage the University and appoint its professors and employees and

fix their salaries and may accept in trust gifts and bequests on the terms and conditions on which they are granted.

4. That the University is maintaining a medical school and is carrying on graduate medical and surgical instruction and has determined to increase its faculty, secure additional facilities, sites and material, appoint additional professors and assistants and carry on part of the work of the school of medicine at Rochester.

5. That the Foundation gives and grants to the University free of charge the right to use for medical and surgical education and research space and rooms and equipment in a certain building in Rochester, together with all clinical and other materials and opportunities for graduate medical and surgical work available at the Mayo Clinic, St. Mary's Hospital, the Kahler Sanatorium and the Colonial Sanatorium in Rochester, for a period of six years after Sept. 1, 1915.

6. That the Foundation also agrees during that period to pay all salaries fixed by the Board of Regents and payable to professors, assistant professors and instructors appointed by the Board.

7. That until Sept. 1, 1921, the net income of each of the trust funds shall remain in the hands of the Trustees as an added increment to the principal of the funds.

8. That from and after Sept. 1, 1921, the principal of the funds and all accumulations to that date shall be turned over to and become the property of the University.

9. That the funds and the income therefrom are granted in trust to be used by the University as follows:

(a) The principal shall always be kept intact by the Board of Regents and be invested in suitable securities.

(b) The income from the funds shall be used for the purpose of graduate medical and surgical instruction and research carried on under the direction of the Board of Regents at Rochester, Minn., with the understanding that appropriations may be made for carrying on medical investigations anywhere within or outside of the state of Minnesota.

10. That the agreement may be terminated at any time on or before Sept. 1, 1921, on one year's notice given by either of the parties to the other, subject to the cooperation of all parties to discharge to the satisfaction of the University outstanding obligations to graduate students.

11. That the University accepts the gifts and grants, and obligates itself annually to furnish to the Foundation until Sept. 1, 1921, a budget stating the needs of this branch of the work at Rochester.

Massachusetts March Report

Dr. Walter P. Bowers, secretary of the Massachusetts Board of Registration in Medicine, reports the oral, practical and written examination held at Boston, March 9-11, 1915. The total number of subjects examined in was 13; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 68, of whom 40 passed, including 8 nongraduates and 6 osteopaths, and 28 failed, including 15 nongraduates and 2 osteopaths. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery....		(1915)	76.1
Medical School of Maine.....		(1914)	75
College of Physicians and Surgeons, Baltimore.....		(1914)	78.6
Johns Hopkins University.....		(1913)	76.1
College of Phys. and Surgs., Boston.....		(1912) 75; (1914)	78.2
Harvard Univ. (1909) 75.2; (1913) 80.2; 83.2; (1914) 78.4; (1915)			79.1
Tufts Coll. Med. School..	(1913) 81.2; (1914) 75, 75.2, 77.1, 78.2,		78.8
Univ. of Mich., Dept. of Med. and Surg....	(1894) 75; (1912)		75.9
Dartmouth Medical School.....		(1900)	76.1
Albany Medical College.....		(1914)	80.7
University of the City of New York.....		(1880)	75
Jefferson Medical College.....		(1914)	80
University of Vermont.....		(1914)	77
University College of Medicine, Richmond.....		(1910)	78.2
McGill University		(1875)	75
Nongraduates.....	75, 75, 75, 75, 76.4, 76.5, 78.1,		79.5
FAILED			
Georgetown University		(1912)	71.9
Baltimore Medical College.....		(1911)	71.8
College of Physicians and Surgeons, Baltimore.....		(1914)	73.3
Maryland Medical College.....		(1913) 56.1,	71.3
Coll. of Phys. and Surgs., Boston....	(1907) 64.8; (1911) 71.6;		
	(1913)		62
Tufts College Medical School.....		(1912)	67.2
Dartmouth Medical School.....		(1884)	50.2
University of the South.....		(1902)	65.5
Nongraduates..	40.2, 50.4, 62.1, 65.7, 66.7, 67.2, 67.7, 69, 69.7,		
	70.1, 70.9, 72.2, 72.3, 73,		73.6

Book Notices

DETERMINATION OF SEX. By L. Doncaster, Sc.D. Cloth. Price, \$2. Pp. 172, with 22 illustrations. New York: G. P. Putnam's Sons, 1914.

Those who wish a clear, critical and conservative exposition of the present scientific status of this ancient, yet ever new problem cannot do better than read this little book. The author is a well-known investigator in the field of the inheritance and determination of sex, and he therefore brings to the general treatment of the subject the sureness of the expert. At the same time he avoids dogmatism. The treatment is confined to the problems of sex determination in animals and man, and the author has "striven to avoid as far as possible the use of technicalities which might embarrass the untrained reader." The general argument will be everywhere intelligible to any well-educated person, even though certain special illustrative cases may require very close study. The book is an excellent antidote to some sensational and unscientific books.

As the author points out, there is no single character of living things, apart from the fundamental properties of life itself, so widely distributed as sex. Yet of its fundamental significance and function we have no real knowledge. It is commonly associated with reproduction, yet we may have reproduction without sex, and even sexual differentiation that is not associated with reproduction. The origin and significance of sex are utterly obscure problems in which no real recent progress has been made. On the other hand, the problem of sex determination, that is, of the causes which lead to the origin of individuals of one or the other sex, has advanced in many notable ways in recent years, so that it may be stated that certain of the causes are now well understood in many cases. The author does well in emphasizing the fact that the term "determination of sex" is used in two senses, namely, in the sense of ascertaining the causes of sexual differentiation, and in the sense of controlling the production of either sex at will. It is obvious that the causes when ascertained may turn out to be uncontrollable; indeed, much of the most important recent work leads to a decidedly pessimistic outlook for eventual control of sex production. But the author does not allow himself to be entirely convinced in this direction, and comes to the final conclusion that we may "regard the control of sex in man as an achievement not entirely impossible of realization." The facts which show that sex is determined by the germ cells either before or at the time of their union naturally receive the major consideration, because these facts constitute the newest and most precise data we have on the subject. There is presented evidence as to the stage at which sex is determined, the study of the inheritance of sex-limited characters, the problems of the inheritance of secondary sexual characters, the extraordinary facts concerning chromosome differences between male and female individuals, and the differentiation of the germ cells in such cases into male-determining and female-determining, all of which indicate an early determination of sex before the onset of embryonic development. Against these are set the data concerning atypical sex ratios, whether occurring in nature or under experiment, which seem to indicate an influence of external factors in sex determination. The collective data are then considered in a chapter in which the various theories are discussed in an admirable spirit, and the author's position is stated. The determination of sex in man comes up for separate consideration in the concluding chapter.

CHIRURGISCHE OPERATIONSLEHRE FÜR STUDIERENDE UND AERZTE. Von Prof. Dr. Friedrich Pels Leusden, ord. Prof. der Chirurgie. Second Edition. Paper. Price, 20 marks. Pp. 788 with 766 illustrations. Berlin: Urban and Schwarzenberg, 915.

This work was written chiefly for students and practitioners, but the author thinks the specialist as well will find in it something of value. Considerable new matter has been added in this edition, which is an improvement on the first; but this edition is open to the same criticisms which were made against the first, namely, it is distinctly a German work, and little that has originated outside of that

country finds mention. The author recognizes this, but declares that he has not allowed patriotism to influence him. He then says: "I have taken great pains impartially to give authors due credit, but who will boast to so master even the entire literature of one's own country that an error might not slip in? That German literature is best known to me is self-evident, and therefore Germans in a German treatise have fared the best." As a partial excuse for errors in this direction, the author naively says, "If I have presented anything that is good which I have attributed to a wrong author I am sorry, but it doesn't change any that which is good." Many difficult and complicated operations remain unillustrated for the reason, as the author states, that "the beginner does not yet need them and the experienced operator can do without them." The same might well be said of most operations, but that principle does not contribute to the completeness of a work.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, SAN FRANCISCO, JUNE 21-25.

American Assn. of Med. Milk Commissions, San Francisco, June 17-19.
American Academy of Medicine, San Francisco, June 25-28.
American Association of Anesthetists, San Francisco, June 21.
American Climatological and Clin. Association, San Francisco, June 18-19.
American Laryn., Rhin. and Otol. Society, Chicago, June 15-16.
American Ophthalmological Society, New London, Conn., July 6-7.
American Society of Tropical Medicine, San Francisco, June 14-16.
Arizona Medical Association, Prescott, June 17-18.
Montana State Medical Association, Bozeman, July 14-15.
Nat'l Assn. for the Study and Prev. of Tuberculosis, Seattle, June 14-16.
Nevada State Medical Association, Reno, June 17-19.
New Jersey Medical Society, Spring Lake, June 22-24.
North Carolina State Medical Society, Greensboro, June 16.
Washington State Medical Association, Tacoma, July 20-22.

AMERICAN NEUROLOGICAL ASSOCIATION

Forty-First Annual Meeting, held at New York, May 6-8, 1915

(Concluded from page 1937)

Paralytic and Other Persistent Sequelae of Migraine

DR. J. RAMSAY HUNT, New York: In the vast majority of cases, a tendency to migraine entails no more serious consequences than the recurrence of periodic headaches of varying degrees of severity. Headaches of this character are often associated with curious transitory focal symptoms, as scotoma, hemianopsia, hemiparesis and hemiparesthesia. More rarely, evanescent aphasic attacks and mental disturbances accompany the attack. These focal manifestations are purely functional in nature, and disappear promptly with the subsidence of the other symptoms of the paroxysm. They are generally regarded as manifestations of vascular spasm and this theory is in harmony with their temporary and evanescent nature. In rare cases permanent and often serious consequences ensue. The paralytic and other permanent complications of migraine may appear in various forms as ocular palsies (migraine ophthalmoplegic), organic hemiplegia with aphasia, hemianopsia and optic atrophy. A recurrent facial paralysis has also been ascribed to migraine (facioplegic migraine), and presumably of the same nature and pathogenesis as the ophthalmoplegic of this affection. Migraine, which is usually so harmless, may on occasion be the cause of serious and permanent sequelae. Of great importance from the standpoint of the permanent paralytic sequelae, such as are described in this paper, is the question of the influence of recurring attacks of migraine on an already existing arterial sclerosis. It is very evident that in the presence of cerebral arteriosclerosis, however slight, crises of hemicrania are much more likely to be the cause of vascular accidents, such as thrombosis and hemorrhage, than would be the case in perfectly normal vessels. In the recognition of migraine paralysis the essential points to be considered are: (1) the establishment of a definite clinical history of genuine or idiopathic migraine, and (2) the direct relationship of the paralysis to the migraine paroxysm. As many attacks of

hemicrania arise during the day, terminating in a heavy sleep, the presence of paralysis in the morning on awakening would be strong presumptive evidence of an etiologic relationship to migraine. Special emphasis should be placed on the presence of what may be termed "warning symptoms," that is, the recurrence of transient ptosis, diplopia, hemianopsia, hemiparesis, aphasia and jacksonian seizures. A permanent damage to nerve structure resulting from an attack of migraine is fortunately a rare sequel. In this group of accidents, the ocular palsies rank first in importance, because of their relative frequency (migraine ophthalmoplegic). Next in importance among the cranial nerve complications is involvement of the optic nerve resulting from thrombotic occlusion of the central artery of the retina and possibly the retrobulbar neuritis. The graver paralytic complications are naturally those affecting the brain itself, and these are the result of occlusion of the cerebral vessels with consequent encephalomalacia. Such lesions have been observed in the distribution of the sylvian artery causing hemiplegia, hemianesthesia and aphasia, and in the distribution of the posterior cerebral artery when homonymous hemianopsia is the characteristic symptom. While thrombosis is the usual lesion in such cases, it is not improbable that rupture of the vessel also occurs. There are two other groups of cases which should be considered from the standpoint of permanent vascular lesions, namely, the epilepsy which is so often associated with migraine, and the vertigo permanens. Both of these conditions are usually regarded as merely functional substitutions or alternations of the neurosis itself, in other words, as a kind of migraine equivalent. The possibility of a permanent vascular focus resulting from migraine must be considered as a possible etiologic factor in the presence either of epilepsy or of persistent vertigo.

DISCUSSION

DR. JOSEPH COLLINS, New York: There is one feature of these cases that Dr. Hunt has not mentioned, which I consider to be of very great importance, and that is the syphilitic feature. In a series of 100 cases of syphilitic disorder of the nervous system coming in succession, I found two cases of typical migraine, one of them associated with ophthalmoplegia in which the evidence of a syphilitic origin was found in the blood and in the cerebrospinal fluid. I have come now to the conclusion that it is well in the majority of cases of migraine, practically in all cases in which there is paralysis of any sort, to submit them to the laboratory tests.

DR. L. F. BARKER, Baltimore: I can confirm Dr. Hunt's observations of hemianopsia with migraine. I had two cases, one in a lady in middle life. In both of these instances the hemianopsia was temporary, though complete at the time. It passed off and I have not heard from the patients since. In view of what Dr. Hunt has said, it is possible that they may later develop hemianopsia. I have made it a routine practice to make serologic examinations in all neurologic and medical cases. In neither of these cases, however, was a positive Wassermann present, and in my own experience, while migraine and lues do coexist sometimes, it is not common. I have wondered as to the nature of this temporary hemianopsia, and think of a possible temporary lesion in the chiasm and also of a spasm of the occipital artery supplying around the calcarine fissure.

DR. WILLIAM G. SPILLER, Philadelphia: Some years ago Dr. de Schweinitz sent me a patient who had two attacks of ophthalmoplegia. He had had migraine over many years. His parents had had migraine. Recently I saw a patient who had had two attacks of transitory ophthalmoplegia. One patient died two or three years later of an apoplectic stroke. I have seen two cases of hemianopsia with migraine.

DR. ALFRED GORDON, Philadelphia: Several years ago I had a physician under my charge for periodic attacks of migraine. That man comes from a migraine family. After an attack of migraine I found him hemiplegic on the right side, with astereognosis of the right side and motor aphasia. Not all the symptoms were marked, but they were sufficiently pronounced to observe. He made a complete recovery and is well up to the present time.

DR. P. C. KNAPP, Boston: There is one form of involvement of the cranial nerves of which Dr. Hunt has not spoken, namely, the anesthasias occurring in the distribution of the fifth nerve in connection with attacks of migraine. In regard to the ophthalmoplegic migraines, there are a few interesting points to which Dr. Hunt has not referred. In the great majority of them the ophthalmoplegia is an incidental occurrence. In a very few instances, there is a fairly regular occurrence of the transitory ophthalmoplegia with each attack of the migraine, but it must be borne in mind that even these cases of ophthalmoplegia of short duration occurring as time goes on become more and more permanent. I have seen two cases. Both of the cases have been permanent. One of them I saw a year or two ago, about ten years after the first attack of hemianopsia, coming on with the migraine, and the second one has continued now seven or eight years.

DR. N. E. BRILL, New York: Only recently a nurse in the training school who had had occasional attacks of migraine for a number of years developed a hemiplegia affecting the right arm and leg without any aphasia and without any demonstrable sensory disturbances. Dr. B. Sachs would remember the case, as I asked him to see it at the same time. The hemiplegia disappeared in three days, leaving the girl rather exhausted. She recovered rapidly, and has had an attack of migraine since but no hemiplegia.

DR. J. RAMSAY HUNT, New York: In regard to the pathology of transient and permanent attacks, I myself believe they have the same pathologic basis. They are essentially a vascular spasm. Dr. Collins' suggestion of the possibility of syphilis in migraine is a very important one. As far as possible I have excluded syphilis and regard the cases as essential, or idiopathic, migraine.

Case of Landry's Paralysis: Report on the Histopathological Findings

DR. E. D. FISHER, New York: The patient, a boy of 15, suddenly became ill, complaining of weakness in the lower extremities. After admission to the hospital, his condition became progressively worse until a complete paraplegia of the lower extremities developed. This was of the flaccid type. Within seven days the upper extremities became involved in the same manner. The muscles of all limbs became atrophied. Reaction of degeneration was present in the lower, and marked quantitative and qualitative electrical changes in the upper extremities and shoulder muscles. There were also partial dissociation of touch, pain and temperature sense in these extremities. Subjective sensory disturbances were a constant accompaniment. Toward the end of his illness, most of the cranial nerves became involved. The bacteriologic examination of the blood and spinal fluid was negative. The cytologic examination of the spinal fluid was negative. A slight rise in temperature marked the entire course of the disease. The patient died of asphyxiation after an illness of six weeks. The necropsy was performed by Dr. John H. Larkin, and specimens of the cord and brain stem and sciatic nerve were prepared by him for examination. The histologic examination revealed changes throughout those tissues. The spinal nerve roots and the sciatic show marked parenchymatous and interstitial changes with an infiltration in the perivascular and perineural lymph spaces of leukocytes, plasma cells and some gitter cells. The cells of the posterior horns at all levels of the cord show a central chromatolysis, especially marked in the cells of Clarke's column. Such type of cell degeneration is also evident throughout the bulb and pons. The cells of the motor neurons show in addition two other types of degeneration, namely, a swelling and coalescence of the Nissl bodies, a tygriosis with eccentric nuclei and staining very deeply and in some places an extensive cell vacuolization. Around these there are to be seen satellite cells which at times dip into the cell body. Their prolongations are visible and are retaining to some extent meshes of chromophilic bodies. The vessels and capillaries are engorged throughout, and at times are seen to burst, producing hemorrhage into the neighboring tissues. Frequently we encounter capillary aneurysms and thrombi. Hemorrhages, rather minute and to all appear-

ance recent, are present at all levels of the cord and brain stem both in the gray and white matter. A marked glia proliferation is a feature throughout. At some levels of the cord an ependymitis of the central canal is present. In a word, we are dealing here with neuritic as well as a cellular involvement, the former being more pronounced. The cell changes of the central chromatolysis type are of a reactionary character owing to remote influences in their neuraxon, while those of the tygriosis type speak for a primary cell involvement as a result of an inflammatory condition around and in the cells. The clinical aspect and the pathologic changes that we find in cases of an acute ascending paralysis of the type of Landry point to an infectious process. Our case would show that both the infectious agent and its toxin are responsible for these changes. Which of the two are predominating is an open question. The predominating type of pathologic changes in Landry's paralysis is that characterized by inflammatory myelitic changes with very slight, if any, nerve changes. For this reason, recent investigators are inclined to regard this disease as poliomyelitis. But in this affection we deal with a distinct etiologic factor and are able to reproduce the characteristic pathologic picture. In Landry's paralysis, divers kinds of cocci and bacilli are found, and the pathologic picture is not uniform. We may conclude that the clinical picture is the criterion of Landry's paralysis, that pathologically there may be a purely cellular, or neuritic only or a neuricellular involvement, and that the time element is no criterion of the disease, since it may last from eight days to eight weeks.

DISCUSSION

DR. CARL D. CAMP, Ann Arbor, Mich.: Some time ago I reported a case of acute unilateral ascending paralysis which came to necropsy in which were found in the peripheral nerves very much the same degenerative changes as are described here. At that time I also noted the abnormality of the anterior horn cells and regarded it as a phenomenon secondary to the changes in the nerve.

DR. ISRAEL STRAUSS, New York: Of course we all know cases of Landry's paralysis in which no pathologic lesion is discovered. At first when this disease was described we did not have at our disposal the technic described today. Since those cases were described, other cases have been described, and present distinct clinical features which render it possible that there can be acute ascending paralysis without very much in the way of microscopic lesion.

Meningitis Sympathica

DR. I. STRAUSS, New York: Meningitis sympathica is the name given to those changes which occur in the cerebrospinal fluid when an inflammation is present in the neighborhood of the meninges. The pressure of the fluid is greatly increased, and may reach as high as 400 mm. There is an increase in the cellular elements, the cells generally being polynuclear leukocytes. The fluid is sterile. There may be no symptoms of meningitis, but very often there is considerable neck rigidity, and Kernig's symptom is present in varying intensity. One of the most frequent causes of the condition is brain abscess, especially where there has been a previous otitis. It may also be present in patients in whom there is an inflammation of the accessory sinuses or of the structures adjacent to them. We frequently encounter intracranial inflammatory conditions in which there is no evidence of meningeal irritation; but when meningitis sympathica is present it aids us both in the diagnosis and the treatment.

Case of Central and Peripheral Neurofibromatosis (von Recklinghausen's Disease)

DR. PETER BASSOE and DR. FRANK NUZUM, Chicago: The case was that of a boy 15 years old at death. From the age of 4 years he had attacks once a year, lasting two weeks to three months, of pain in the back near the right scapula. Dragging of left foot was noted after the first attack. At 10 years he had eight eye muscle operations. He had a lump on the left side of the neck noted three years before death, and a pelvic tumor three months before death. Findings on exami-

nation suggested basal brain tumor and cord tumor. Several subcutaneous nodules led to a correct clinical diagnosis. Necropsy showed large neurofibromas in both cerebello-pontile angles, large tumor of the cauda equina, numerous small tumors on various cranial and spinal nerves, and also tumors on nerve roots, in places invading the cord. There was a large tumor outside the rectum.

Abderhalden Reactions and Defective Mental and Physical States

DR. S. D. W. LUDLUM and DR. E. P. CORSON WHITE, Philadelphia: In the blood of a thymectomized dog we obtained reactions to testis and pancreas, just as had previously been done in patients who had physiologic symptoms of thymectomy. Following this we saw three cases of backwardness in children in which the symptoms were those of lymphatism. These cases reacted to thymus. Results of treatment of these cases with pituitary extract were phenomenal. A girl of 5 years showing gigantism reacted to pituitary. The symptoms were controlled by thyroid extract. We have had ten cases of a hypomaniac state in adults pointing to hyperpituitarism rapidly controlled by the opposite hormone. A case of infantilism which reacted to thymus started to grow when put on pituitary extract.

DISCUSSION

DR. HENRY A. COTTON, Trenton, N. J.: This is the most important problem before the psychiatrist. The question of the influence of the ductless gland or the glands of internal secretion on mental conditions, probably more especially in dementia praecox, seems to be evident today. Following out Cushing's ideas on hypopituitarism, we examined a number of cases. We examined the blood pressure, sugar tolerance, the polyuria, and all of these cases have shown one thing, that there was evidence that the pituitary gland was at fault. There is probably a group of cases in which the thymus is affected, another in which the pituitary is affected and we know the effect the suprarenal and the other glands have. As these studies are developing we can at least look to some definite facts to be gotten out of this work to indicate a proper theory.

AMERICAN GYNECOLOGICAL SOCIETY

*Fortieth Annual Meeting, held at White Sulphur Springs, W. Va.,
May 18-20, 1915*

The President, DR. THOMAS J. WATKINS, in the Chair

Present Status of Ovarian Transplantation

DR. FRANKLIN H. MARTIN, Chicago: Subcutaneous transplantation of ovarian tissue does not increase the risk of operation. In the majority of patients the graft will persist for a time. In my cases it is still present after twenty-seven months, eighteen months, and in three others more than a year. In some patients it appears to functionate, as shown by the apparent development of graafian follicles, by variation in size and tenderness, and by menstruation when the uterus remains. The presence of one ovary in the pelvis does not necessarily interfere with the success of the graft. Those patients in whom ovarian tissue has been grafted seem to have less discomfort from the premature menopause.

What Is the Fate of the Ovaries Left In Situ After Hysterectomy?

DR. HIRAM N. VINEBERG, New York: Clinically, it has been found that the freedom from the climacteric syndrome in hysterectomized women, in whom the ovaries have been conserved, is only relative to that which obtains in the same class of women in whom the ovaries have been removed. A generous estimate would be 20 per cent. in favor of the former. To obtain the benefits claimed by the advocates of conservation, the ovaries should be retained at all ages and not limited to those under 40 years, as is done by most of them, inasmuch as it has been shown that of the women who suffer most severely from the artificial menopause, 46 per cent. were only 45 and over. Subsequent disease of the

conserved ovary does occur in some cases, the number no doubt being much larger than would be inferred from the records found in the literature. I am of the opinion that the doubtful clinical advantages accruing from retaining the ovaries in hysterectomy are more than counterbalanced by the risk to which the patient is subjected from subsequent disease and adhesions of the conserved ovaries. I would, therefore, not retain the ovaries in any case of hysterectomy, unless I could leave enough of the lower segment of the uterus with its endometrium to insure the function of menstruation, for in my experience the knowledge imparted to the woman that her ovaries have not been removed has but little significance or moral effect when she learns that she will no longer menstruate.

DISCUSSION

DR. FRANK F. SIMPSON, Pittsburgh: The first instance of transplanted ovarian tissue was one that encouraged us in this line of work. The patient, a young woman of considerable importance in the community, in the thirties, had a perforated appendix, with drainage for general peritonitis. The appendix was removed. Later there were adhesions about both adnexa, which were treated. Six operations were done by leading general surgeons of New York. The young woman was a confirmed invalid. She suffered intensely at the menstrual periods. She, her father and mother insisted on immediate removal of the uterus and adnexa. Every effort was made to relieve the suffering. At the end of a year she suffered as much as she did at the beginning. I removed the pelvic structures. I did not transplant the ovary into the abdominal cavity, thinking it would cause serious trouble, and that disintegration of the ovarian tissue or infection might readily cause serious damage requiring a second abdominal operation. So it occurred to me that to transplant it beneath the skin might be successful. We used the adnexa, transplanted about half of the ovary, it lived, and today it is quite the size it was when transplanted. On a number of occasions I felt the ovary, and I believe I felt the graafian follicles. In that young woman the functional result was good. Instead of being a confirmed invalid and lying in bed, she is about, is vigorous, and practically not harmed at all by the disagreeable phenomena of the precipitated menopause.

DR. JOHN O. POLAK, Brooklyn: I have four unreported cases of transplantation of the ovary. In three of them the entire ovary was transplanted in a pocket in the prevesical space. Two of these have caused no trouble so far as the ovarian graft is concerned. This graft has seemed to have no effect on the symptoms of the menopause. A third has become cystic. She is the only woman of these three who has had relief from the symptoms of the menopause. My fourth case was a graft of the ovary into the cornu of the uterus at the point of excision of the tubes. This patient menstruated for nine months, and then menstruation ceased. She then developed all the symptoms of the postclimacteric with considerable severity, but gradually they have passed away.

DR. J. WESLEY BOVÉE, Washington, D. C.: The ovary floats freely in the peritoneal cavity. An ovary that becomes encased by adhesions, and not necessarily by marked infection, begins to undergo sclerocystic degeneration. When we transplant these ovaries we cover them entirely with tissue, and they will undergo degeneration. I do not believe that the results are good or will be good so long as this plan is followed. When we resort to transplantation of ovarian tissue, it must be done in such a way as to give freedom to such tissue.

DR. HIRAM N. VINEBERG, New York City: I have had two cases of autotransplantation of the ovary, taking a small wedge-shaped piece of the ovary and inserting it into the lower abdominal wound, leaving it in between the fat and the skin. In one of these cases the operation was done nine months ago and in the other about six months ago. There has been absolutely no difference in the healing of the wound. So far as one can tell from frequent examination since then, one could not tell that a transplantation had been done.

DR. JOHN J. CLARK, Philadelphia: I have endeavored to expose the cortex, open the ovary, pull it open as one would a kidney, and allow the vascular portion to come into direct contact with the peritoneum, which I have utilized, and not the subcuticular tissue, as Dr. Simpson has done. Thus far my experience has not been particularly satisfactory.

DR. HERMAN J. BOLDT, New York: In view of the fact that there are undoubtedly instances in which the symptoms of the menopause are at least ameliorated if a seemingly normal gland is conserved either by ordinary conservation or by transplantation, I want to continue that line of work. On the other hand, I can only say that in those instances in which conservatism has been practiced, I have had the same disagreeable features to contend with that others have had. I recall two instances in which it became necessary for me to reopen the abdomen and to remove an ovarian cyst from the ovary which had been retained. I cannot recall any instance in which the removal of cysts has been more difficult than in those two cases. However, as I have said, there are instances in which the symptoms of the menopause are at least ameliorated and where they are entirely absent.

DR. J. RIDDLE GOFFE, New York: About twelve years ago I made my first adventure into this field of work. It was on a young woman whose tubes were absolutely destroyed by disease. She was anxious to have children. I removed both tubes and one ovary; then I slit open widely the whole fundus of the uterus, being careful to preserve the mucosa of the salpinx in my obliterating operation, and to retain as far as possible the lymphatics and the arterial nutrition of the ovary. Without splitting the ovary, I turned it right around and hung it free in the uterine cavity. The patient had a slight discharge of blood at the regular time of menstruation once; then she escaped from my observation, and I have not been able to get any further information in regard to the case.

DR. JOSEPH BRETTAUER, New York: Each case for ovarian transplantation ought to be individualized. To some women of a nervous temperament or who are neurasthenic, the removal of the ovaries is a more serious matter than it is to other women who are not so constituted.

DR. WILLIS E. FORD, Utica: I am pessimistic about leaving parts of ovaries. My experience has prejudiced me against it.

DR. PHILANDER A. HARRIS, Paterson, N. J.: It has been my rule in removing the uterus to leave an ovary or both ovaries, if possible. I leave all the tissues that are healthy. I was rather encouraged when I heard Dr. Goffe speak of having placed a piece of ovary in the uterus, but if the woman became pregnant, would it not cause a rupture of the uterus?

DR. HERMAN J. BOLDT: Are there cases in which, after an ovary has been left and the oviducts removed, the woman has subsequently become pregnant?

DR. BOVÉE: There are many such cases on record.

Nitrous Oxid in Labor

DR. N. SPROAT HEANEY, Chicago: (See abstract of paper by Dr. F. W. Lynch in *THE JOURNAL*, April 3, p. 1187.)

DISCUSSION

DR. JOHN O. POLAK, Brooklyn: Is it possible to continue nitrous oxid gas from the very beginning of labor as an analgesic method? About what would be the approximate cost of conducting a twelve to twenty-four-hour first stage with it, and how much personal attention would the obstetrician have to give in the management of the case?

DR. WILLIS E. FORD, Utica: Was there any cyanosis in the children, and is there more cyanosis from the use of gas than from ether?

DR. LOUIS FRANK, Louisville: I have used nitrous oxid gas as the anesthetic of choice in my surgical work for almost three years, including three cases of cesarean section. The administration of nitrous oxid gas and oxygen for analgesic purposes requires the services of an expert. It is the most dangerous of all anesthetics in unskilled hands, while in skilled hands it is the safest. The cost of the gas is lessened materially where large tanks are used and the gas is manufactured in the hospital.

DR. HIRAM N. VINEBERG, New York: In one or two instances I attempted to do a plastic operation under nitrous oxid and oxygen, but the blood was so black that the field of operation was obscured. We had to stop. I do not know whether it was improperly administered or not.

DR. N. S. HEANEY: During the latter part of the first stage and second stage we can give gas for 60 cents an hour. The amount of oxygen varies with each patient. It depends how quickly the woman passes into cyanosis and how much oxygen one should give. The less the amount of gas given the better. With the nose piece the cyanosis in the infant is less marked. It is hard to determine what the effect of any method is, provided the baby does not require artificial respiration. If it is blue it cries immediately. It is very gratifying in cesarean sections to have the child cry at once. You can then dismiss the child from your mind and attend to the mother, a thing which you are not able to do always under ether anesthesia in cesarean section.

The Management of the Placental Stage of Labor, with Special Reference to Retained and Adherent Placenta

DR. JOHN O. POLAK, Brooklyn: The placenta will separate spontaneously if the normal mechanism is allowed to obtain. Any manipulation of the uterus before the clinical evidences of separation are apparent will disturb this normal mechanism. Postpartum hemorrhage is best guarded against by the observance of the physiologic processes. Partial detachment, the result of manipulation, predisposes to bleeding. The normal mechanism of placental delivery is that described by Schultze. The Duncan mechanism occurs only in low implantations of the placenta or when manipulation has been untimely and vigorous. The placenta may be retained in the uterus for hours or days without danger to the patient, provided it is attached or completely detached, which insures that the bleeding will be negligible. Asepsis is dependent on the penetration of the uterus by the hand or instrument to infected passages, and not on the retention of the placenta. Manual extraction is admissible only in partial separation with hemorrhage. In retention of the placenta without hemorrhage, the cord should be cut off close to the cervix and the case watched until the time of separation is apparent, when the placenta may be expressed by Credé while the patient is under surgical anesthesia. Invasion of the uterus via the vagina is fraught with danger from infection, and on exploration, should the placenta not be found presenting at the internal os, infrapelvic delivery should be abandoned and delivery accomplished through sterile avenues by suprapubic extraperitoneal hysterotomy. When the adhesion is so great that its removal entails the digging out of the placenta piecemeal, excision of the placental site or hysterectomy should be the choice.

DISCUSSION

DR. WALTER P. MANTON, Detroit: Implantation of the placenta is, as a rule, a good deal lower than is usually supposed. A number of years ago I found that in several hundred consecutive cases the implantation was a good deal lower than what is stated in the textbooks. The implantation is apt to be lateral rather than frontal or parietal; therefore I do not believe that the Schultze method of delivery of the placenta is the normal one, but that the Duncan method is.

DR. GEORGE TUCKER HARRISON, Charlottesville, Va.: In cases in which the placenta is detached, the Duncan method is the one that should be employed. It is wrong to exercise compression as soon as the child is born. Let it alone.

DR. PHILANDER A. HARRIS, Paterson, N. J.: A placenta with the cord hanging from it was allowed to remain experimentally. It was all absorbed. We kept the patient in the hospital for weeks and weeks, and after absorption the uterus returned to its normal condition.

Primary Cancer of the Female Urethra: Plastic Work and Late Results

DR. H. S. CROSSEN, St. Louis: To determine the proportion of cases of cancer cured by operation, I have tabulated the operative cases found in a cursory examination of the litera-

ture as follows: cases subjected to radical operation, 25; cured (three years), 8; probable cures (two years), 3; recurrences, known, 8; results not known, 6. Of the treated cases, about half were cured. This is a very encouraging showing, considering the fact that lymphatic metastases take place directly in the deep glands within the pelvis. On account of the direction of the lymphatic drainage, the first metastases made recurrence certain, for the affected glands were beyond reach. Some of the operations were not very extensive, the operators removing only a half or two-thirds of the urethra. The large proportion of cures was probably due to the fact that in the urethra an area of irritation causes symptoms very early, and thus leads to investigation in diagnosis and radical treatment while the disease is still in a comparatively early stage.

DISCUSSION

DR. LEWIS S. McMURTRY, Louisville: The chances for a radical operation being successful are endangered by the natural delay in making a diagnosis. I venture to say that nearly all cases reported have been primarily operated on as urethral caruncle, and the malignant character of the growth has been lost sight of until the patient has been under treatment for some time, and then failure of this treatment and extension of the growth have impressed the surgeon with its true character. If these cases were seen early and diagnosed promptly, the results from complete excision would be much better.

DR. FREDERICK J. TAUSSIG, St. Louis: Three months ago I removed a small nodule from the urethra of a woman, aged 53, and our pathologist examined it a long time before he made up his mind it was not malignant. The epithelial proliferations in the urethra closely simulate early cancer; probably a certain number of these cases that have been reported as cures were not really cancers.

DR. JOSEPH BRETTAUER, New York: I have had one case of primary carcinoma of the urethra. It is exceedingly difficult, if not impossible, to differentiate between early carcinoma of the urethra and urethral caruncle. It is more guesswork than anything else.

DR. HIRAM N. VINEBERG, New York: In one of my cases, the specimen was examined by two good pathologists, and both made a diagnosis of carcinoma. The woman is still free from recurrence, ten years after the operation.

DR. WILLIS E. FORD, Utica: In a case in which the growth was as large as a walnut and obstructing the passage of urine, I removed the urethra to such an extent that I thought I left but little of it. The patient got retention of urine. The growth returned within six or eight months. Since that time I have seen half a dozen cases, and with the exception of primary cancer of the clitoris, I think it is the most rapidly fatal of all cancers.

Prolapsus of Uterus

DR. HERMAN J. BOLDT, New York: Before deciding on a particular operation, it is well to consider whether future offspring is desired by the patient or not. A simple vaginal hysterectomy for prolapse of the uterus should have no place in our work, since by it a vaginal descensus cannot be cured. I know of no operation which answers an equally good purpose as a ventral suspension by the round ligament *a la* Gilliam, combined with a plastic operation on the pelvic floor, but not with too much narrowing of the vaginal canal. If properly done, a permanent cure will result in 90 per cent. of the cases unless a subsequent pregnancy should undo the result of the operation. Patients who have a marked descensus, or partial or complete prolapsus, in whom no further offspring is expected, may be treated by a vaginal operation with the expectation of getting a good result. I prefer the radical vaginal fixation. The technic must necessarily vary with the individual case. In patients who have complete procidentia of the uterus and vagina, and where no further use of the vaginal canal is to be made, we can do a total extirpation of the uterus and vagina, columnizing the vaginal tract by circular sutures, an operation that is comparatively simple, and an absolute guarantee as to permanent results.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

May, XVII, No. 4, pp. 403-523

- 1 *Origin and Early Development of Posterior Lymph Heart in Chick. R. West, Princeton, N. J.
- 2 *Development of Thymus in Pig. J. A. Badertscher, Ithaca, N. Y.
- 3 Premature Obliteration of Sutures in Human Skull. L. Bolk, Amsterdam.

1. **Origin of Posterior Lymph Heart.**—The evidence found by West from the study of injected embryos indicates that the lymphatic plexus which later enters into the formation of the posterior lymph heart, arises by the confluence of independent mesenchymal spaces which connect secondarily with the veins, that these spaces are bounded at first by mesenchymal cells which later become flattened to form an endothelium, and that both in the endothelial lymphatic walls and the adjacent mesenchyme an active hemopoiesis, the products of which reach the general circulation via the lymphatic plexus, is taking place.

2. **Development of Thymus.**—The lymphocytes first present in the thymus Badertscher found are all large lymphocytes and have migrated into it from the mesenchyme. The numerous small round cells of the thymus are formed by the repeated division of the large lymphocytes which thus become small, and also by their own proliferation. Judging from the source and structure of the small round cells they are small lymphocytes and are identical with the small lymphocytes of the blood. The thymus, therefore, may well be considered as a source of some of the small lymphocytes found in the circulating blood. The reticulum of the thymus is of epithelial origin and is formed passively by its meshes becoming filled with lymphocytes which further separate the nodal nuclei and thus greatly attenuate the protoplasmic processes of the syncytium. The Hassall's corpuscles are of epithelial origin. The free red blood cells and eosinophil cells found in both interlobular septa and the thymic lobules are derived from lymphocytes in situ.

Whether or not any of the erythrocytes formed in the thymus enter the circulating blood, Badertscher says, is difficult to determine in fixed material. Some of the free erythrocytes undoubtedly undergo degeneration and the products of disintegration of those existing in the form of eosinophil granules are taken up by the lymphocytes which thus become transformed into eosinophil leukocytes. The histogenesis of the thymus is divided into epochs each of which is characterized by more or less distinct development features. They are: 1. The purely epithelial epoch which extends from its origin as an outpocketing from the third pharyngeal pouch and the formation of the cervical vesicle to the appearance of the first lymphocytes in the thymus. 2. The epoch of lymphocyte infiltration and lymphocyte proliferation and the formation of the reticulum. 3. The epoch of the formation of red blood cells and the development of granular cells.

Arkansas Medical Society Journal, Little Rock

May, XI, No. 12, pp. 279-301

- 4 Relationship Between Venereal Diseases and Pelvic Surgery. W. A. Snodgrass, Little Rock.
- 5 Typhus Fever, Its Etiology and Methods of Its Prevention. J. F. Anderson, U. S. P. H. Service.
- 6 New Science of Keeping the Well—Well. O. Dowling, Shreveport, La.

Archives of Internal Medicine, Chicago

May, XV, No. 5, pp. 645-792, Part I

- 7 *Investigation of Potency of Tincture of Aconite. G. C. Robinson, St. Louis.
- 8 *Nuclear Digestion and Uric Acid Excretion in Case of Total Occlusion of Pancreatic Duct. D. W. Atchley, Baltimore.
- 9 *Secondary Hypertrophic Osteo-Arthropathy and Its Relation to Simple Club-Fingers. E. A. Locke, Boston.

- 10 Chronic Ulcerative Colitis with Polyps. J. H. Hewitt and W. T. Howard, Cleveland.
- 11 Use of Abderhalden Reaction with Normal and Pathologic Human Serums. E. L. Ross and H. D. Singer, Kankakee.
- 12 *Factors of Coagulation in Primary Pernicious Anemia. C. K. Drinker and S. H. Hurwitz, Boston.
- 13 Origin of Proteins of Nephritic Urine. A. L. Cameron and H. G. Wells, Chicago.
- 14 *Case of Mercury Nephritis. N. B. Foster, New York.
- 15 *Oculocardiac Reflex. S. A. Levine, Boston.
- 16 *Coarse Auricular Fibrillation in Man. A. W. Hewlett and F. N. Wilson, Ann Arbor, Mich.

7. **Investigation of Potency of Tincture of Aconite.**—Robinson's experience with tincture of aconite as a means of lowering the pulse rate was obtained in an attempt to influence the tachycardia of exophthalmic goiter. A study of this condition was undertaken on the hypothesis that the tachycardia resulted from a lack of balance between the cardiac accelerators and the vagi and that if the so-called vagus tone could be increased, the cardiac rate would diminish. The tincture of aconite was administered in five cases of exophthalmic goiter, three of which were moderately severe, while two were mild. All of the patients had enlarged thyroids and tremor, while exophthalmos was very marked in two, moderate in two and absent in one case. The pulse rate after several days' rest in bed ranged from 110 to 120 beats per minute in one case, from 90 to 100 in two, and from 85 to 95 in two cases. In order to ascertain any effect the tincture of aconite might have on the heart in these cases, the pulse rate was studied under various conditions, both before and during the administration of the drug. These conditions consisted of rest in bed immediately after a constant amount of moderate exercise, and after administration of full doses of atropin. It was found that very large doses of the tincture of aconite produced no subjective symptoms and no slowing of the heart rate. Doses of 10 c.c. (approximately 150 drops) were given six times a day. An attempt to augment the action of aconite by physostigmin was not successful.

Although the chemical assay showed that the tincture used did not fulfil the Pharmacopeial requirements as regards its aconitin content, the discrepancy was not sufficient to account for the impotency of the drug. The physiologic assay showed that the minimal lethal dose for guinea-pigs of a substance giving the chemical tests for aconitin contained in the tincture was at least forty-five times as large as that of crystalline aconitin, and that the alcohol of the tincture apparently played no rôle in diminishing the toxicity of the solution by decomposing the aconitin. This substance in the tincture can hardly, therefore, be considered identical with crystalline aconitin. Robinson believes that these facts emphasize the necessity of physiologic standardization of the tincture of aconite, which is not now required by the Pharmacopeia. Evidence was obtained that the maximal doses of the tincture of aconite rendered the ventricles more liable to spontaneous contractions, apparently increasing their irritability.

8. **Nuclear Digestion and Uric Acid Excretion in Occlusion of Pancreatic Duct.**—The results of Atchley's experiment prove that in the human being the digestion of nuclear material, the purin metabolism and the uric acid formation do not depend on the presence of the pancreatic secretion in the intestinal canal. This finding, together with the negative result of the test in this case, and in many other reported cases, Atchley says, definitely points out the worthlessness of the Schmidt nuclear test for pancreatic function.

9. **Relation of Secondary Hypertrophic Osteo-Arthropathy to Simple Clubfingers.**—Hypertrophic osteo-arthropathy is considered by Locke to be always a secondary disease. Among the primary diseases, pulmonary tuberculosis is probably the most important though rarely inducing the extreme degree of bone and joint changes seen with bronchiectasis. There is a very definite correspondence between the characteristic clinical course of the disease and the process in the bones. During the periods of exacerbation in the primary disease, the pain, tenderness and swelling in the soft parts

are not only increased, but the process in the bones is also more active. On the other hand, during the quiescent periods associated with cure or relief of the condition responsible for the bone and joint changes, the process in the bones is stationary and in rare instances actual resorption takes place. The new subperiosteal bone, which is at first sharply marked off from the old shaft, later becomes (usually after a period of some years) a more compact, dense layer, closely fused with the underlying old bone. In the late stages of the most progressive type of cases there is evidence of wide-spread halisteresis in the affected long bones. Occasionally the process in the bones and joints once established may progress even after actual cure of the primary disease.

The ungual phalanges as a rule show proliferative changes. They consist mainly in an irregular burr-like expansion of the distal half. More rarely small osteophytes are found at the proximal ends near the line of the joint cartilage. The epiphyses of the affected long bones are to some extent always involved, but the new osseous tissue is much more irregular in outline and the ossification is less complete. The proliferation in the long bones in advanced cases is more general than has been recognized, often affecting nearly the entire skeleton. Changes in the joints are a constant and important feature of the disease. While the early changes are confined largely to the periarticular tissues, in the later stages, erosion of the cartilage, lipping about the joint, and even a moderate degree of ankylosis are common lesions. A considerable percentage of cases of so-called hippocratic fingers show by means of roentgenogram early proliferative changes in the periosteum of some of the long bones of the forearms and lower legs of exactly the same type as seen in hypertrophic osteo-arthropathy. Locke says that simple clubbing of the fingers and secondary hypertrophic osteo-arthropathy should be considered as identical, the former representing an early stage of the latter.

12. **Factors of Coagulation in Primary Pernicious Anemia.**—The studies made by Drinker and Hurwitz seem to emphasize the following points: 1. Prothrombin is diminished slightly in all cases of pernicious anemia. 2. This diminution is not great and is unimportant if active regeneration is in progress. 3. Antithrombin and fibrinogen are normal even in the presence of very low cell counts. 4. In one case in which there has been pronounced diminution in prothrombin, platelet counts have been strikingly low, and the picture throughout has been that of fairly complete aplasia.

14. **Mercury Nephritis.**—In the case of mercuric poisoning reported by Foster the patient lived forty-one days. The history presents some interesting departures from the common course of events in cases of this sort in which the duration of life is brief. Anuria was at no time a symptom, and when the amount of urine fell below normal this was adequately accounted for by a low ingestion of fluids. When the water intake was forced there was apparently a normal response in output. In contrast again with the usual picture are the convulsive seizures, muscular twitching and the toxic psychosis. Of those symptoms which are associated with uremia, there were observed in this case, besides the evidences of renal disease, epileptiform convulsions, muscular twitching and a psychosis of the usual toxic type. The necropsy disclosed, besides an eroded condition of the lower bowel and degenerative changes in the liver, a remarkable nephritis which was studied with care from many sections. The lesions found were those usually encountered in the kidney in cases of bichlorid (mercuric chlorid) poisoning.

15. **Oculocardiac Reflex.**—The material for Levine's study consisted of eight cases of tabes dorsalis, one case of taboparesis, five cases of syphilis which were nontabetic, nine cases of chronic endocarditis (having a normal rhythm), one case of chronic endocarditis with auricular fibrillation, five cases of lobar pneumonia, and one case of diabetes mellitus. The five nontabetic syphilitics included two cases of syphilis of the cerebrospinal meninges, one of syphilitic myelitis, one of syphilis of the heart, and one patient who has been observed during the secondary stage and who now suggests

signs of early tabes. Levine states that the oculocardiac reflex (inhibition of the heart produced by ocular pressure) is a normal but variable reflex. Some individuals normally have a more active oculocardiac reflex than others, just as some have more active tendon and superficial reflexes. In fact, when the reflex is considered absent there is often a slight inhibition of the heart. The reflex was found to be generally absent in tabes dorsalis. The only tabetic who had a moderate oculocardiac reflex, had no pupillary reaction to light whatever. In tabetics there was no difference between the effects of pressure on the two eyes. In nontabetics there was a distinct difference. The right reflex had a slightly greater effect on auricular contraction.

In Levine's opinion ocular pressure affords a simple and safe method of obtaining reflex vagus inhibition of the heart. Inhibition of the heart by the oculocardiac reflex is much more profound and more frequently obtained than by pressure over the vagus nerves. The oculocardiac reflex is generally absent in tabes dorsalis, present in pneumonia, syphilis (nontabetic) and chronic valvular disease. The reflex was absent in one case of diabetes mellitus and also in one case of auricular fibrillation before digitalis treatment. It was present after digitalis was given. Right ocular pressure has a slightly greater effect on the rate of the heart than left. It may stop the heart for a long period of time, relatively speaking, the *P* waves are sometimes diminished in size and may become iso-electric. Occasionally the auriculoventricular interval is lengthened. Left ocular pressure has a much greater effect on the conduction mechanism of the heart than right. It may lengthen auriculoventricular conduction, cause partial heart block and result, possibly, in automatic ventricular rhythm. On two occasions inverted *P* waves were seen. The height of the *R* waves is sometimes increased, at other times diminished. Ectopic ventricular beats were twice observed. The *P* waves are often diminished in size, but occasionally are increased. Escaped ventricular beats were seen both during right and left ocular pressure. Pain, flushing of the face, and apnea during ocular pressure, are much less pronounced in tabetics than in nontabetics. The effects on the rate and on the rhythm of the heart produced by ocular pressures are not constant, differing in different individuals and in the same individual from time to time. The duration and the degree of pressure play an important part in the degree of inhibition.

16. Coarse Auricular Fibrillation in Man.—A case of continuous irregularity is reported by Hewlett and Wilson in which the venous curves were characterized by numerous very rapid and irregular waves produced by auricular activity. These waves bore no definite relationship to the auricular fluctuations of the galvanometer string. The authors believe the condition to be one of unusually coarse auricular fibrillation.

Boston Medical and Surgical Journal

May 27, CLXXII, No. 21, pp. 769-806

- 17 How Practicing Physician May Aid Department of Health. A. J. McLaughlin, Boston.
- 18 Hospital Efficiency from Standpoint of Efficiency Expert. F. B. Gilbreth, Providence, R. I.
- 19 Hospital Efficiency from Standpoint of Hospital Surgeon. R. L. Dickinson, Brooklyn.
- 20 Hospital Efficiency from Standpoint of Hospital Trustees. W. Wesselhoeft, Cambridge.
- 21 Responsibility of General Practitioner for Care and Supervision of Discharged Sanatorium Patient. J. B. Hawes, 2d, Boston.
- 22 Tuberculosis of Throat. A. C. Getchell, Worcester.

Indiana State Medical Association Journal, Fort Wayne

May, VIII, No. 5, pp. 225-276

- 23 Technic of Wassermann Reaction. B. Erdman, Indianapolis.
- 24 *Border-Land Topics in Ophthalmology and Otolaryngology. J. C. Beck, Chicago.
- 25 *Some Ocular Tumors and Their Lessons. F. C. Heath, Indianapolis.
- 26 *Effects of Light on Eye. W. F. Hughes, Indianapolis.

24 and 25. Abstracted in THE JOURNAL, Oct. 24, 1914, p. 1500.

26. Abstracted in THE JOURNAL, Oct. 31, 1914, p. 1603.

Journal of Cutaneous Diseases, New York

May, XXXIII, No. 5, pp. 343-436

- 27 Epidemic Alopecia in Small Areas, in Schools, Regiments, Etc. J. T. Bowen, Boston.
- 28 Case of Mycosis Fungoides, Limited to One Foot. F. E. Senear, Ann Arbor, Mich.
- 29 *Local Treatment of Hyperkeratotic Eczema of Palms and Soles. D. W. Montgomery and G. D. Culver, San Francisco.
- 30 Case of Pellagra in New York. G. M. MacKee, New York.
- 31 Metabolic Influence of Chlorids on Certain Dermatoses. M. L. Ravitch and S. A. Steinberg, Louisville.

29. Treatment of Hyperkeratotic Eczema of Palms and Soles.—The hands are exposed to injurious influences, such as rough weather, water, cleansing agents, chemical solutions and various traumatism, and the feet are commonly encased in ill-fitting and deforming shoes, which produce callosities and breaking down of the arch, thereby increasing sweating of the soles and resulting in maceration of the keratotic, thick epithelium. In no other type of chronic eczema is local treatment more efficacious and more satisfactory says Montgomery and Culver than in hyperkeratotic eczema of the palms and soles.

Locally a plaster mull may be employed, containing 5 per cent. salicylic acid in soap plaster:

℞ Acidi salicylici 5 per cent.
Emplastri saponis, (Beiersdorf)..... 95 per cent.

This is applied on the fingers and covered with zinc oxid adhesive plaster, so as to intensify its action. This is changed once in twenty-four hours. Under its use the hard, concrete-like hyperkeratosis of the fingers melt down, and the skin becomes smooth and supple. This plaster can not be applied to the feet as it would crumple up in walking, but an ointment may be prepared of about 12 per cent. salicylic acid in equal parts of lanolin and petrolatum, as follows:

℞ Acidi salicylici 8.00 gm.
Lanolin,
Petrolatum 32.00 gm.

M.

This is applied in the morning, so that in walking it will be massaged into the skin. A few days later, when the patient is able to resume work, an ointment composed of one part of mercury in ninety-nine parts of simple ointment is used.

℞ Hydrarg. salicylatis 1.00 gm.
Ung. simplicis 99.00 gm.

M.

A salve composed of 6 per cent. each of red oxid of mercury and camphor and 12 per cent. of white lead, in an ointment base composed of equal parts of lanolin and petrolatum, may be used as follows:

℞ Hydrarg. oxidi rubri,
Camphorae 4.00 gm.
Plumbi carbonatis 4.00 gm.
Lanolin,
Petrolatum 32.00 gm.

M. Sig.: Well rubbed in, twice a day.

In one case cited by Montgomery and Culver, after five weeks the daily applications were changed from the above to a lotion consisting of:

℞ Kali caustic 1.50 gm.
Glycerin 50.00 gm.
Spts. vini rect. 50.00 gm.
Aquae rosae 150.00 gm.

M. Sig.: Local use, twice a day, before using a salve; and a salve consisting of:

℞ Hydrarg salicylatis 0.30 gm.
Paraffin 5.00 gm.
Petrolatum alb. 25.00 gm.

M. Sig.: Rub in twice a day.

Another patient sought treatment on account of a hyperkeratotic eczema of the fingers and right palm. He also had hyperidrosis, accompanied with light red erythema of both palms. A lotion was prescribed, consisting of:

℞ Liq. plumbi subacetatis 16.00 gm.
Liq. carbonis detergentis 80.00 gm.

M. Sig.: Two teaspoonfuls in pint of hot water as a lotion and apply as compresses for ten minutes, twice a day.

There was also prescribed an ointment:

- R Ichthyoli 1.60 gm.
Hydrarg. oxidi rubri..... 4.00 gm.
Camphorae 4.00 gm.
Plumbi carbonatis 8.00 gm.
Lanolin,
Petrolatum 32.00 gm.
M. Sig.: Rub well into the lesions twice a day, after soaking the hands in the lotion.

Some time after this, the liquor carbonis detergens was painted on in full strength once a day, and the above dilute lotion of liquor carbonate detergens and lead water was used only once a day, in the evening. The ointment was changed to one of:

- R Emplastri. plumbi,
Petrolatum 30.00 gm.
Melt together over a slow fire, stirring constantly and add:
Liq. cresol. com..... 1.20 gm.
M. Sig.: Use on fingers twice a day.

Six weeks after beginning treatment his lesions had all disappeared. In a number of instances in which other applications have failed, resorcin, in less than 4 per cent. strength, has been found excellent.

- R Resorcini 2.00 gm.
Glycerini 2.00 gm.
Zinci oxidi..... 7.50 gm.
Cerae albae..... 1.50 gm.
Adipis lenzoatae..... 50.00 gm.

Dissolve the resorcin in heated glycerin. Melt together the wax and the lard, and add, while constantly stirring, the dissolved resorcin and the well-triturated oxid of zinc. Sig.: Rub in well, twice a day.

The official unguentum acidi borici often acts well; the white precipitate in 2 to 4 per cent. strength in an ointment, may, in some instances, be better than the salicylate of mercury as given in one of the above prescriptions. Some of the best results in treating eczema of the soles, and especially of the palms, have been obtained by Montgomery and Culver by the use of Roentgen rays, after all other lines of treatment have failed, for months or even years.

Lancet-Clinic, Cincinnati

May 8, CXIII, No. 19, pp. 505-532

- 32 Brief History of Antituberculosis Work in Cincinnati. S. E. Allen, Cincinnati.
- 33 Tuberculosis Problem of Cincinnati Today. C. Dinwiddie, Cincinnati.
- 34 Cincinnati Municipal Tuberculosis Program. P. P. Jacobs, New York.
- 35 Cincinnati Tuberculosis Program. R. G. Paterson, Columbus.
- 36 Coordination of Public and Private Effort in Antituberculosis Fight. J. H. Landis, Cincinnati.
- 37 Cincinnati Municipal Tuberculosis Committee Program from Standpoint of Practicing Physician. H. L. Woodward, Cincinnati.
- 38 Outline of Proposed Plan for Health Center. C. Dinwiddie, Cincinnati.
- 39 Cincinnati's Proposed Health Center—Statement. G. M. Kober, Washington, D. C.
- 40 Proposed Health Center. D. E. Robinson, Cincinnati.
- 41 Health Center as Opportunity for Fundamental Work. W. R. Wherry, Cincinnati.
- 42 Proposed Health Center from Standpoint of Practicing Physician. E. W. Mitchell, Cincinnati.
- 43 Health Center from Standpoint of Hospital. A. C. Bachmeyer, Cincinnati.
- 44 Proposed Cincinnati Health Center. R. G. Paterson, Columbus.
- 45 Year's Work in Cincinnati. P. P. Jacobs, New York.
- 46 Social Service and Administration in Antituberculosis Dispensary. H. K. Dunham, Cincinnati.
- 47 Medical Results in Antituberculosis Dispensary in 1914. J. L. Tuechter, Cincinnati.
- 48 Tuberculosis Work Among Jews of Cincinnati. M. B. Hexter, Cincinnati.
- 49 Cincinnati Tuberculosis Sanatorium. A. C. Bachmeyer, Cincinnati.

May 15, No. 20, pp. 533-560

- 50 Status of Cerebral Surgery. J. Ransohoff, Cincinnati.
- 51 *Conservative vs. Radical Treatment of Eclampsia. J. H. Carstens, Detroit.
- 52 Difficult Question of Physical Director. I. O. Allen, Metamora, Ind.
- 53 Fractures of Patella. C. D. Schaefer, Allentown, Pa.
- 54 Five Years' Work with Treatment of Pulmonary Tuberculosis by Artificial Pneumothorax. M. E. Lapham, Highlands, N. C.

51. Abstracted in THE JOURNAL, Nov. 21, 1914, p. 1878.

Laryngoscope, St. Louis

April, XXV, No. 4, pp. 193-256

- 55 Obligations of Physician. R. E. Kane, St. Louis.
- 56 Responsibilities of Community. R. N. Baldwin, St. Louis.
- 57 Medical Cooperation. M. A. Goldstein, St. Louis.
- 58 Practical Demonstration with Pupils of Central Institute for Deaf. E. M. Hilliard, St. Louis.
- 59 Need of Properly Qualified Teachers for This Work. J. S. Morrison, Fulton.
- 60 External Operation of Frontal Sinus. R. H. Skillern, Philadelphia.
- 61 Blindness Incidental to External Ethmoidal Operation. H. Smith, New York.
- 62 Congenital Bony Occlusion of Right Nasal Coana. W. J. Thomas, Newport, Ky.
- 63 Case of Nasopharyngeal Sarcoma and Two Cases of Nasopharyngeal Fibromata. H. Smith, New York.
- 64 Parenchymatous Glossitis following Submucous Resection of Septum. F. C. Raynor, Brooklyn.
- 65 Report on Connellan-King Diplococcus Infections of Throat. J. J. King, New York.
- 66 Responsibility of Physician in Oral Infections. W. H. Haskin, New York.
- 67 Case of Primary Mastoiditis. H. Bonner and H. V. Dutrow, Dayton, O.

Medical Record, New York

May 29, LXXXVII, No. 22, pp. 883-924

- 68 Prognostic Significance of Changes in Retinal Vessels. A. Knapp, New York.
- 69 Studies of Atypical Children. W. B. Noyes, New York.
- 70 Cure of Goiter by Injection of Boiling Water into the Substance of Enlarged Thyroid. J. A. Wyeth, New York.
- 71 Importance of Early Recognition of Mental Limitations of Praecox Type. J. R. Ernst, Washington, D. C.
- 72 Novocain-Suprarenin Infiltration-Conduction Analgesia in Repair of Inguinal Hernia. I. Seff, New York.
- 73 Acid Crises. W. F. Dutton, Tulsa, Okla.
- 74 Psychogenic Convulsions. T. H. Ames and R. MacRobert, New York.
- 75 Humanized Milk in Infant Feeding. J. Epstein, New York.

New York Medical Journal

May 29, CI, No. 22, pp. 1089-1140

- 76 Blindness of Newborn. (To be continued.) H. P. De Forest, New York.
- 77 New Species in Human Family (Digitigrade). D. D. Ashley, New York.
- 78 Gastro-Intestinal Roentgenography in Trendelenburg Position. S. Tousey, New York.
- 79 Red Cross Problems in Time of War. C. S. Ford, Fort Leavenworth, Kan.
- 80 *Ectopic Gestation. H. C. Taylor, New York.
- 81 Surgical Treatment of Hyperthyroidism. J. B. Haeberlin, Chicago.
- 82 Visual Perception, Retention and Reproduction. A. Brav, Philadelphia.
- 83 Syphilis of Nervous System. F. J. Conzelmann, Winnebago, Wis.
- 84 Management of Septic Conditions in Abdominal Cavity. A. M. Willis, Richmond.

80. **Ectopic Gestation.**—Of the forty-four cases analyzed by Taylor, 76 per cent. gave a history of inflammation of the appendages, or it was discovered at the time of the operation. In 81 per cent. of the cases there was a history of irregularity in the menstrual bleeding. In 8.7 per cent. there was a history of amenorrhea lasting to the time of operation. In 69.6 per cent. of the cases of ruptured ectopic sac, the classical symptoms of acute localized sharp pain, with nausea, vomiting, and fainting were present. Of the unruptured cases 92.3 per cent. of the patients suffered from pain on the side of the diseased tube. The breasts were enlarged and tender in 44 per cent. of the cases and in 55 per cent. they showed no change. In the unruptured cases in the series, the average number of white blood cells was 8,670 with 73 per cent. polynuclear cells and 25 per cent. lymphocytes. Excluding the infected cases, the average white blood count was 14,430 and 83.7 per cent. polynuclear cells.

There were four deaths or a mortality rate of 8.7 per cent. Two of the deaths were in cases that had advanced beyond the fifth month. One patient died from shock and hemorrhage and the other from septicemia. Excluding the cases that ended fatally and those in which the operation precluded pregnancy, there were fourteen patients whose history in regard to subsequent pregnancies was obtained. Of these fourteen patients, three had subsequent normal pregnancies. One patient had three children, another two children, and the third had a miscarriage. In addition to these cases of normal pregnancy, there were four cases of 8.7 per cent. of subsequent extra-uterine gestation.

Oklahoma State Medical Association Journal, Muskogee*May, VII, No. 12, pp. 383-425*

- 85 Hygienic Management of Children. S. P. Rawls, Altus.
- 86 Infant Feeding. C. Puckett, Pryor.
- 87 Summer Diarrhea of Children. J. W. Browning, Geary.
- 88 Our Society. E. Lamb, Clinton.
- 89 Pellagra. J. C. Watkins, Checotah.
- 90 Medical Conservation; Some Problems and Solutions. W. G. Little, Okmulgee.
- 91 Nephritis. B. H. Day, Oklahoma City.

Southwest Journal of Medicine and Surgery, El Reno, Okla.*May, XXIII, No. 5, pp. 137-164*

- 92 Treatment of Ischiorectal Abscess and Fistula in Ano. W. H. Stauffer, St. Louis.
- 93 Something New in Tonsil Surgery. W. F. Cole, Waco, Tex.

Surgery, Gynecology and Obstetrics, Chicago*May, XX, No. 5, pp. 501-630*

- 94 Empyema of Thorax; Study of Two Hundred and Ninety-Nine Cases. A. O. Wilensky, New York.
- 95 *Ureteral Calculi; Special Means of Diagnosis and Newer Methods of Intravesical Treatment. J. T. Geraghty and F. Hinman, Baltimore.
- 96 *Spina Bifida; Tibial Transplant, Father to Child. H. H. Trout, Roanoke, Va.
- 97 Anuria Due to Unilateral Calculous Obstruction. L. Frank, Louisville, Ky.
- 98 Serologic Findings in One Hundred Cases, Bacteriologic Findings in Fifty Cases and Résumé of Six Hundred and Seventy-Nine Cases of Abortion at Michael Reese Hospital. J. E. Lackner, Chicago.
- 99 *Tumors of Mediastinum. W. D. Haines, Cincinnati.
- 100 *Periosteal Regeneration of Bone. F. D. Smith, Chicago.
- 101 *Case of Perforation of Junction of Cystic and Common Ducts; Primary Suture—Recovery. V. A. Lapenta, Indianapolis.
- 102 Ether-Oil Colonic Anesthesia; Report of Thirty-Six Head and Neck Operations. J. E. Lumbard, New York.
- 103 Preliminary Report on Use of Percy Cautey in Carcinoma Uteri, With Especial Reference to Its Use as Forerunner to Wertheim Operation. S. M. D. Clark, New Orleans.
- 104 Occurrence of Nine-Millimeter Human Embryo in Margin of Full-Term Placenta. R. L. Moodie, Chicago.
- 105 Benign Bone-Cysts; Report of Four Cases. M. Skinner, Liverpool, England.
- 106 *Access to Deeper Orbit. W. Van Hook, Chicago.
- 107 Congenital Defects of Anus and Rectum. E. C. Brenner, New York.
- 108 Case of Mediastinal Thyroid Removed by Transsternal Mediastinotomy. H. Lilienthal, New York.
- 109 New Technic for Operations on Steno's Duct. H. Crouse, El Paso, Tex.
- 110 Operative Treatment of Retroversion of Uterus. J. G. Clark, Philadelphia.
- 111 History of Retrodisplacements of Uterus. H. A. Kelly, Baltimore.
- 112 Modification of Alexander Operation Through Pfannenstiel Incision. B. C. Hirst, Philadelphia.
- 113 Operative Treatment of Retroversion of Uterus. E. B. Cragin, New York.
- 114 Surgical Treatment of Retroversion of Uterus, with Special References to Lower Pole. J. W. Bovée, Washington, D. C.
- 115 Gilliam Operation for Deviations of Uterus. D. T. Gilliam, Columbus, O.
- 116 Principles and Practice in Surgical Treatment of Retrodisplacements of Uterus. J. C. Webster, Chicago.
- 117 Operative Treatment of Retrodisplacement of Uterus. E. E. Montgomery, Philadelphia.
- 118 Surgical Treatment of Retroversion of Uterus. J. M. Baldy, Philadelphia.
- 119 *Button Suture in Anterior Colporrhaphy. S. F. Wilcox, New York.
- 120 *Oil-Impregnated Drainage Tubing. S. W. McArthur, Chicago.

95. **Ureteral Calculi.**—The symptoms of ureteral calculus are not diagnostic and are insufficient to definitely determine either its presence or position except in rare instances. While roentgenography is the simplest and probably the most valuable single diagnostic method for the detection of ureteral calculi, even in the most expert hands, a surprisingly large percentage (22.4 per cent.) may be undetected by it. This large percentage of failures demands the employment of supplementary methods, before excluding stone with any degree of positiveness. By means of collargol ureterograms a calculus occasionally will be shown which the simple Roentgen ray failed to reveal.

In Geraghty and Hinman's experience the employment of the wax-tipped catheter is by far the most accurate method for the detection of ureteral calculi, and this method should be in more general use. In six out of thirty-six cases of ureteral calculi (20 per cent.) seen by the authors in the last two years, it has located a stone in which repeated

roentgenograms were uniformly negative. Owing to the great frequency of extra-ureteral shadows in the region of the pelvic portion of the ureter, diagnosis of ureteral stone in this position cannot be accepted without confirmatory information. A considerable percentage of stones which enter the ureter pass spontaneously, and the discovery of a small calculus is not always an indication for immediate operative interference. Unless the stone is blocking completely or producing repeated and violent colic, simple manipulative methods should first be employed. For calculi beyond the juxtavesical portion, displacement with the ureteral catheter, injection of oil or the securing of relaxation of the ureteral wall by using the thermocatheter may, in certain cases, result in the expulsion of the stone. When the stone is in the vesical portion of the ureter, cystoscopic procedures should usually be successful. A study of the authors' cases, as well as different series reported in the literature, shows that a considerable proportion (14.3 per cent. G. and H.; 17 per cent. of 204 cases, Jeanbrau) of ureteral calculi are arrested in the intramural portion of the ureter, a portion which can be readily reached by cystoscopic methods.

96. **Spina Bifida; Tibial Transplant.**—An incision about 10 cm. long was made over the crest of the father's tibia and a rectangular piece of bone about 4 x 6 cm. and 2 mm. thick was removed by means of a circular saw, leaving the periosteum attached and extending over each side for about 1 cm. In this manner the medullary cavity of the tibia was not entered. The graft was immediately placed in a pan of warm normal saline solution and kept there for further use. The baby was etherized and a transverse elliptical incision made over the tumor so as to have the incision removed as far as possible from the anus. The sac was readily exposed and the dissection was quickly carried down to the cleft in the spine. This cleft was about 2 x 5 cm. and situated in the lumbosacral region. An opening was made in the fundus of the tumor, allowing about 300 c.c. of clear serum to escape. This exposure showed the various nerve-roots radiating over most of the sac, especially in the dorsomedian aspect. It was Trout's intention to trim around these nerve roots as is usually done, but each time he pinched or cut one of them with the scissors the child would stop breathing and become cyanotic. He then decided to close up the sac some distance from the ends of the nerve roots, which he did with a continuous plain catgut suture, and then shoved this collapsed tumor into the cleft somewhat after the manner of Schmidt, held it in this position, placed the bone graft removed from the father's tibia over it and anchored it by means of chromic catgut No. 0 sutures. These sutures were placed through the periosteum of the graft, the cartilage of the transverse and spinous processes and any other firm structure the curved needle would grasp. In order to prevent too much pressure on this collapsed sac the graft was bent like a bow and held in this position on all sides by sutures. The skin was sewed up with fine black silk, and silver foil, cotton and collodion dressing was applied. The result was entirely satisfactory.

99. Abstracted in THE JOURNAL, Jan. 17, 1915, p. 232.

100. **Periosteal Regeneration of Bone.**—Smith claims that periosteum stripped quickly and with a sharp periosteotome will produce bone in a greater percentage of cases if young animals are used than if fully developed adult animals are employed. Likewise a greater percentage of positive results will be obtained with periosteum which is stripped slowly and with an elevating action of the periosteotome than when the periosteum is quickly torn loose from the compact bone. A very large percentage of positive results can be obtained by using very young animals and small strips of periosteum. Fibrin is a very active stimulant to osteoblastic activity. These conclusions are drawn from considerable experimentation carried on at several different institutions, some under very adverse conditions and others under favorable circumstances. The experiments are not enumerated.

101. **Perforation at Junction of Cystic and Common Ducts.**—The point emphasized by Lapenta is that a correct diag-

nosis was made from the peculiar coma the patient exhibited. The patient was found unconscious, temperature 94%, pulse 120, and respiration 40. Breathing was entirely thoracic. Very slight palpation in the region of the epigastrium quickly aroused the patient, causing unbearable pain. It was very clear that a perforation of the duodenum, stomach, or gall-duets had occurred. No history of previous illness or attacks could be obtained from the patient. Questions were answered incoherently and unwillingly. Considering that there was no blood in vomiting but only a greenish acid liquid, and on the statement of a relative that the patient had never had any gastric disorders, and taking into consideration the comatose state of the patient, which Lapenta always regards in upper abdominal calamities as characteristic of common-duct trauma, he was led to diagnose the case as one of common-duct perforation. A perforation about 7 or 8 mm. in length was found below the juncture of the common duct, and a calculus was protruding from the rent. A cholecystostomy was performed to secure drainage and as an expectant measure for the probable development of a common-duct stricture, in order to afford immediate protection to the dying patient against a biliary obstruction. The recovery was uneventful, the patient being dismissed from the hospital completely cured after three weeks.

106. Access to Deeper Orbit.—The essential point in the method practiced by Van Hook is the free removal of the superciliary projection until the orbit is widely open. The author believes that by its use the extraction of the supra-orbital nerve will be much facilitated and the results improved.

119. Button Suture in Anterior Colporrhaphy.—The operation devised by Wilcox is performed as follows: With the patient on the back and the perineum retracted, the cervix is caught with volsellum forceps and the anterior vaginal wall put on the stretch. A small opening is made through the vaginal mucous membrane just anterior to the cervix. Through this the blades of a pair of blunt-pointed scissors are introduced and worked up between the vaginal and cystic layers by alternately spreading and closing the blades until the two membranes are separated as far as the base of the urethra. Then the vaginal mucous membrane is split vertically and the lateral dissection may be carried as far as desired with the fingers or instruments. While the flaps are drawn taut, a curved needle armed with a double suture of ten-day chromicized gut on which an ordinary pearl shirt button is strung, is passed through from the base of one flap to the other. Three or more similar sutures are placed in the same manner. Then the second set of buttons are threaded on to the sutures and the flaps approximated. Only sufficient tension is made to hold the flaps in approximation without undue pressure. After the sutures are tied over the buttons, and cut off, the flaps are trimmed down until there is about a quarter of an inch of tissue projecting beyond the edges of the buttons. The edges of the flaps are then whipped together with a continuous suture of plain catgut. None of the sutures require removal and the buttons will come away in about two weeks.

120. Oil-Impregnated Drainage Tubing.—Attention is called by McArthur to the use of a properly prepared "oil-impregnated" rubber tube in postoperative drainage in localities in which a serofibrinous or hemorrhagic exudate is ordinarily expected during the first twenty-four to seventy-two hours. Suitable pieces of pure para gum tubing are boiled for a few minutes in weak soda solution, to remove traces of the surface sulphur, washed in clean water, dried, and then dry-sterilized in a steam autoclave. The tubing should be one-half the caliber and two-thirds the length of the desired end-results, because of the changed size subsequently induced by the oil. These tubes are then allowed to stand completely immersed in suitable jars of sterile "petrolatum liquidum," U. S. P., for not longer than one week at room temperature. At the end of this time they are removed from the oil with proper aseptic precautions, the excess of oil shaken off, and are preserved ready for use in normal salt solution containing 1:1,000 bichlorid.

Texas State Journal of Medicine, Fort Worth

May, XI, No. 1, pp. 1-70

- 121 Surgical Treatment of Puerperal Infection. C. J. Miller, New Orleans.
- 122 Puerperal Streptococcemia; Report of Two Cases. G. B. Foscoe, Waco.
- 123 Preventive Gynecology—Burden of Obstetrics. W. C. Dickey, Memphis.
- 124 Prolapse of Uterus. J. S. McCelvey, Temple.
- 125 Placenta Praevia and Its Treatment. M. Swearingen, Honey Island.
- 126 Postoperative Hemorrhage of Fallopian Tubes. B. F. Smith, San Antonio.
- 127 Medical Aspect of Intestinal Toxemia. H. G. Walcott, Dallas.
- 128 Diagnosis of Intestinal Toxemia by Use of Roentgen Ray. J. M. Martin, Dallas.
- 129 Resume of Chemical Analysis of Stomach Contents in One Hundred Consecutive Cases of Indigestion. A. Woldert, Tyler.
- 130 Disorders of Stomach, with Reference to Disease in Other Viscera. R. A. Duncan, Graham.
- 131 Amebic Infection. F. D. Garrett, El Paso.
- 132 *Clinical Aspects of Bacillary Dysentery in Texas. J. G. Bryson, Bastrop.
- 133 Eye Injuries. J. M. Woodson, Temple.
- 134 Case of Blepharoplasty Undertaken to Cover an Eyeball Exposed for Fourteen Years. J. W. Thomason, Huntsville.
- 135 Tonsil as Chronic Infective Focus. H. B. Decherd, Dallas.
- 136 Some Clinical and Pathologic Findings of Tonsil. G. S. McReynolds and J. E. Robinson, Temple.
- 137 Flat Foot. L. A. Suggs, Fort Worth.
- 138 Psychotherapy. J. Greenwood, Houston.
- 139 *Report of Cases. J. B. Shelmire, Dallas.
- 140 Instructions to Local Examiners. W. A. King, San Antonio.
- 141 How To Fit Up Practical Clinical Laboratory. B. F. Smith, Jr., Galveston.
- 142 Inoculation of Lupus Vulgaris with Streptococcus; Report of Case. C. P. Brewer, Fort Worth.

132. Bacillary Dysentery.—Bryson calls attention to the fact that bacillary dysentery exists to a considerable extent in Texas, a locality not frequently mentioned in literature. Because of the fact that simple or catharrhal dysentery is so common and resembles bacillary dysentery so much during the first few days, Bryson always gives the following old prescription until at least twelve doses have been taken:

Tincture Opii (Deod.),

Ac. Sulph. Arom.....āā f*3i*

Magnus Sulph.....*3i*

Syr. Zingib.....q. s. ad *3vi*

M. Sig.: Take tablespoonful in water every three hours. For adults, children and infants, in proportion to age.

When convinced that he is dealing with a case of bacillary dysentery, he stops the opiate and pushes the salines vigorously for the next few days, until the amount of mucus in the stool has been greatly reduced. Bismuth may be given in large doses after the active infection is over, as it may coat and heal the irritated bowel. After the bowel has been thoroughly cleansed with salines, and the diet regulated, elevate the patient's hips on the side of the bed, with an oil sheet or pad under him to drain the return flow into a vessel, and pass a sterilized soft rubber colon tube of medium size into the bowel very slowly, avoiding any force. If the tube meets with resistance, stop; and if the relaxation does not permit the tube to pass on, connect it with the syringe and let a small amount of the warm saline solution flow in, it will thus pass without any pain to the patient or injury to the inflamed bowel. When passed well into the bowel, let the solution flow with gentle pressure, and when the patient complains of fulness and discomfort, he should be instructed to strain and expel the excess of the fluid, all the while it is flowing in from the syringe. Repeat this as often as indicated during the active inflammation. It is beneficial to use them every three or four days, gradually decreasing as the active inflammation subsides. Warm saturated solution of boric acid is just as safe, and in addition is a mild antiseptic and astringent. A solution of bichlorid of mercury, 1:4,000 or 1:5,000 may be used. The most effective application Bryson has used is a solution of silver nitrate, beginning with about 20 grains to the quart of sterile warm water, and increasing the strength to 40 grains to the quart.

139. Report of Cases.—The cases reported by Shelmire are the following: Orthoform dermatitis, multiple nonpigmented sarcoma, multiple neuritis from arsenic paste, xeroderma pigmentosum, leprosy and dermatitis venenata.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Roentgen Ray, London

May, XIX, No. 12, pp. 411-450

- 1 Passage of Fluid Through Body of Human Stomach. G. Jefferson.
- 2 Roentgenography in Diagnosis of Diseases of Accessory Nasal Sinuses. H. M. Berry.
- 3 Treatment of Onychia by Ionic Medication. D. de Vos Hugo.

British Medical Journal, London

May 15, I, No. 2837, pp. 833-876

- 4 Cases of Nervous and Mental Shock. W. A. Turner.
- 5 Epidemic Cerebrospinal Fever; Its Recognition and Treatment. A. Lundie, D. J. Thomas, S. Fleming and P. W. MacLagan.
- 6 Eight Cases of Epidemic Cerebrospinal Meningitis in Infants. H. T. Ashby.
- 7 Aluminium Skeleton Splints in Treatment of Compound Fractures. C. M. Page.
- 8 Treatment of Malignant Disease by Roentgen Rays. J. A. Codd.
- 9 *Eleven Cases of Malignant Edema. F. McKelvey.
- 10 Case of Urinary Amebiasis. H. J. Walton.
- 11 Chronic Intestinal Stasis Associated with Lane's Ileal Kink and Hypothyroidism. C. Mayer.
- 12 Case of Lacrymal Concretions. G. Maxted.
- 13 Excessive Reaction Following Use of Tincture of Iodin. W. J. Rutherford.

9. **Malignant Edema.**—Bell urges making immediate and deep incisions down to the bone, under chloroform, by means of a 6-inch blade amputation knife. These incisions are from 4 to 6 inches in length. They are afterward kept wide open with fenestrated rubber tubes, 1 inch in diameter, passed on transversely through the muscle to a counter incision. Not less than three, and in one case six large openings were made. The wounds were irrigated with solutions of hydrogen peroxid of the ordinary strength, followed by a mixture of the same solution, with an equal quantity of phenol 1 in 100. The wounds were also lightly packed with gauze. Dressings and irrigation were repeated every three hours. A high cradle was placed over the wounded part so as to admit plenty of air. After a few hours (as soon as checking of bleeding would permit) the gauze drainage was removed and only a thin layer of gauze left to cover the wound. It is quite possible that had these wounds been exposed for hours to direct sunlight the author would have had a more rapid result. The wounds have a great tendency to close in a few hours, and this, unless prevented by the surgeon, will bring about the anaerobic conditions which he is trying to avoid. A pair of forceps and the moving about of the rubber tubes will prevent this accident. Night and day special nurses were employed, and since the adoption of this system of treatment (in the last seven cases) there have been no deaths. Recovery took five to seven days.

Dublin Journal of Medical Science

May, III, No. 521, pp. 321-400

- 14 Outbreak of Cerebrospinal Meningitis in Dublin Military District. G. E. Nesbitt.
- 15 An Account of Irish Medical Periodicals. Dublin Hospital Reports and Communications in Medicine and Surgery. T. P. C. Kirkpatrick.
- 16 Exploitation of Medical Profession in Respect to Medical Certificates. J. Moore.

Edinburgh Medical Journal

May, XIV, No. 5, pp. 321-408

- 17 *Pancreatic Infantilism. B. Bramwell.
- 18 New Psychiatry. (To be continued.) W. H. B. Stoddart.
- 19 War and Psychiatry. I. Emslie.
- 20 Pulmonary and Intestinal Tuberculosis with Tuberculous Empyema, Tuberculous Septicemia and Terminal Intestinal Hemorrhage. J. Ritchie.

17. **Pancreatic Infantilism.**—In February, 1902, and March, 1904, Bramwell published the data of a case of infantilism associated with chronic diarrhea, in which the condition was due to defective or arrested pancreatic secretion, and in which the diarrhea was cured and the infantilism removed by the administration of pancreatic extract and by that means alone. Bramwell claimed then that the condition, pancreatic infantilism as he termed it, is a distinct clinical entity, a dis-

ease which had not hitherto been recognized and described. The characters of pancreatic infantilism are: arrested bodily and arrested sexual development; intelligence good, no mental defect; no deformity or structural defect of the bones; no visceral disease or derangement except chronic diarrhea, flatulent distention of the abdomen, and defective or arrested pancreatic secretion. The defective or arrested pancreatic secretion Bramwell believes to be due probably to chronic pancreatitis. In some cases the condition (chronic diarrhea and infantilism) is completely cured by the administration of pancreatic extract and by that treatment alone.

The author details the after-history of his case and refers to other cases which have been recorded since he directed attention to the condition. For the past ten years his patient has enjoyed excellent health (with the exception of an attack of dyspepsia, due to errors in diet, during March and April, 1914), and has been regularly at work as a tailor. During the past nine years his bowels have been very regular; he has, as a rule, one motion a day, seldom two; the motions are always formed and natural. Before the pancreatic treatment was commenced there were, on an average, 5 or 6 loose motions daily. Before the treatment the patient had not grown at all for eight years. After the treatment he gradually commenced to grow. He now measures 5 feet 3 inches and weighs 7 stone 13 pounds (101 pounds), an increase of 10 $\frac{3}{8}$ inches in height and 3 stone 5 $\frac{1}{2}$ pounds (47 $\frac{1}{2}$ pounds) in weight. The sexual development, which when the patient came under observation was quite infantile, gradually become complete. The patient lost his child-like appearance; his voice, which was high pitched and childish, became low toned and rough.

Glasgow Medical Journal

May, LXXXIII, No. 5, pp. 321-399

- 21 Preventive and Curative Treatment of Pneumococcal Ulcer of Cornea. A. M. Ramsay.
- 22 Prognosis and Treatment of Congenital Syphilis, with Plea for Notification. L. Findlay and M. E. Robertson.
- 23 Chorea. (To be continued.) I. MacKenzie.

Indian Medical Gazette, Calcutta

April, L, No. 4, pp. 121-160

- 24 Pyorrhea Alveolaris as Streptococcal and Amebic Disease and Its Treatment by Vaccine and Emetin. L. Rogers.
- 25 Inoculation Against Plague and Pneumonia and Experimental Study of Therapeutic Methods. W. M. Haffkine.
- 26 Studies in Malaria. H. Stott.
- 27 Macroscopia Found in Human Intestinal Contents. G. C. Chatterjee.
- 28 Co-Relation of Ductless Glands and Onset of Labor. F. Barnardo.
- 29 Case of Excision of Upper Jaw for Sarcoma Performed at Sree Sree Bir Hospital, Nepal (Khatmunda). S. C. Das Gupta.

Journal of Tropical Medicine and Hygiene, London

May 1, XVIII, No. 9, pp. 97-108

- 30 Meteorology of Malaria. M. D. O'Connell.
- 31 Atrophoderma Biotriptica in Natives in Anglo-Egyptian Sudan. A. J. Chalmers and C. M. Drew.

Lancet, London

May 15, I, No. 4785, pp. 1009-1064

- 32 Some Infections of Tonsils. (To be continued.) F. C. Pybus.
- 33 Case of Perithelioma of Superior Maxilla and Ethmoid. G. H. L. Whale.
- 34 *Spinal Anesthesia (Novocain) in Forty-Three Suprapubic Prostatectomies. H. M. Page.
- 35 *Tuberculin Administration and Graduated Labor. E. Taunton.
- 36 Report of Cases Illustrating Removal of Foreign Bodies on Roentgen-Ray Table. J. R. Caldwell.
- 37 *Chemistry of Rice-Polishings. H. Fraser and A. T. Stanton.
- 38 Bolt for Treatment of Fractures. C. Wallace.
- 39 Shell Wound of Left Shoulder; Extraction of Fragment from Neck. J. B. Haycraft.
- 40 Case of Intestinal Obstruction Due to Gallstone. A. R. Neligan.

34. **Spinal Anesthesia in Suprapubic Prostatectomy.**—In the cases reported by Page no failure to obtain muscular relaxation or analgesia occurred. Anesthesia, though slow to appear in three cases, was perfect eventually in 41 cases out of the 43; in the 2 others there were muscular relaxation and analgesia of the bladder. Thirty-four of the cases were operated on without any general anesthesia. Nitrous

oxid and oxygen were given to 4 patients for prevention of mental shock, the spinal anesthesia being perfectly good. In 3 patients a little general anesthesia was given during the skin incision, after which it was withdrawn and no more given. These 3 patients were completely conscious when the skin was being stitched up at the end of the operation. The skin was then completely insensitive; therefore they were cases in which the anesthesia came on more slowly than usual. In two other patients a little general anesthetic was given during the skin incision and stitching up only, none being given during the opening of the bladder or enucleation, muscular relaxation and bladder analgesia being present. Two patients died. One at the time of operation was suffering from uremia. He recovered normally from his spinal paralysis and was no worse at the end of the operation than before and remained no worse for two days, when vomiting and diarrhea came on. The second recovered normally from the spinal injection and operation. Did perfectly well for ten days, when an attack of acute lobar pneumonia came on and he died in a few days.

35. Tuberculin Administration and Graduated Labor.—Patients admitted to the Royal National Hospital, Ventnor, undergo the ordinary open-air sanatorium treatment with rest or systematically graded exercise according to the state of the case. A part of the accommodation of the hospital (about a fourth) is, however, set apart for prolonged treatment of selected cases by a course of graduated labor. After selection these patients are on probation for a period of not less than four weeks, and if that term is passed satisfactorily they are taken in as "workers" to the special working blocks, in which they remain until they leave the hospital. Tuberculin has been carefully administered in some of the most promising of these selected "workers" by the intensive method, either "B. E." or "T. R." Slight reactions were occasionally observed. In the rare cases of prolonged reaction the use of tuberculin was discontinued.

As the result of inquiries sent by Taunton to all of the 300 patients whose cases are under consideration, 189 returns were sent in—61.6 per cent. of the cases treated with tuberculin ("T." cases), and 63.2 per cent. of those treated without it ("N. T." cases). The deaths recorded were not markedly different in the "T." and in the "N. T." groups, namely, 8.3 per cent. for both in women and 12.8 per cent. "N. T." men and 16 per cent. "T." men. Among the "N. T." cases 79.1 per cent. of women and 71.1 per cent. of the men were reported as able to do their work, while of the "T." cases only 50 per cent. of the women and 56 per cent. of the men could do so. To put it another way, adding together the men and women, while of the "N. T." cases 26.9 per cent. were unfit for work or were dead, of the "T." cases 46.9 per cent. were so conditioned.

It was apparent that the administration of tuberculin to selected phthisic workers does not shorten, but, on the contrary, it lengthens, the duration of treatment. The use of tuberculin does not increase the ability to do work. It appears not only to delay the improvement in working ability, but it also diminishes the ultimate ability achieved by a more prolonged course of treatment. So far as gain in weight and the rate of gain enable one to judge, the administration of tuberculin is detrimental to the nutrition of patients to whom it is given under these conditions. The after results in fitting patients to do their work after leaving the hospital in these cases are less favorable in cases in which the tuberculin has been used than in the cases in which it has not.

37. Chemistry of Rice Polishings.—Polishings were extracted by Fraser and Stanton twice with six times their volume of 0.3 per cent. hydrochloric acid. The polishings after extraction were tested and found valueless. Alcohol was added to the extract so as to bring the mixture up to the strength of proof spirit. The precipitate, which consisted of phytin, was rejected. The filtrate was nearly neutralized, concentrated at a low temperature, and its volume so adjusted that 30 c.c. contained the material soluble in proof spirit from 5 gm. of polishings. Eighteen fowls were fed on polished rice and received once daily 30 c.c. of this

solution. Their health was unimpaired. Another lot of polishings was extracted in the same way and alcohol added to the extract as before. To the proof-spirit filtrate sodium hydrate was added so as to make a solution containing 0.3 per cent. of that substance. The precipitate was collected, and the amount of it obtained from 5 gm. of polishings was given once daily to each of six fowls fed on polished rice. The filtrate was neutralized and evaporated at a low temperature until free from alcohol. The volume of the solution was then adjusted, so that 30 c.c. represented the nonalkali precipitable material from 5 gm. of polishings. Each of six fowls on polished rice received 30 c.c. of this solution once daily.

The fowls in neither of these two groups did well and most of them lost weight rapidly. On further examination it was found that 0.3 per cent. of sodium hydrate did not effect complete precipitation. From this it was inferred that the active substance was either separated into two parts or that it has been decomposed by the alkali. It was found that by making the proof spirit alkaline to the extent of 0.5 per cent. sodium hydrate, precipitation was complete. An experiment was then carried out in which fowls on polished rice received daily the alkaline precipitate obtained in this way from 5 gm. of polishings. It soon became apparent that the fowls were not doing well and the occurrence of polyneuritis ended the experiment. In view of the preceding results it was unnecessary to carry out an experiment with the alkaline filtrate. The inference from these experiments was that sodium hydrate in weak solution destroyed the active substance. The authors conclude that they have failed to isolate the curative substance which occurs in rice polishings. It is apparently decomposed during the fractionation and all trace of it is lost. The existence of "vitamin" in the sense that Funk employed that word is therefore disproved.

Annales de Gynécologie et d'Obstétrique, Paris

August, 1914, to April, 1915, XLI, No. 8, pp. 433-480

- 41 *Premature Separation of the Placenta, and Eclampsia. E. Zarate (Buenos Aires).
42 War Babies. (L'avortement est-il autorisé dans certaines circonstances en dehors des indications d'ordre médical?) H. Hartmann.

41. **Eclampsia with Premature Separation of the Placenta.**—Zarate gives a colored plate showing the "apoplexy" of the uterus and placenta in one of the two recent cases he reports. The eclampsia was very severe in one case but there were only mild and brief convulsions in the other. Both cases terminated fatally for mother and child. In both there was fulminating hemorrhage, absolutely uncontrollable. An emergency hysterectomy was done in one case but the woman died on the table. In the two cases reported here, the premature separation occurred during or just after one of the convulsions. Essen Möller encountered this association of eclampsia and premature separation of the placenta in two of his twenty-nine cases of eclampsia, and Zarate found records of two in twenty-five cases at the clinic for women at Buenos Aires.

Archives Mens. d'Obstétrique et de Gynécologie, Paris

March, IV, No. 3, pp. 97-144

- 43 *Undulant (Malta) Fever in Relation to Pregnancy and the Puerperium. A. Laffont.

April, No. 4, pp. 145-176

- 44 *Spontaneous and Traumatic Ruptures of the Dura Mater During Delivery. (Ruptures de la dure-mère crânienne chez les nouveau-nés.) S. F. M. Moreno.
45 Ovarian Fibromas; Two Cases. Metzger and de Kervily.

43. **Relations Between Malta Fever and Gestation.**—Laffont concludes from his personal experience with two cases and analysis of thirty cases he quotes with much detail from the literature, that the ordinary treatment for Malta or Mediterranean fever should be applied regardless of the pregnancy. The only cases in which the pregnancy was artificially interrupted are not encouraging, and Bossi's theories as to the advantage of emptying the uterus as a routine measure in acute infections do not seem to be confirmed by the facts. His

reason for recommending this is the assumption that recently delivered women are peculiarly resistant to infections in general. Laffont advises against lactation, however, especially when the disease is of recent date. The micrococcus is found frequently and over a long period in the vagina, and pains, inflammation and hemorrhage are not uncommon during the course of the disease. Abortion and premature delivery are frequent; the germ seems to be able to traverse the placenta, and the children born at term are almost always weak and many of them succumb. The disease may develop at any stage of a pregnancy and the stress of childbirth may rouse the hitherto latent disease. In this latter case it is likely to be mistaken for ordinary puerperal fever. The micrococci are apt to swarm in breast milk.

44. Rupture of the Dura Mater During Delivery.—Moreno examined postmortem the brain of 40 newly born children at Buenos Aires, and in 10 cases he found that the tentorium had been lacerated, with rupture of the falx in 5. Thus, in fully 25 per cent. of the children dying at or soon after birth, the dura mater had been ruptured. This represents 1 in every 105 deliveries at the maternity. He reproduced the rupture experimentally in other infant cadavers by pressure on the sides of the head and describes the mechanism involved. Pressure on the sides of the head is liable with abnormally small pelvis, especially if delivery is protracted. In two cases in which the hemorrhage from the rupture was apparently the sole cause of death, the pelvis diameter was 9 and 9.3 cm. Instrumental delivery is most dangerous with the after-coming head.

Bulletin de l'Académie de Médecine, Paris

April 27, LXXIII, No. 17, pp. 483-525

- 46 *Advantages of Arresting the Circulation in the Lateral Sinus (instead of ligating the jugular vein) in Operations on the Upper Part of the Neck and Base of the Skull. M. Lannois and M. Patel.
- 47 Paratyphoid Bacillus Isolated from the Blood Apparently a Transitional Form Between Types A and B. Daumézon.
- 48 The Electromagnet in Locating and Aiding in Extracting Foreign Bodies in the Tissues. J. Bergonié.
- 49 *Rice Flour for Bread Making. (Utilisation de la farine de riz dans la fabrication du pain.) Maurel.

46. Compression of Lateral Sinus.—Lannois and Patel report five cases which apparently demonstrate that it is possible to arrest the circulation in the lateral sinus without harm, after ligation of the arteries, in operations on the upper part of the neck and base of the skull. The jugular vein flattens out at once. The sinus becomes permanently obliterated by clots if the compression is kept up for several days. The measure thus wards off both primary and secondary hemorrhage after wounds in this region, and permits operations for arteriovenous aneurysms and removal of foreign bodies.

49. Summarized in Paris letter, May 22, p. 1777.

Presse Médicale, Paris

April 29, XXIII, No. 18, pp. 137-144

- 50 Traumatic Arterial Thrombosis with Gangrene of the Limb. (Ischémie et nécrobiose des membres par thrombose artérielle traumatique.) R. Grégoire.
- 51 Extraction of Bullets and Scraps of Shells with Aid of Roentgenoscopic Table. (Extraction des projectiles de guerre par la méthode de la table radioscopique.) L. Bérard.
- 52 Importance of Electric Treatment of Functional Paralysis in the Wounded. (Traitement des impotences fonctionnelles consécutives aux blessures de guerre.) E.-J. Hirtz.
- 53 Psychoneuroses in Soldiers. (Troubles nerveux psychiques de guerre.) G. Roussy.
- 54 *Subcutaneous Injections of Oxygen; Dosage and Technic. R. Bayeux.

54. Oxygenation of the Body by the Subcutaneous Route.—Bayeux extols the advantages of subcutaneous injection of oxygen in treatment of gas gangrene, of chronic suppuration and in infected wounds of the chest and bones, citing various authors who have reported experiences in each of these lines. He has been successful himself in treating hemarthrosis and hydrarthrosis by turning a jet of oxygen into the joint until considerable pressure is exerted within. By this means he

has cured in wounded soldiers, in a few days, effusions in the knees that had resisted all other treatment for months. An illustrated description is given of the apparatus he has been using for five years for subcutaneous injections of oxygen, permitting measurement and exact control of the inflow. The thighs and the buttocks are the best points for the injections, and if the inflow is kept below 30 c.c. to the minute the injection is not painful as a rule, although some patients feel discomfort if more than 10 or 20 c.c. per minute is allowed. About 250 c.c. is the average dose, but in acute asphyxia a liter or more might be injected in the emergency. In some cases of asphyxia from a poisonous gas, several liters have been thus injected at once. On the other hand, favorable results have been attained with only 100, 150 or 200 c.c. in persons particularly susceptible to the action of the oxygen. The gas is absorbed most rapidly in asphyxia, and two injections a day might be given. In chronic poisoning, anemia and infections, an interval of two or three days is advisable. In some cases the injections have been kept up for several months, with apparently constant benefit. He punctures the joint and plays the oxygen jet in it until the effusion is eliminated, then injects enough of the oxygen to inflate the synovial membrane. He injects at the rate of 70 c.c. to the minute until the intra-articular pressure reaches 70 cm. (water). He has experimented with intravenous injections of oxygen, but this is still in the tentative stage and he does not advise it.

Berliner klinische Wochenschrift

April 26, LII, No. 17, pp. 425-452

- 55 Intratracheal Insufflation and Other Means for Artificial Respiration. S. J. Meltzer (New York).
- 56 The Functions of the Thyroid. (Zur Theorie der Schilddrüsenfunktion und der thyreogenen Erkrankungen.) A. Oswald.
- 57 Device for Writing with the Teeth after Loss of Arms. (Vorrichtung zum Schreiben mit Hilfe des Gebisses.) J. Grünberg.
- 58 Nature and Heredity of Venereal Diseases and their Influence on the Course of Wounds. (Wesen und Vererbung gewisser infektiöser Krankheiten und deren Einfluss auf den Wundverlauf.) M. v. Zeissl.

May 3, No. 18, pp. 453-480

- 59 *Bockhart's Impetigo. (Pyodermie.) P. G. Unna.
- 60 Erysipelas. P. G. Unna.
- 61 *Constitutional Purpura or Pseudohemophilia. (Die essentielle Thrombopenie.) E. Frank. Concluded in No. 19.
- 62 *Improved Technic for Frommer's Test for Acetone. N. O. Engfeldt.
- 63 Typhoid Abscesses; Seven Cases. M. Willimczik.
- 64 *Operative Treatment of Grazing Wounds of the Skull. (Welche Erfolge hat die operative Behandlung der Tangentialschüsse des Schädels?) F. Sauer.
- 65 Radium Treatment of Scars. (Radiumbehandlung von Narben.) Kaminer.
- 66 *Standards for Estimation of Condition of Nourishment, etc. (281 erwachsene Menschen mit "centralnormalem" Ernährungszustand.) G. Oeder. Commenced in No. 17.

59. Bockhart's Impetigo.—Unna refers to Bockhart's experiments in 1887 on his own body in which he proved that the pus cocci were able to induce suppurative pustular lesions on the skin different from furuncles, although they are liable to run into furunculosis, and possibly lead to sepsis. It is very rare under ordinary conditions of hygiene, but is frequently encountered now among the soldiers, and is liable to develop into a chronic course. Prophylaxis is the main thing, he preaches. "No true pus coccus affection of the skin, no isolated furuncle, no felon should be taken lightly. When any of these have lasted any time true pus cocci are already installed in the neighboring, apparently sound hair follicles, ready to start new impetigo or furuncles. They must be walled off from the rest of the skin with a rampart of coccus-destroying substances." For this he uses ichthyol, or ichthyol or mercury-phenol plaster, or a zinc-sulphur-chalk-turpentine paste, something like the formula given in these columns recently, May 1, p. 1533.

Before applying any of the above he dabs lightly with concentrated phenol the suppurating points and the roots of the hairs around this spot. In case of extensive pyoderma all the pustules must be opened and the entire body rubbed long and thoroughly with soap. Any soap will do, especially soft soap, except tar soap, which, he says, breeds folliculitis. In

sharp contrast to eczema, the skin all around the impetigo is sound. All the pustules then, with their environment, are spread with the zinc paste. If an impetigo pustule is deep and tender, it should be treated as described in these columns, April 17, p. 1365, Abstract 47. The parts treated with the paste must be covered with gauze to prevent friction from the clothing, as friction and maceration promote the spread of the impetigo.

61. Constitutional Purpura.—Frank remarks that the hereditary character of hemophilia is the main feature which distinguishes it from purpura, as the latter is strictly individual. The symptoms of each are so much alike that purpura might well be called pseudohemophilia, although the petechiae scarcely ever occur to such an extent in true hemophilia, and the joints are spared in purpura. Of the chronic form of purpura, accompanying the individual through life after it is once acquired, Frank cites thirty-four cases from the literature and describes four from his own experience, referring also to a few cases recently published, including Duke's in *THE JOURNAL*, Oct. 1, 1910, p. 1189. He has never known of complete recovery in any case, and is inclined to believe that in most cases the supposed recovery from an acute attack was merely the subsidence into latency of a chronic purpura which the physician had happened to see during an exacerbation. In the three cases reported in this instalment, the first symptoms developed at the age of 12, and in the first case the hemorrhage proved fatal at the second exacerbation a year later. During the year's interval the child had apparently thrown off the affection. There was almost a total absence of blood platelets—a thrombopeny. In the third case attacks had returned once a year, for six years, lasting for a few weeks each time. In one of these attacks hemorrhages in both eyes compelled enucleation of one and iridectomy in the other eye.

62. Tests for Acetone.—Engfeldt modifies Frommer's technic for acetone in the urine by increasing the proportion of alkali. It renders the test so sensitive that it is not adapted for clinical use, as traces of acetone are present in all the body fluids. But for physiologic research the modified test is bound to prove very valuable.

64. Tangential Wounds of the Skull.—Sauer declares that if the skull has not been opened by the bullet, it is better to refrain for a time from operating even although the skull has been indented along the course of the bullet. By waiting until the man has reached a hospital where asepsis can be counted on, his chances are much better. The danger from the delay is far less than from the infection which is almost certain when any operation is attempted at the front.

66. Standards for State of Nourishment.—Oeder has worked out a formula for the standard weight for men and for women according to the height. Also an index for the condition as regards the nourishment. The latter standard is independent of the height, and both of the age. His previous communication on this *Fettpolsterdickeindex* was summarized in Abstract 120, May 28, 1910, p. 1831. He takes up a fold in the abdominal wall, to the right of the umbilicus, and measures its thickness with calipers. He states here that the normal range is from 2.48 to 2.69 cm., from 1 to 1½ inches.

Correspondenz-Blatt für Schweizer Aerzte, Basel

May 1, XLV, No. 18, pp. 545-576

67 *Actinomycotic Suppurative Meningitis; Two Cases. C. Wegelin.

68 *Outcome of Treatment of Lung Diseases in a Swiss Sanatorium. (Dauerresultate des Glarner Sanatoriums für Lungenkranke in Braunwald.) F. Oeri.

67. Actinomycotic Meningitis.—The fatal meningitis was traced in one case to a minute latent abscess in the lung, and in the other to a process in the jaw below a carious tooth. The primary lesion may be latent or manifest in such cases, but the meningitis runs an acute course when symptoms develop. The patients were a young man and a woman of 36.

68. Outcome of Sanatorium Treatment.—Oeri reviews the present status in 1,365 cases of pulmonary tuberculosis given sanatorium treatment during the fifteen years before 1913. Of the 355 in the first stage, 83.9 per cent. are still living;

54.2 per cent. of the 223 in the second stage and 25 per cent. of the 516 in the third stage. The outcome is not known in 169 cases. Of the first stage survivors, 82.5 per cent. have full earning capacity, as also 80 per cent. of the surviving second stage patients, and 60 per cent. of those in the third stage. He mentions in particular that of the 288 patients who still expectorate, 180 say they use their pocket spit cups regularly and fifty-six use its equivalent. Only twenty-eight have given it up as too much of a bother.

More than 10 per cent. of all the survivors related that they had been handicapped later in their self-support and in their social life by the fact that they had been in a sanatorium. The stigma clings to them, and they complained of the irrational prejudices of their environment. This is particularly to be deplored, as this unreason makes it especially hard for those who are fighting their disease most conscientiously. He thinks physicians have unintentionally bred this tuberculophobia by their efforts to stamp out the disease. It is the task of the profession now to realize, itself, and to teach, that tuberculosis is not one of the diseases which appear in epidemic form, like cholera or typhoid, and which can be avoided by keeping away from them. We must realize that we cannot escape contact with tuberculosis; we encounter it right and left. Instead of thrusting out those afflicted with it, we must train them to help us fight it. This is possible only when physicians combat the fear of bacilli, a fear which we ourselves have planted, and impress on the laity the realization of their natural resisting forces. Not until this is done can we expect that the tuberculous will do their part by applying early for institutional care, and that they will not be deterred by the prejudices of others against the use of prophylactic measures. It is our task to encourage and make it easy for the tuberculous to apply early for instruction and treatment.

Deutsche medizinische Wochenschrift, Berlin

April 15, XLI, No. 16, pp. 457-484

69 *Compression of Femoral Arteries as Test of Functional Capacity of the Heart. (Funktionsprüfung des Herzens nach einer 10 jährigen klinischen Erfahrung.) M. Katzenstein.

70 *Operative Fixation of Sagging Liver. (Verfahren zur Leberbefestigung bei Lebersenkung und eine Bezeichnung für die Grösse einer Magensenkung.) W. Gross.

71 Gunshot Wounds of the Lungs. (Brust-Lungenschüsse und ihre Komplikationen.) E. Schultze.

72 Artificial Legs. (Ueber künstliche Glieder.) H. L. Heusner.

73 Diathermy for the Wounded. G. Bucky.

74 Experiences in a Field Hospital. P. Kayser. Commenced in No. 15.

75 *Treatment of Venereal Diseases During the War. (Behandlung geschlechtskranker Soldaten im Kriege.) C. Stern.

76 Frost-Bite More Liable with Waterproof Foot-Gear. (Wasserdichte Fussbekleidung und Erfrierungen.) H. Glasewald.

April 29, No. 18, pp. 517-541

77 Bread and Its Properties. (Vom Brot und seinen Eigenschaften.) M. Rubner.

78 Importance of Early Operative Treatment of Wounds of Peripheral Nerves in War. R. Cassirer.

79 Gins' and Conradi's Methods for Differentiating Diphtheria Bacilli Are Not Reliable. (Zur Diphtheriediagnose.) H. Reiter.

80 *Agglutination After Vaccination Against Typhoid. A. Hirschbruch.

81 Protective Ferments in Serodiagnosis. (Klinische Studien mit Abderhaldens Dialysierverfahren.) H. Steiner. Commenced in No. 17.

82 *Tardy Hemorrhage After Gunshot Wounds. (Spätblutungen nach Schussverletzungen.) C. Longard.

83 Improved Extension Plaster Cast. H. Töpfer.

84 *Simple Test for Iodin. J. Schumacher.

85 Means to Reduce Infant Mortality. (Bekämpfung der Säuglingssterblichkeit—eine Frage der Massenbelehrung.) Von Behr-Pinnow. Commenced in No. 17.

69. Test of Functional Capacity of the Heart.—It is now ten years since Katzenstein called attention to the importance of the findings when compression is applied to the femoral arteries. He presses with the middle finger the artery at Poupert's ligament, through a single covering with no exposure of the patient, compressing thus the artery on both sides. The blood pressure and pulse are recorded before, and again after the pressure has been applied for from two to two and a half minutes. With a sound heart, the blood pressure is found higher afterward, the pulse slower. If the blood pressure and the pulse beat have not

changed, this shows that the heart is not quite normal, but not actually incompetent; when the insufficiency is of a higher grade, the pulse increases. When the blood pressure is found lower and the pulse is accelerated, this warns of severe functional disturbance on the part of the heart. Its severity is proportional to the extent of the drop in the blood pressure and the increase in the pulse beat. He has applied this test or had it applied once or more times nearly every day of the ten years, and this experience has constantly confirmed the accuracy and the convenience of the simple technic.

The findings with this test show how the heart suffers from chloroform; even a sound heart shows signs of injury up to the twelfth or fourteenth day. With an already damaged heart it may be three weeks before the heart returns to its previous condition. He thinks that these findings warn against letting patients get up early after any operation unless the heart is sound and the operation a minor one. With chloroform and an already weakened heart, the danger of thrombosis is materially greater. Katzenstein advises against any operation when this test shows that the heart is in a bad way unless the indications are vital, and then usually only under local anesthesia. The findings with this functional test warn of the cases in which no operation should be attempted, and of those in which local anesthesia will have to be used. He gives the details of three particularly instructive cases, out of 3,000 in which this test has been applied, to illustrate the important information afforded by it when nothing else suggested that the heart muscle was below par. In one case of pyonephrosis this test warned of the danger from general anesthesia; even under local anesthesia there was a severe collapse and the pulse kept for weeks at 115 or 120, until final recovery followed. There is very little doubt that this patient would not have survived under general anesthesia.

70. Fixation of Sagging Liver.—Gross has usually found the ligamentum teres of the liver stout and strong. Pulling on it tips up the liver, and when this heavy organ has sagged it can be restored to place by cutting this round ligament near the umbilicus, drawing it up over the ninth rib and suturing the ends of the ligament together again. This pulled the edge of the liver up 10 cm. higher in the one case in which he has applied this method to date. All disturbances ceased at once and the woman has been in good health since. The edge of the liver can be felt two fingerbreadths above the umbilicus. The ligamentum teres he utilizes also in fixation of the sagging stomach, tying off the pylorus with it, and thus raising the stomach when the ptosis is of the third degree. With the first degree of ptosis of the stomach, the antrum of the pylorus reaches just to the umbilicus. With ptosis of the second degree, the umbilicus lies at about the middle of the antrum. The third degree is represented by the antrum entirely below the umbilicus. When the stomach sags to this extent, he declares that no relief can be anticipated except from an operation.

75. Venereal Disease in the Army.—Stern is chief of a special hospital at Düsseldorf for soldiers with venereal diseases, and he rejoices over the fact that the younger men form only a small proportion, 25 per cent., of the soldiers with venereal diseases. He regards this as evidence that the "enlightening" of the public in sexual hygiene is beginning to bear fruit. Wolff at Stettin has reported similar experiences; married men form about 30 per cent. of all the cases, and Stern's experience has confirmed this, that the married soldiers expose themselves most readily to chances of infection. Stern has been impressed further with the large number of extragenital cases of syphilis now being encountered. The increase in the numbers of primary sores on the lip he ascribes in part to the overoptimism of both physicians and laity in regard to the permanent efficacy of salvarsan. People are relying on it too much and thus underestimating the dangers of syphilitic infection.

80. Agglutination Test After Vaccination Against Typhoid.—Hirschbruch describes a method of graduated estimation of the agglutinins in the serum which gives instructive find-

ings not only after vaccination, but in all cases suspected of typhoid. The ordinary agglutination test is useless in those vaccinated against typhoid, he says.

82. Tardy Hemorrhage After Gunshot Wounds.—Longard refers in particular to wounds in which the artery has been grazed by a bullet, and this damaged part of the wall gives way sooner or later. He has had about thirty-two cases in which sudden profuse hemorrhage came on six or eight days after the man had been shot, but was apparently recovering without ill effects. The wounds often had nearly or quite healed by this time. The artery has to be completely exposed in order to find and ligate the bleeding vessel. There is no chance of a large artery's healing spontaneously after such an injury.

84. Test for Iodin.—Schumacher calls attention to a test based on the facts that hydrogen dioxid is able to liberate iodine from its salts and also to oxidize it. Then by adding some substance, such as a 1 per cent. alcoholic solution of benzidin, which changes its tint with oxidation, we can determine the presence of iodine and gauge its amount. The hydrogen dioxid is mixed with an equal amount of the urine to be tested and with one-fifth the amount of the benzidin solution. On heating the upper part of the fluid just to boiling, it turns brown or black if there is iodine present, and a precipitate of the same color is thrown down. Cooling a little and adding chloroform, the latter turns brown or black. Normal urine keeps its tint unmodified or becomes a dark straw yellow. The color change is much more decided with this test than with the nitric-acid technic.

Jahrbuch für Kinderheilkunde, Berlin

May, LXXXI, No. 5, pp. 371-464

- 86 Specific Susceptibility to Tuberculin and Its Annulling by Administration of Tuberculin. (Die Tuberkulinüberempfindlichkeit und die durch Tuberkulindarreichung zu erzielende Tuberkulin-unempfindlichkeit.) G. Bessau. Concluded in No. 6.
- 87 Pseudomeningitis in Tuberculous Children; Two Cases. H. Brockmann.
- 88 Mineral Metabolism in Infants on Breast Milk and Albumin Milk. (Vergleichende Untersuchungen über den Stoffumsatz bei Ammenmilch und Eiweissmilch mit bes. Berücksichtigung des Schwefelhaushaltes.) A. Peiser.

Medizinische Klinik, Berlin

May 2, XI, No. 18, pp. 501-526

- 89 Wounds of Peripheral Nerves in War. M. Nonne. Concluded in No. 19.
- 90 Hygiene at the Front. (Hygienische Erfahrungen im Felde.) P. Kuhn and B. Möllers. Commenced in No. 15.
- 91 Work in the Field Hospital. (Ärztliche Tätigkeit und Erfahrungen beim Feldlazarett.) E. Liebert.
- 92 *Etiology of Disease of Ovaries and Tubes. (Adnexerkrankungen.) A. Neisser.
- 93 Trauma and Chronic Infectious Diseases. E. Schepelmann.

92. Nongonorrheal Pelvic Disease.—Neisser protests most emphatically against the assumption that inflammatory processes in ovaries or tubes in young women soon after marriage are always of gonorrheal origin. The gynecologists almost invariably affirm this, and when no gonococci can be discovered in either the husband or the wife, they assume merely that the bacteriologic technic was defective. Some of the various germs which are liable to swarm in the urethra that has once been the site of gonorrhea may acquire pathogenic properties enough to set up inflammation in the ovaries or tubes—Neisser thinks there is much to sustain the possibility of this, although it has not been demonstrated to date. This will require the cooperation of both urologists and gynecologists in zealous bacteriologic research, but if it can be proved much harm can be obviated. As things are now, these ovarian and tubal processes in young wives are liable to be given erroneous treatment with antigonococcus vaccines, etc. Besides this, the confident assertion of the gynecologist that gonococci must be responsible for the pelvic mischief, has broken up the happiness of many a young couple and led to divorce proceedings, when in reality no basis for the assertion could be produced.

Progress cannot be made here without the help of the gynecologists; they should examine as extensively as possible the secretions from the uterus and cervix, both with the micro-

scope and with culture mediums, excluding absolutely all admixture of vaginal secretions. The mucus should be taken from the cervix twenty-four or forty-eight hours after careful disinfection of the canal of the cervix.

Monatsschrift für Geburtshilfe und Gynäkologie, Berlin

May, XLI, No. 5, pp. 371-456

- 94 *Eclampsia at Fourth Month of Pregnancy. O. Eisenreich and A. Schmincke.
- 95 Localization of Influenza Bacilli in Genital Organs at Term as Cause of Puerperal Fever; Recovery. H. Thaler and H. Zuckermann.
- 96 *The Protective Ferments in Relation to Obstetrics and Gynecology. (Neue Probleme des parenteralen Eiweissabbaues in ihrer Beziehung zur Geburtshilfe und Gynäkologie.) T. Petri. Commenced in No. 4.
- 97 Combination Actinotherapy for Uterine and Mammary Cancer. (Mehrjährige Erfolge der kombinierten Aktino-Therapie bei Karzinom des Uterus und der Mamma.) G. Klein.

94. **Eclampsia at Fourth Month of Pregnancy.**—The necropsy findings in the case reported explained the sudden death of the woman of 27 as the result of rupture of a sclerotic cerebral artery in consequence of the sudden rise in blood pressure during an eclamptic convulsion. The woman had a chronic kidney affection and was in the fourth month of pregnancy. There had been no convulsions before this severe one which proved fatal, but the liver showed the changes characteristic of eclampsia.

96. **Serodiagnosis of Pregnancy.**—Petri's extensive clinical and experimental research has elicited a number of new facts, he says, which have an important bearing on the parenteral digestion of albumin, especially from the obstetric and gynecologic standpoints. The tables and the details of the experiments show the wide scope of the work undertaken. Among the new facts thus learned are that the same conditions as follow parenteral incorporation of the individual's own serum can be artificially induced in animals by causing the production of a hematoma. Ferments are formed after absorption of the serum albumin in the blood effusion, and these ferments are able to digest various organ tissues, including placenta tissue. For this and other reasons cited, he says that the Abderhalden reaction will always be positive in pregnant women, but it will also be positive in the nonpregnant whenever conditions are present, such as pathologic or mechanical processes causing extravasation of blood, which permit the absorption of the individual's own albumin. The albumin-splitting ferments are probably mobilized at once after intravenous introduction of unputrefied albumin from the individual or from another individual of the same species, man or animal. The duration of the action of the ferments is probably limited to a certain period of time.

Münchener medizinische Wochenschrift, Munich

April 13, LXII, No. 15, pp. 497-536

- 98 *Action of Hydrogen Dioxid and Sugar on Anaerobes. (Wirkung von Wasserstoffsuperoxyd und von Zucker auf die Anaerobier.) K. Spiro.
- 99 Combined Radiotherapy and Intravenous Chemotherapy in Treatment of Uterine and Mammary Cancer. G. Klein.
- 100 *Typhoid Spondylitis. G. Galli.
- 101 Apparatus for Inducing Pneumothorax. (Neuer, transportabler Pneumothoraxapparat mit Benutzung von Sauerstoff und Stickstoff in statu nascendi.) F. Kornmann.
- 102 *Rapid Restoration of Functions of Resected and Sutured Sciatic Nerve. H. Thiemann.
- 103 *Gunshot Wounds of Peripheral Nerves. L. Huismans, K. Steinthal, K. Döpfner and R. Sauter.
- 104 Localization of Foreign Bodies. (Neues Lokalisationsverfahren mittels metallischer Koordinatensysteme.) P. Meisel.
- 105 Bacteriologic Work at the Front. J. Basten.
- 106 Importance of Supplying Salt When the Febrile Are Kept Long on Milk. (Koehsalz bei langer dauernden Fieberzuständen.) J. Schütz.
- 107 Appendicitis as Seen in Field Hospitals. (Blinddarmentzündung im Felde.) E. Pflaumer.

April 27, No. 17, pp. 573-608

- 108 Mode of Action of Common Disinfectants. (Prinzipien in der Bekämpfung einzelner lokaler Wundentzündungen.) O. v. Herff.
- 109 Selection of Disinfectants for Special Microbes. O. v. Herff. (Zur Behandlung der septischen Allgemeininfektion.) P. Hüsey.
- 110 *Complement Fixation as Test for Typhoid. (Die Komplementablenkung als Reaktion zur Unterscheidung zwischen den Seren Typhuserkrankter und gegen Typhus Geimpfter.) Felke.

- 111 *The Opium-Bromid Treatment of Epilepsy According to Flechsig. H. G. W. Kellner.
- 112 The Protective Ferments in Psychiatry. (Zur Abderhaldensehen Reaktion in der Psychiatrie.) W. Mayer.
- 113 *Wounds of the Skull. (Schädelschussverletzungen im Feldlazarett.) A. Læwen and Syring.
- 114 Meningitis from Extension to the Ventricles of Suppuration Following Gunshot Wounds of the Brain. H. Chiari.
- 115 Intracranial Pneumatocele Following Gunshot Wound; Two Cases. J. Duken.
- 116 Flap-Door Incision and Draining to Prevent Prolapse of Brain Substance. (Zur Verhütung des Hirnprolapses nach Schädelschüssen.) Boerner.
- 117 Homolateral Hemiplegia After Injury of the Head. L. Roemheld.

98. **Action of Peroxids and Sugar on Anaerobes.**—Spiro writes from the Institute for Physiologic Chemistry at Strassburg to offer an explanation for the undoubted benefit realized in treatment of the wounded by hydrogen dioxid and sugar. The sugar modifies the medium and this in turn acts on the germs in the medium. Those that have been having the upper hand are crowded out, and harmless ones gain the supremacy. The bacterial growth is different when there is sugar present, and the products of the bacterial growth are different. For example, a putrefying solution of yeast smells of indol; if sugar is added, there is no trace of indol to be detected with any tests. Modifying the medium modifies the bacterial growth, and this may mean everything in case of a wound, as wounds swarm with all kinds of bacteria. He ascribes the favorable action of hydrogen dioxid to its physical properties; it cleans out the wound, floats out on its foam debris and bacteria from the depths and crevices, bringing them to the surface where the light and air or local measures can destroy them more easily.

100. **Typhoid Spondylitis.**—A man of 59, toward the close of an ordinary attack of typhoid, suddenly developed attacks of chills and high fever suggesting pyemia. This was finally explained, after a month, by pains in the lumbar region from a typical typhoid spondylitis. The pains were relieved by a plaster corset, but he was never entirely free from pain for eight months and the fever kept up for the same length of time. Recovery followed at last, apparently complete. Agglutination was pronounced at 1:200 even after eight months. The pain with typhoid spondylitis is more intense than with tuberculosis of the spine, and is aggravated by the slightest movement or lightest touch, and is not relieved by drugs, not even morphin in the usual dosage. The tenderness is localized in the apophysis of one or two vertebrae. In 80 per cent. of the cases on record, about 100, the lumbar region was the seat of the trouble. The affection may linger for two years or more.

102. **Rapid Restoration of Function after Suture of Nerve.**—Thiemann reports a case which he thinks is a record breaker in that complete paralysis of the foot and the most intense and continuous pains, which had followed a gunshot wound of the knee, were cured by resection of 3 cm. of the cicatrized nerve and suture of the stumps. The pain was arrested at once, and the man was able to move his toes by the end of the second week and the whole foot when the cast was taken off in the third week. Both the wound and the operation healed by primary intention.

103. **Suture of Peripheral Nerves.**—The technic for separating a nerve embedded in cicatricial tissues and also for partial or complete suture are described, with one illustration. If there is suppuration no attempt should be made until the inflammation has subsided. Fistulas in the vicinity and sequesters are also contraindications. The sound nerve should be touched with instruments as little as possible. The plaster splint should be applied for two weeks with the nerve two-thirds relaxed, then relaxed still more for a week, and then gradually stretched.

Steinthal presents data from times of peace which show that even when all conditions are favorable the outcome of suture of a nerve is not so favorable as generally assumed. In the war wounds the nerve is damaged much more than is the case usually in the injuries outside of war. He has sutured the nerve in twenty-three cases and released it from pressure of scar tissue in thirteen others. He recalls that operation must be delayed until all inflammation is past, and

warns that too great hopes must not be placed on it. The wounded must be informed that the operation is unconditionally necessary but that a complete success cannot be guaranteed.

110. Complement Fixation as Test for Typhoid.—Felke states that in 39 persons vaccinated against typhoid, the agglutination test gave nearly constant positive findings while the complement-fixation test was constantly negative. In 9 typhoid cases, agglutination was positive and also the complement-fixation test, as also in a few convalescing from typhoid. He thinks that the complement-fixation test may thus prove of assistance in diagnosing or excluding typhoid in persons who have been vaccinated.

111. Opium-Bromid Treatment of Epilepsy.—Kellner has followed Flechsig's technic in treatment of 250 epileptics since 1906 and has never witnessed any harm from it. His impression on the whole is favorable and he asks those who denounce this method whether they can show any better results than his own average of 25 per cent. essentially improved and all more or less modified for the better. The opium is given three times daily for fifty days, beginning with 0.05 gm. of the extract of opium at a dose, increasing to a maximum of 0.29 gm. This is the highest dosage, calculated for an otherwise healthy adult. The fifty-first day the opium is stopped and bromids given, in the Erlenmeyer mixture, three times a day. The dosage here must be cautiously individualized and supervised, watching for signs of intolerance or bromism and slowly reducing the dose if such appear. Sudden suspension of the bromids almost inevitably brings back the seizures. His usual dose of the bromid mixture for a strong adult is 5 gm. a day: 1 gm. in the morning and 2 at noon and again at evening. This is increased to 6 gm. in a week and to 7 gm. after another week. He never goes above this latter dose, but thinks the bromids will have to be taken all the rest of the life if the epilepsy has been cured by this course of treatment and prolonged observation has shown that a certain dose can be kept up indefinitely without harm.

He relates a few typical instances of the benefit from this method of treatment. One patient was a young man who had had for years several seizures a week, rebellious to all the measures applied by various physicians. He was the only child of wealthy parents and was intelligent and well brought up. During the last two years he had had periods of wandering, losing his identity. He took the opium-bromid course in 1910 and had his seizures as usual during the fifty opium days. They stopped when the bromid was begun and he has never had any seizures since. As an extra precaution he returns once a year and takes the whole course over again, and keeps up the bromids all the time, taking constantly his 5 gm. a day. He feels and lives like a perfectly healthy man. Some other cases are reported to show the seizure-provoking influence of alcohol; even half a glass of light wine may bring on an attack after months of freedom.

113. Importance of Plaster Casts in Treatment of Wounds in War.—Läwen expatiates on the great value of fenestrated plaster casts in treatment of nearly all kinds of wounds. He is referring here in particular to wounds of the skull, and gives several illustrations of the casts he uses for wounds of the front or side of the skull. The cast leaves the wounded part exposed but otherwise embraces the head and thorax. It materially facilitates changing the dressings, as the wound can be dressed without moving the head. The immobilization relieves the pain and quiets the patient while the brain benefits by the absolute repose thus enforced. If the patient has to be taken elsewhere the cast protects him against injury.

Wiener klinische Wochenschrift, Vienna

April 27, XXVIII, No. 17, pp. 435-462

- 118 War Aneurysms. (Weitere Erfahrungen über Kriegaaneurysmen, mit bes. Berücksichtigung der Gefässnaht.) H. v. Haberer. Concluded in No. 18.
- 119 Protect Against Droplet Infection of Typhus as Well as Against Vermin. (Persönliche Prophylaxe gegen den Flecktyphus.) R. Kraus.

- 120 Complement Fixation in Smallpox. A. v. Kouschegg.
- 121 Abdominal Wounds. (2 Fälle von Kotphlegmone und Kotabszess nach Schussverletzung des Bauches durch Schrapnellfüllkugeln.) V. K. Irk.
- 122 Stretcher on Which the Wounded Can be Carried from the Battle Field to His Home, Wounds Dressed and he Operated on Without Change. (Wie bleibt der Verwundete trotz Operation und Verbandwechsels auf derselben Trage von Gefechtsfeld bis ins Hinterland?) F. Tintner.
- 123 Wounds of the Spinal Cord in War. (Zur Kasuistik der Rückenmarkschädigungen durch Wirbelschuss.) E. Gamper. Commenced in No. 16.

Zeitschrift für klinische Medizin, Berlin

LXXXI, Nos. 3-4, pp. 199-354. Last indexed February 27, p. 782

- 124 The Hamburg Diphtheria Epidemic, 1909-1914. F. Reiche.
- 125 Determination of the Reaction of the Urine. (Reaktionsbestimmungen des Harns.) H. F. Höst.
- 126 Hexamethylenamin as Disinfectant for the Urinary Passages. (Urotropin als Desinfiziens der Harnwege.) H. F. Höst.
- 127 Experimental Research on the Biologic Action of Thorium X, Especially on the Blood. A. da S. Mello.

Zentralblatt für Chirurgie, Leipzig

April 17, XLII, No. 16, pp. 257-280

- 128 *Celluloid Plate for Closing Gap in Skull Not Durable. (Zur Frage der Deckung von grossen Schädeldefekten mittels Zelluloidplatten.) Funke.

April 24, No. 17, pp. 281-296

- 129 Plastic Operations in War Aneurysms in the Groin. (Zur Behandlung der Schussaneurysmen durch künstliche Wandverstärkung bei Aneurysmen besonderen Sitzes.) H. F. O. Haberland.

May 1, No. 18, pp. 297-320

- 130 *Technic for Amputations. (Wie soll man amputieren?) Chlumsky.
- 131 Pedunculated Skin Flaps to Cover Stump End. (Hautplastik statt Nachamputation.) A. Schanz.

128. Celluloid Not Durable to Close Gap in Skull.—Funke demonstrated in 1908 a boy who had worn a large celluloid plate for five years as a covering over an extensive defect in the skull. The perforated plate measured 7 by 12 cm. and healed in place without reaction. The sixth year two fistulas developed in the scalp, and he exposed the plate to investigate. He found it broken at several points, the celluloid crumbling, having lost its elasticity and firm structure. A gold plate was introduced in its place and the soft parts healed over it without reaction.

130. Technic for Amputations.—Chlumsky insists that the more of the limb that is saved, the better the functioning later. Also that it is wiser to use some kind of prosthesis from the earliest possible moment as the stump heals and behaves differently when it is being actively used. Much is lost that can never be regained if the limb is not used until after retraction, etc., are complete. Some simple artificial limb should be applied as early as possible, changing later to the final prosthesis to be worn.

Zentralblatt für Gynäkologie, Leipzig

April 17, XXXIX, No. 16, pp. 257-272

- 132 Conservative and Operative Treatment of Chronic Disease of Ovaries and Tubes. (Chronische Adnexerkrankungen.) H. L. Coopman.

April 24, No. 17, pp. 273-296

- 133 *Treatment of Pregnancy Kidney and Eclampsia. (Zur Behandlung der Schwangerschaftsnieren und Eklampsie.) W. Stoeckel.

May 1, No. 18, pp. 297-312

- 134 *Conservative Surgery of the Ovaries. (Zur Kasuistik der erweiterten Ovarienresektion nach Menge.) E. Löhnberg.

133. Pregnancy Kidney and Eclampsia.—Stoeckel's communication is a reply to Gessner's article with this title which was summarized in these columns March 6, 1915, p. 865. Stoeckel denounces his premises as mistaken and his advice as fraught with danger.

134. Conservative Surgery of the Ovaries.—Löhnberg reports two cases in which there did not seem to be a trace of normal ovarian tissue as both ovaries were changed into cystomas. Yet some of the cystoma tissue was left on both sides at the operation in the hope that menstruation might continue. This hope was realized, and the young woman not only menstruated regularly thereafter, but conception occurred. In the other case there had been amenorrhea for

three months at the time of the ovariectomy. Seven months later there was an apparently normal menses, but it did not return afterward and the state of the internal genitals thereafter corresponded to that of the menopause.

Gazzetta degli Ospedali e delle Cliniche, Milan

April 25, XXXVI, No. 33, pp. 513-528

- 135 *The Hemorrhoid Syndrome. (Neuro-artrismo e sindrome emorroidaria.) C. Pascale.

April 29, No. 34, pp. 529-544

- 136 *Possibility of Recuperation of Intestine in Strangulated Hernia. C. Scandola.

May 2, No. 35, pp. 545-560

- 137 Strangulation in Hernia of Appendices Epiploicae; Alleged Twelfth Case on Record. R. Mosti.

135. **The Hemorrhoid Syndrome.**—Pascale reports the case of a man of 60 with hemorrhoids for ten or twelve years and a general tendency to sluggish metabolism. A recent accident to one eye was followed by glycosuria, and then came pains suggesting gallstone trouble, and signs of cystitis. The syndrome thus included glycosuria, cholelithiasis and bladder trouble, but Pascale's analysis and the results of treatment demonstrate that the whole syndrome was merely the manifestation of the condition typified by the tendency to hemorrhoids. Measures to correct this tendency and restore the circulation to normal were followed by the subsidence of the other trains of symptoms, as he relates in detail.

136. **Recuperation of Strangulated Intestine.**—Scandola gives an illustrated description of the findings in two series of experiments on dogs. In the first he shut off a loop 30 cm. long from the rest of the circulation by ligating the artery and vein at each end of the loop. The loop was then resected after six, twelve, eighteen or twenty-four hours and examined under the microscope. In the second series the same ligation was done but the ligatures were removed six, twelve or eighteen hours later and the surviving dogs were killed after an interval of three weeks. Eight dogs were used in all and the results were concordant in that the loop of intestine was able to recuperate whenever the injury from the temporary strangulation was restricted to the mucosa, or the other coats of the intestine were but slightly affected. Even quite serious changes in the mucosa retrogressed, but pronounced changes in the outer layers proved inevitably fatal. Nothing was found to differentiate the strangulated portion in the six-hour animal.

Policlinico, Rome

May 2, XXII, No. 18, pp. 589-620

- 138 Agglutination in Undulant or Malta Fever. F. Virgillo.

Riforma Medica, Naples

May 1, XXXI, No. 18, pp. 477-504

- 139 *Weiss' Potassium Permanganate Reaction in the Urine. (Sul valore clinico della reazione di Weisz.) A. Ferrannini.

- 140 Case of Syphilitic Meningomyelitis. U. Scinicariello. Commenced in No. 17.

139. **Test for Chromogen in the Urine.**—Ferrannini discusses the experiences that have been published by others, the technic, the chemistry involved, the reaction in the healthy and in acute and chronic nontuberculous affections, and in various forms of tuberculosis. He also compares the findings with this test with those of the diazo and the tuberculin skin test. The chromogen reaction is not specific for any disease, but in an acute disease, other than typhoid, a positive and pronounced reaction obtainable for several days in succession, strongly suggests tuberculosis. In chronic disease, severe and of long standing, an intense and constant reaction testifies also to the tuberculous nature of the disease, and a negative reaction excludes this unless the disease is in its terminal phase. In tuberculosis, if the reaction is intense and constant, the outlook is unfavorable even although the clinical course seems promising. On the other hand, a faint and inconstant reaction offers a favorable prognosis almost regardless of the clinical course at the time. The long bibliography appended is nearly all Italian. About a dozen French articles are listed but no British or American articles.

Tumori, Rome

March-April, IV, No. 5, pp. 509-632

- 141 *Primary Cancer of Aberrant Mammary Gland Tissue. (Carcinoma primitivo di un lobo aberrante presternale della mammella.) L. Stropeni.

- 142 *Primary Tumors of the Pericardium. G. Forni.

- 143 *Chorioepitheliomatous Tumors in Testicles and Ovaries. (Contributo allo studio dello spermioblastoma a tessitura corioepiteliale.) D. B. Roncali.

- 144 Gastric Leiomyomas. (Contributo alla conoscenza dei tumori a fibre muscolari lisce dello stomaco.) F. Nasseti. To be continued.

141. **Cancer in Aberrant Mammary Gland Tissue.**—Stropeni's patient was a woman of 57 with an adenocarcinoma in front of the sternum. It was removed three months after the first symptoms had been noted. The microscope revealed the structure to be that of an aberrant lobe of the mammary gland, without any connection with the latter. There has been no tendency to recurrence during the year since although the tumor had been of an unusually rapid and malignant growth.

142. **Primary Tumors of the Pericardium.**—Forni has compiled from the literature fifteen cases and reports another from his own experience. The ages of the patients ranged from 15 to 73, and all were malignant growths but two, but nearly all were necropsy surprises. Even when the malignant disease was known, its exact localization was impossible during life as a rule, or else it was impossible to differentiate the nature of the heart trouble known to exist.

143. **Cancer of the Testicle.**—Roncali refers in particular to tumors of chorioepitheliomatous structure. He regards them as essentially analogous to physiologic embryos; they are pathologic embryos. Chorioepitheliomas of the testicle were long supposed to be sarcomas, but improved technic proved this a mistake. Roncali has encountered two cases, as he describes in detail. The first patient was a young man of 18 who had first noticed signs of a tumor in the scrotum two months before its operative removal. The growth involved both the testicle and the epididymis. A large metastatic tumor developed later in the kidney region, and proved fatal eight months after the first operation. The second patient was also a young man; he was extremely debilitated when first seen and symptoms in the lungs led to the diagnosis of fulminating tuberculosis. He died a few days later and nodules of a neoplastic nature were found in the lungs, suggesting the structure of a chorioepithelioma. The testicles were examined when the above was determined, and the right testicle was found to be the seat of a typical chorioepithelioma, the structure the same as in the nodules found in the lungs, liver, kidneys and spleen.

Semana Medica, Buenos Aires

April 1, XXII, No. 13, pp. 409-440

- 145 Cystitis with Calcareous Deposits; Two Cases. (Cistitis incrustante.) E. Pozzi.

- 146 Gangrenous Appendicitis During Pregnancy; Two Cases. (Peritonitis generalizada por apendicitis perforada durante el embarazo.) R. F. Coulin.

- 147 Relations Between Nose Breathing and Pulmonary Tuberculosis. A. Philibert.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

April 24, I, No. 17, pp. 1415-1502

- 148 The Wounds from Modern Projectiles. (Wonden door hedendaagsche vuurwapenen.) P. H. Van Roojen.

- 149 *Localization of the Pain with Chronic Disease of the Pancreas. C. G. Vervloet.

- 150 Trigeminal Disturbances from Tumor in the Brain as Aid in Localization. C. T. Van Valkenburg.

149. **The Pain in Differential Diagnosis of Chronic Disease of the Pancreas.**—Vervloet gives the details of six cases to show that pain is not so rare with chronic pancreatitis as some assert, and that its location is characteristic, as also its persistency, long duration, and sometimes its severity. Even when there is no spontaneous pain it may be elicited by pressure. The pain in the lumbar region is most characteristic, but there may be pain in the stomach region and along the median line and in both flanks; in the left hypochon-

drium; the lumbar vertebrae; the upper third of the sacrum; a region a few centimeters wide along and to the left of the lumbar vertebrae; the left arm and hand; the left thigh to the knee; the left scapula and shoulder, the left side of the neck and the ear. One case of old duodenal ulcer presented nearly the entire array of the above localizations of the pain. In one case an operation was done for supposed gallbladder trouble, but no stones were found, merely torpid chronic pancreatitis, and it was learned then, too late, that the man had had pain in both scapulas. A few weeks after the operation, pressure on the lumbar vertebrae induced pain. The lumbar pain is more instructive than pain in the stomach region, as the latter may occur with various affections. In the sixth case reported the pain was more on the right side; the first and second lumbar vertebrae were tender, and a very painful point on pressure was found under the twelfth rib close to the spine. Necropsy revealed a cancer in the head of the pancreas.

Norsk Magazin for Lægevidenskaben, Christiania

May, LXXVI, No. 5, pp. 557-696

151 *Direct Transfusion of Blood. R. Ingebrigtsen.

152 *Operative Removal of Emboli in the Arm. J. Nicolaysen.

153 *Disease of the Ductless Glands. (Bidrag til de endokrine organers klinik.) L. Dedichen.

154 *Syphilis and Tuberculosis. H. Sundt.

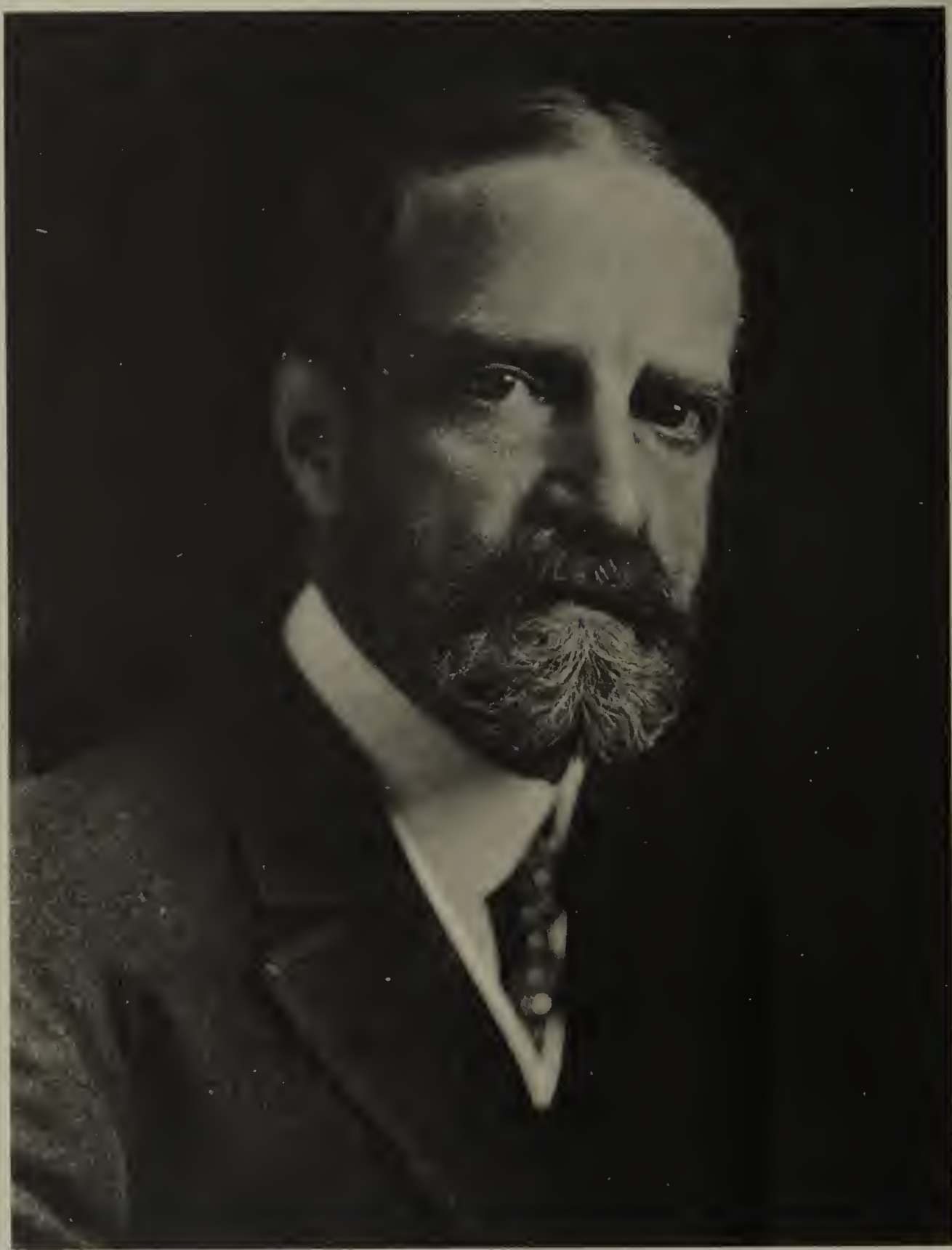
151. **Direct Transfusion of Blood.**—Ingebrigtsen tabulates fifty cases with all the data, as compiled from the literature, in order to acquaint the profession in Norway with the advantages and the technic of Crile's method of direct transfusion of blood. His list includes articles on the subject in *THE JOURNAL*. He classifies the cases according as the transfusion was done for a constitutional hemorrhagic tendency, hemorrhage from the digestive tract, postoperative and septic anemia or puerperal or other uterine hemorrhage or pernicious anemia. In the six cases in this latter group the results were not especially encouraging. The transfusion in thirteen cases rescued the patients from imminent death. He also gives the minute details of a case in his own experience in which a girl of 8 had lost so much blood from uncontrollable epistaxis that the heart was scarcely able to keep beating. During the transfusion the pulse dropped from 120 to 86 and the child promptly recuperated. The only pathologic finding in the blood is the scarcity of blood platelets; the symptoms observed at the time and during the months that followed suggest a tendency to chronic purpura and the prognosis is reserved although the transfusion can be repeated at need in case there is further trouble from the hemorrhagic diathesis. During the year since she has had one attack of slight hematuria and her lips have bled a little at times.

152. **Operative Removal of Embolus in Both Arteries in the Arm.**—In Nicolaysen's case the heart seemed to be sound but pains in the fingers of the right hand, preceded for a few months by occasional numbness, indicated obstruction of the circulation. The pain grew more serious and the second week the diagnosis of embolism was beyond question. The embolus was supposed to be at its usual site, the bifurcation of the brachial artery. It was exposed under local anesthesia but no traces of an embolus could be found here nor in the upper half of the radial or ulnar arteries. If the diagnosis of embolism was correct, there must be two emboli, one in the radial and one in the ulnar artery, and when the fingers began to show signs of gangrene, three days after the other operation, the lower half of the ulnar artery was exposed and was seen to be bulging over a 2 cm. stretch; pulsation was evident above but none below this bulging portion. An incision 1.5 cm. long was made and the embolus protruded at once and was readily extracted whole. The interior of the vessel seemed normal, and pulsation became manifest below at once after the embolus had been extracted. A week later the radial artery was exposed and the embolus was removed in the same way only that it was twice as long as the first and broke while it was being taken out, and the lower part had to be scooped out.

The circulation returned at once in the hand; there was no further pain and the radial pulse was good when last inspected, two months later. It is often a difficult matter to locate the embolus exactly, and the artery often has had to be exposed at several points before the right place was found. According to the experiences on record, it seems as if thirteen hours' obstruction of the circulation is the limit for possible recuperation after complete obstruction. But in Nicolaysen's case the vessel walls did not seem to have been damaged by the distention from the emboli although nineteen days had elapsed after the first symptoms before they were both extracted. The emboli were also found quite loose, not adherent at any point to the vessel wall. His patient was a man of 52, previously healthy. Angiosclerosis is accepted as the fundamental cause for the embolism; the heart is apparently normal.

153. **Disease of the Ductless Glands.**—This address describes the leading affections for which one or more of the ductless glands are now regarded as responsible, citing typical instances of each, with eighteen illustrations.

154. **Syphilis and Tuberculosis.**—Sundt quotes Calot to the effect that it would be better if physicians in charge of lung sanatoriums would think oftener of syphilis, and if syphilologists thought oftener of tuberculosis. Sundt is chief of the seashore antituberculosis sanatorium at Fredriksvern, and he says that in a comparatively large number of cases the patients sent to the hospital are not infected with tuberculosis or, if infected, the symptoms which led to their hospitalization were not any for which the tuberculosis was responsible. In 40 cases of hip-joint disease during the last three years, 27.5 per cent. proved to be nontuberculous as also 20.7 per cent. of 29 cases of knee diseases. In nearly all of the nontuberculous hip-joint cases, the trouble proved to be Perthes' juvenile deforming osteochondritis, but the knee affections were nearly all of syphilitic origin, namely, in 4 out of 6. The Wassermann reaction was positive in these and also in a surprisingly large number of the patients with other affections, even in many with unmistakable tuberculous lesions. The patients were mostly children, and latent syphilis masqueraded as tuberculosis or "scrofula" in a surprisingly large number or accompanied unmistakable tuberculosis. He gives an illustrated description of several cases; in one both knees were affected after a trauma and had long been treated as for tuberculosis while destructive lesions in the palate had been treated for lupus. The tuberculin reaction was positive as also the Wassermann, and treatment on this latter clue soon restored the child to clinical health. He adds that a similar sequence was encountered soon after in another case: trauma; bilateral knee trouble, followed by a destructive affection of the nasopharynx. Other cases are cited to show that syphilis alone is able to induce the classical picture of "scrofula" in its most typical form. All these patients in this group presented merely the late manifestations of inherited syphilis; in none of them had it been recognized, but tedious treatment had been long enforced for tuberculosis or lupus. There are no absolutely reliable differentiating clinical signs; a primary localization of tuberculosis in the nasopharynx is of very rare occurrence. Tuberculous lesions generally spread superficially, the syphilitic burrow deep. The tuberculin test is most instructive when it induces a focal reaction, but this is rather an exception than the rule. When the findings are dubious, a course of treatment as for syphilis may decide the question; we know that the Wassermann may be dubious even with known syphilis. He reiterates that we must remember that not everything that subsides under potassium iodid is syphilis, and that not all that is syphilis subsides under it. Sixteen cases are reported and discussed showing the many problems presented by the coincidence or mistaken diagnoses of syphilis and tuberculosis. Since the beginning of 1915, 5 of the 22 new admissions to the sanatorium responded positively to the Wassermann test. They had been sent in with the diagnosis of tuberculous disease of the hip joint, foot, knee or face and larynx.



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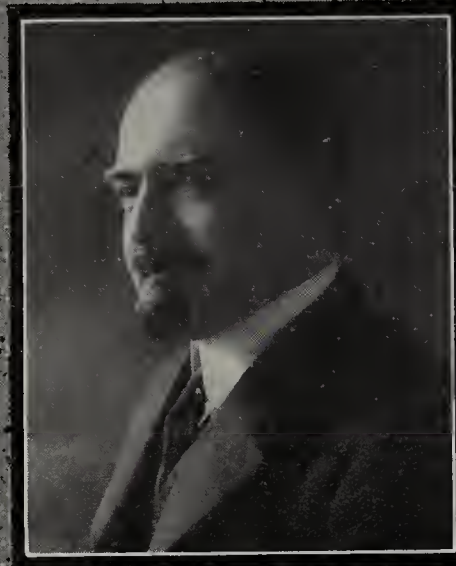
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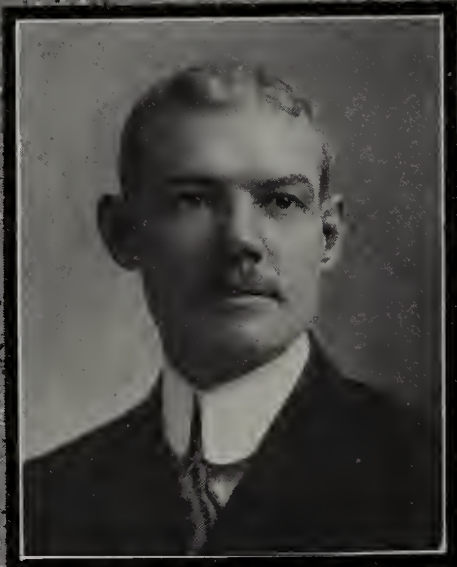
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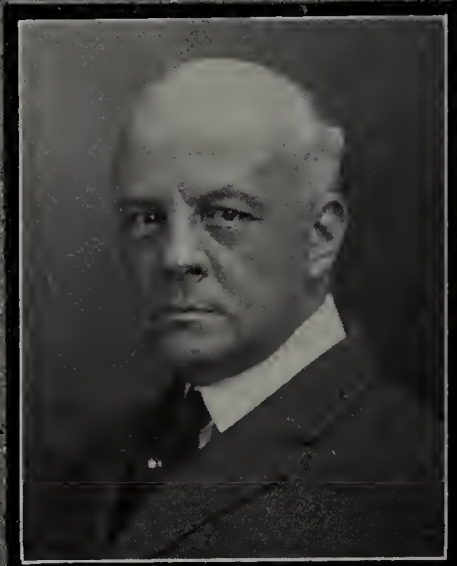
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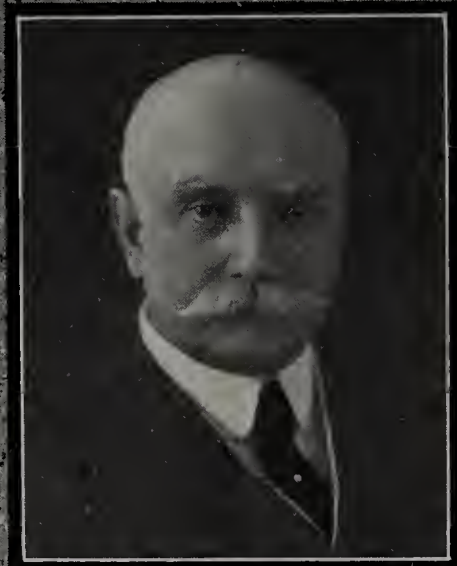
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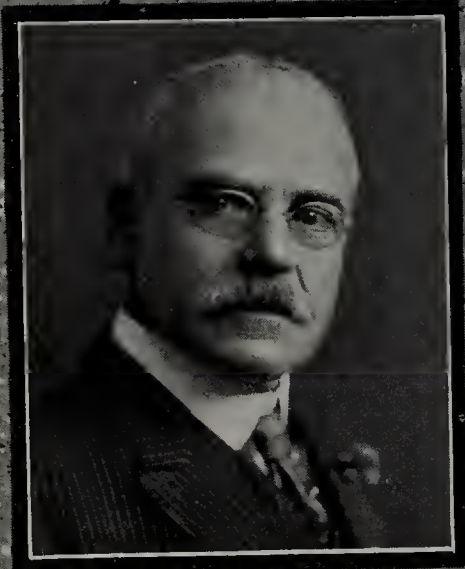
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STOMACH CARCINOMA

ITS MEDICAL ASPECTS *

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BALTIMORE

These observations are based on 184 cases of carcinoma of the stomach which have been observed in the Surgical Pathological Laboratory of the Johns Hopkins Hospital during a period of almost twenty-five years. The majority of the patients come from the surgical clinic of Professor Halsted of the Johns Hopkins Hospital. All of the cases recorded in this surgical clinic are here. A number of cases have been received from Dr. Finney's clinic at the Union Protestant Hospital. All of the cases observed in the surgical clinic of St. Agnes Hospital are included in this list, and there are a few from other hospitals.

These 184 cases may not represent the entire experience of the surgeons connected with the Johns Hopkins Hospital, but it is my opinion that they represent it sufficiently to give a clear picture of our experience with cancer of the stomach.

I have gathered from the reading of the literature that those surgical clinics, in which the total number of cancers of the stomach was larger than the total number of ulcers of the stomach, observed a larger percentage of inoperable cancer and a smaller percentage of cures among the cases in which resection of the stomach was possible, than those clinics in which the number of ulcers of the stomach exceeded that of cancer.

* Address of the President before the American Gastro Enterological Society, Baltimore, May 10, 1915.

This is true for the cases which I have recorded.

In the Surgical Pathological Laboratory up to date our figures are as follows: stomach ulcer, 132 cases; stomach carcinoma, 184 cases. Cancer, therefore, has been more frequently observed than ulcer.

The figures as to the proportion of operable and inoperable cases of cancer are: no operation, 45 cases; exploratory laparotomy, 49 cases; gastro-enterostomy, 41 cases; total inoperable cases, 135; resection, operable cases, 49.

This demonstrates that in only 26 per cent. of the cases has the cancer of the stomach been operable, in 74 per cent. inoperable.



Fig. 1 (Case 1).—External view of the mass removed.

Table 1 illustrates the percentage of operable and inoperable cases during five-year periods from 1890 to 1915.

The first cancer of the stomach was observed in 1890. The first gastro-enterostomy for cancer was performed in November, 1892. The first exploration for inoperable cancer of the stomach was done in 1895, the first resection in 1898.

The table clearly illustrates that the experience of this clinic with cancer of the stomach really did not begin until 1905—ten

years ago. From 1890 to 1905, a period of fifteen years, there were but thirty-five cases of cancer of the stomach, of which nine, or 25 per cent., were operable. In the following five-year period, from 1905 to 1910, the total number of cases increased rapidly to seventy-six, of which only twelve, about 16 per cent., were operable. More cases, therefore, of cancer of the stomach were referred to the surgeon for consultation or operation, and we observe that in twenty-one cases the inoperability was so clear that no operation was done.

Fortunately, in the next five years — from 1910 to 1915 — a distinct change has taken place. The total

TABLE 1.—PERCENTAGE OF OPERABLE AND INOPERABLE CASES

	1890-1895	1895-1900	1900-1905	1905-1910	1910-1915	Totals
No operation.....	1	3	8	21	12	45
Exploration.....	—	4	3	22	20	49
Gastro-enterostomy.....	2	2	2	21	13	41
Total inoperable.....	3	9	13	64	45	134
Resections, operable.....	—	3	6	12	28	49
Totals.....	3	12	19	76	73	183

number of cases so far is seventy-three, of which twenty-eight, or 39 per cent., were operable. These figures surely demonstrate that patients with cancer of the stomach are being recognized earlier and referred to surgical treatment at a more favorable period. The no-operation cases have decreased from twenty-one to twelve, the gastro-enterostomies from twenty-one to thirteen cases.

Here we have the first evidence of a favorable turn in events.

I have also observed that during these five years, for the first time the total number of ulcer cases was greater than the total number of cancers. These figures will be brought out more elaborately in a second paper.

Up until 1910, among twenty-one cases of resection, there have been two cures—a little less than 10 per cent. of the operable cases, or two cures among a total of 111 cases, or 1.7 per cent.

Up to the present time, among the twenty-eight cases of resection between the periods of 1910-1915, there is one patient still living in whose case it will be five years since the operation in August, 1915.

If the patients still living in this group remain well, the percentage of cures may be increased from less than 10 to more than 20 per cent.

These figures, although small, seem to confirm my impression gathered from the literature, that when the total number of ulcers of the stomach in a surgical clinic exceeds the total number of cancers, the percentage of operable cases in the latter group

increases, and with this there is an increase in the number of five-year cures.

I do not wish to enter here into the discussion of the relation of ulcer to cancer of the stomach, but the

figures of these observations are very suggestive. At least they suggest a definite practical way by which the number of cures of cancer of the stomach may be increased.

Table 2 attempts to illustrate the relation of the duration of the disease to the operability of the cancer. Of course, in computing a table of this kind there is considerable opportunity for error, but if I have made mistakes in this table, it is on the side of shortening rather than lengthening the duration of the disease. I

have excluded statements such as "year, or years, of indigestion," or a history of one or more previous attacks that suggested gastric ulcer. I have taken as the duration of the disease the period of continuous symptoms. The chief symptom has been abdominal discomfort in the region of the epigastrium aggravated by eating.

Nausea, belching, vomiting, vomiting of blood, and blood in stools, loss of weight and strength, whether present or absent, has not been considered in estimating the duration of the disease. In all of these cases, discomfort of various degrees has been noted in the history, and this

discomfort has always been made worse by eating solid food.

This, therefore, is a very conservative estimation of the period of continuous symptoms.



Fig. 2 (Case 1).—Surface view of the longitudinal section.

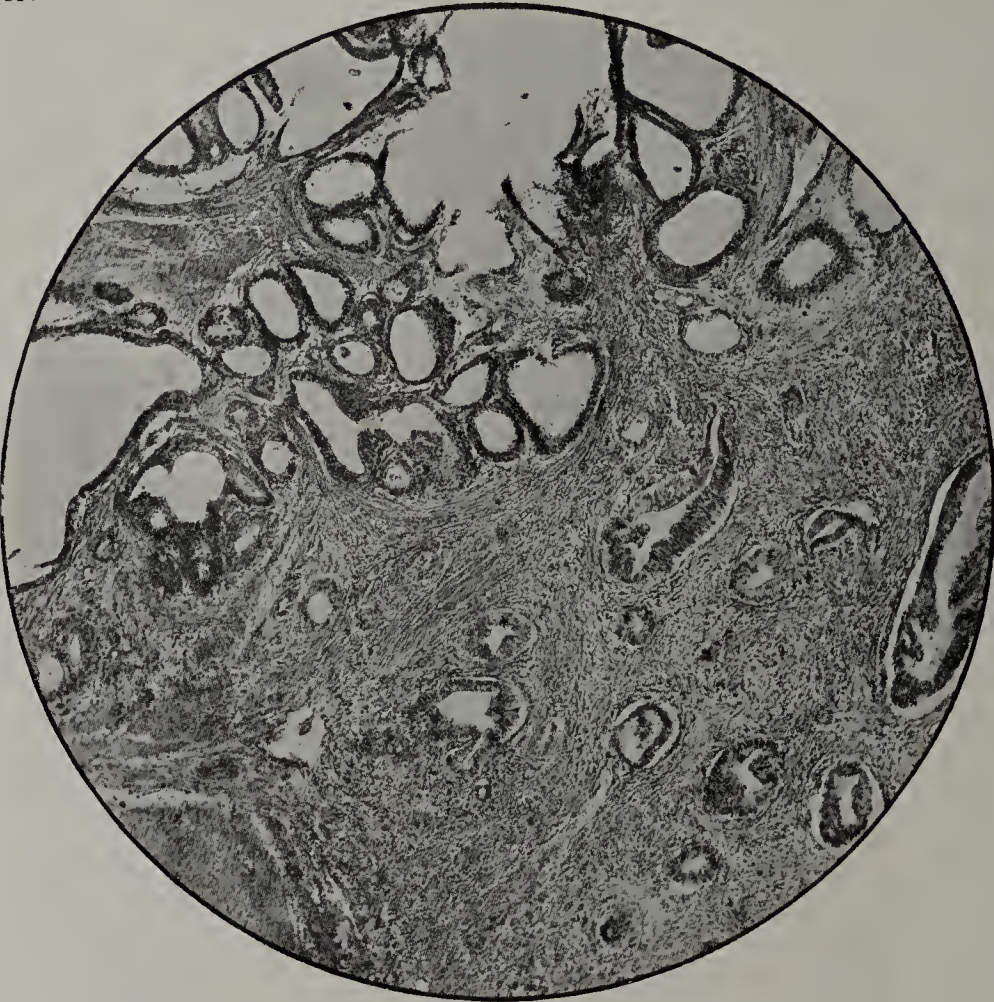


Fig. 3 (Case 1).—Adenocarcinoma.

TABLE 2.—RELATION OF DURATION OF DISEASE TO OPERABILITY OF CANCER

	1 month to 3 months	3 months to 6 months	6 months to 1 year	1 year to 2 years	2 years to 5 years	Over 5 years	Totals
No operation.....	6	6	5	7	6	4	34
Exploration.....	5	10	10	10	10	1	46
Gastro-enterostomy.....	8	7	14	4	5	1	39
Total inoperable.....	19	23	29	21	21	6	119
Resection, operable.....	8	7	8	6	9	2	40
Totals.....	27	30	37	27	30	8	159

These cases have been divided into six groups.

The most remarkable finding is that the percentage of operability is about the same in each period.

If cancer of the stomach began as cancer in every

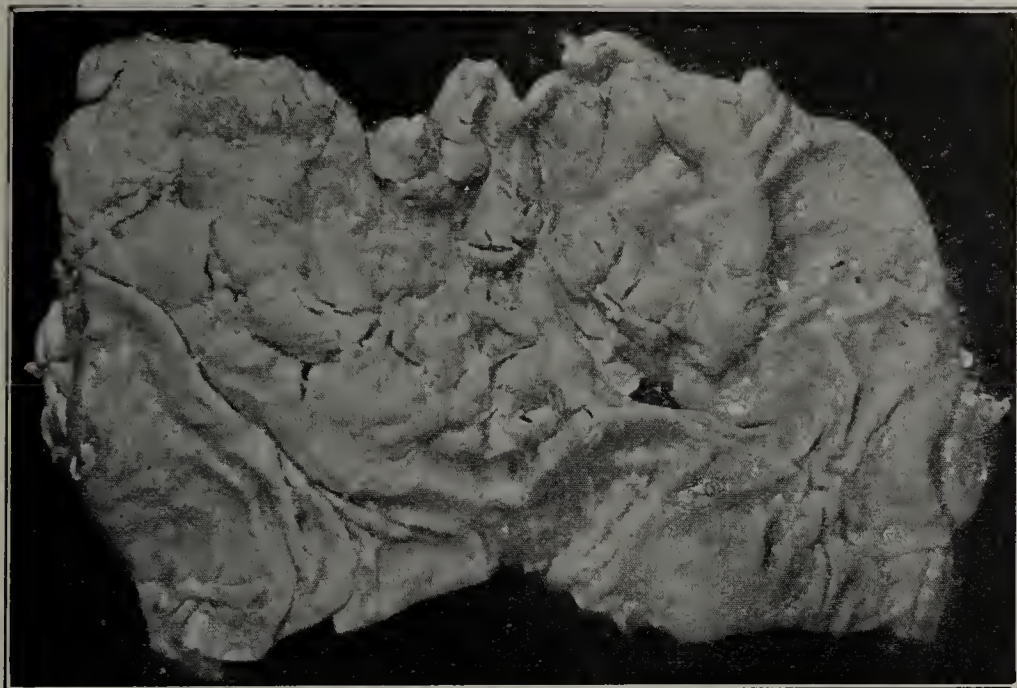


Fig. 4 (Case 2).—Surface view of the removed portion of the stomach.

instance, it should follow that with the longer period of the disease the percentage of operable cases should decrease; but this is not so.

In fact, among the cases in which the symptoms had been present only three months, the percentage of operable cases is 29.

In the next period of three months it falls to 23. In the next period of six months it falls to 21. The figures 29, 23 and 21 per cent. show that with an increase in the duration of the disease, the percentage of operable cases decreases slightly; but in the next two periods, the first of from one to two years, the second from two to five years, the percentage of operable cases increased slightly, so that the figures for the cases in which the duration of the symptoms is less than three months are about the same as for those in which the duration of the disease is from two to five years—29 and 30 per cent., respectively.

In my studies of cancer situated in other localities, such as the breast, lip, tongue, rectum, colon, etc., I have found similar percentages. We have positive evidence that cancer in some individuals grows more rapidly during the same period of time than in other indi-

viduals, so that these patients, who have what may be called acute carcinoma, are forced to seek surgical aid early after the beginning of the symptoms because of the rapid growth of the neoplasm. These cases, appearing in the columns of earlier interventions, always increase the percentage of inoperable, and decrease the proportion of permanent cures. Then, again, when we can observe pretty accurately the devel-

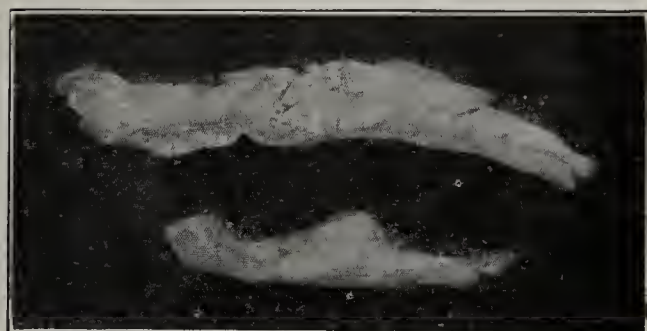


Fig. 5 (Case 2).—Longitudinal section through stomach and ulcer.

opment of cancer in a previous lesion not malignant, we know that there is no definite time at which cancer may or does develop in the precancerous lesion.

I have thoroughly investigated this in cancer of the lip.

Now, if a large number of cancers of the stomach develop in a preexisting lesion not cancer, it is quite possible that we may find operable and curable cases

even when the symptoms are of relatively long duration. It seems impossible with lesions of the stomach to differentiate, especially in the early months, cancer from ulcer of the stomach, and even lesions of the stomach from abdominal lesions outside of the stomach, for example, cholecystitis and gallstones, and pancreatitis.

Table 2 impresses me as evidence in favor of the conclusion that many cases of cancer of the stomach arise in lesions of the stomach which were not originally malignant, but were most probably cases of ulcer. There is other evidence in favor of this conclusion which I will bring out in a later paper.

Table 3 gives the duration of the disease and number of cases first in single months up to six, of which there are fifty-seven cases, while in the remaining groups from six months to six years and more there are 115 cases.



Fig. 6 (Case 2).—Photomicrograph of a section through the ulcer.

This table really pictures the medical aspects. All of these patients have had continuous symptoms for from one month to six years or more. It is very difficult to find out why they finally came for surgical help. Perhaps in the largest number of cases the development of almost complete stenosis of the pylorus has forced them to seek help. This as a rule, however, is a relatively late development. In one case stenosis did develop within two months after the onset of the permanent discomfort, but this patient had had indigestion a number of years.

A few of the patients have sought help within a few months after relatively slight symptoms. These patients had all been seen by good internists and had been subjected to a most rigid examination. Most of these cases have been observed in the past five years.

TABLE 3.—DURATION OF DISEASE BEFORE OPERATION			
Months	Cases	Years	Cases
One	2	One-half to one.....	48
Two	13	Two	28
Three	12	Three	15
Four	8	Four	11
Five	9	Five	5
Six	13	Six and more.....	8
Totals	57		115

This, it seems to me, is the key to the situation. Our adult population must be informed, with the highest authority behind it, that epigastric discomfort aggravated by eating solid food is a sufficient warning. They must be told that such symptoms by no means mean cancer, or disease that may ultimately end in cancer, but that with these warnings they should seek not treatment, but a thorough examination by a competent physician trained in the investigation of gastric diseases. They must be informed that restricted diet and some medicine will often give them relief; but if the disease is cancer, or something that may ultimately be cancer, such relieving treatment will only increase the danger. A thorough examination is the essential thing, and they must know that a thorough examination consists of repeated gastric analyses and the investigation with the fluoroscope or roentgenograms. No other examination will be sufficient.

Persons so educated with this correct information will undoubtedly have the courage to act. The respon-

sibility, then, falls on the physician. I am confident that, after most careful clinical examination, repeated gastric analyses and Roentgen-ray studies, lesions of the stomach which should be subjected to surgery will not be overlooked, and that our comparative figures will show an increasing number of gastric ulcers, an increasing number of gastric ulcers with microscopic changes suggesting early cancer, an increasing number of operable masses in the stomach which are microscopically distinctly cancer, and an increasing number of permanent cures among the latter. With this earlier intervention, the mortality of gastrectomy will decrease.

When there are non-adherent masses in the stomach, in patients who are in good condition, resection of the lesion in the pyloric half of the stomach should have a mortality of 2 per cent. or less.

There is no doubt that today among trained surgeons the technic of resection of the stomach is far ahead of the opportunities to apply it at the most favorable period.

Inoperability, low percentage of permanent cures after resection, and the mortality of resection are chiefly dependent on delay. There seems no question that every one will be duly and sufficiently warned. If patient, physician and surgeon make no blunders, cancer of the stomach will lose its now appalling aspects.

The technical difficulties of resection of the stomach for cancer increase with the extent of the local growth and the localization of the growth nearer the cardia; and with this, of course, the postoperative mortality increases also. In addition, when the general condition of the patient is depressed by starvation, with the concomitant anemia and acidosis, postoperative deaths from pneumonia, embolism and anuria are more frequent.

Of the three cases apparently cured, the duration of continuous symptoms was eight months, eleven months and eleven months. In two cases, the lesion was at the pylorus, in one on the lesser curvature. These cases are as follows:

CASE 1 (Pathologic No. 7307).—Specimen sent to the laboratory by the operator, Dr. Marcella Hartwig, of Buffalo. The operation was performed in 1900. After the complete



Fig. 7 (Case 3).—External surface of the mass resected.



Fig. 8 (Case 3).—Longitudinal section of the mass.

pylorectomy, the duodenum was sutured to a new opening in the posterior wall of the stomach—Kocher's anastomosis.

The patient was a white woman aged 50; there had been definite continuous gastric symptoms for eight months with gradually increasing symptoms of stenosis and loss of weight. At the examination there was a movable, palpable mass in the region of the pylorus. At operation there were no adhesions and no enlarged glands. There was no difficulty in the resection and suture.

Figure 1 pictures the external view of the mass removed, and Figure 2 the surface view of the longitudinal section. One can easily see the uninvolved duodenum and stomach to each side of the tumor. The tumor is a somewhat fungous mass, but it has not infiltrated through the submucosa. Microscopically (Fig. 3) it is an adenocarcinoma.

I am informed by Dr. Hartwig that this patient died seven years after operation with symptoms of abscess of the kidney and no evidence of recurrence of the carcinoma.

CASE 2 (Pathologic No. 8679).—The operation was performed by Dr. Miller, the resident surgeon of the Johns Hopkins Hospital, Jan. 4, 1908. The operation consisted of resection of the pyloric end of the stomach, closure of the duodenum and stomach, and a posterior gastroenterostomy, a method known in the literature as Billroth's II.

Figure 4 illustrates the surface view of the removed portion of the stomach. The lesion is a large ulcer with the typical elevated edge more characteristic of cancer than ulcer. Figure 5 shows a longitudinal section through stomach and ulcer, and one can see that cancer has infiltrated to the peritoneal coat. One gland at this point was involved; other glands were not microscopically affected. Figure 6 is a photomicrograph of a section through the ulcer. The glandular arrangement is still preserved in the adenocarcinoma.

The patient was a white woman aged 43; for eleven months there had been continuous discomfort in the epigastrium, increased by eating solid food. The distress was so great that she consulted a physician within five months. On restricted diet she had been more comfortable. The patient had vomited three times—the first attack of vomiting was two months before admission. With her inability to eat without discomfort she had lost weight and strength. At the examination the most conspicuous finding was a mass; gastric lavage demonstrated residuum, but no blood. The residuum was rather slight. Hydrochloric acid was absent, total acidity 13. Apparently it was the palpable mass which urged operation.

At operation the mass occupied the lesser curvature. It was freely movable, and there were no adhesions.

This patient lived in comfort about seven years. She was readmitted to the Johns Hopkins Hospital in February, 1915, with a huge pelvic tumor of which there had been symptoms but a few months. This patient died within a

few weeks in the hospital, and the necropsy demonstrated a primary adenocarcinoma of the body of the uterus with involvement of the ovaries, broad ligaments and glands. There was no evidence of carcinoma in the area of the stomach, and every evidence that the present disease had no relation to the cancer of the stomach removed seven years before.

CASE 3 (Pathologic No. 10763).—In this case the operation was performed at St. Agnes Hospital by Dr. Bloodgood, Aug. 11, 1910. There was a movable, nonadherent mass at the pylorus. After the simple resection the duodenum was sutured to the stomach after Kocher's method.

Figure 7 shows the external surface of the mass resected; the normal duodenum and stomach on each side of the tumor are clearly seen.

Figure 8 pictures a longitudinal section. The tumor begins at the pylorus; it is a somewhat fungous ulcer, and has not infiltrated through the peritoneum, as shown in Figure 9, a photomicrograph.

This patient was a white man aged 55; his symptoms began eleven months before operation; at first simple discomfort in the epigastrium after eating. In three months there were definite symptoms of stenosis, recognized by his physician, Dr. Wertz of Hagerstown, Md., but the patient refused operation until August. At that time he was greatly emaciated, anemic, and the stenosis was almost complete. Fortunately the Kocher anastomosis worked well, and the patient could be fed immediately after operation.

At this time, May, 1915, there is no evidence of recurrence.

Albucasis — 1000 A.D.
—Albucasis insisted that for successful surgery a detailed knowledge of anatomy was, above all, necessary. He said that the reason why surgery had declined in his day



Fig. 9 (Case 3).—Fungous ulcer.

was that physicians did not know their anatomy. The art of medicine, he added, further required much time. Unfortunately, to quote Hippocrates, there are many who are physicians in name only, and not in fact, especially in what regards surgery. He gives some examples of surgical mistakes made by his professional brethren that were particularly called to his attention. They are the perennially familiar instances of ignorance causing death because surgeons were tempted to operate too extensively. His description of the procedure necessary to stop an artery from bleeding is an interesting example of his method of teaching the practical technic of surgery. Apply the finger promptly on the opening of the vessel and press until the blood is arrested. Having heated a cautery of the appropriate size, take the finger away rapidly and touch the cautery at once to the end of the artery until the blood stops. If the spurting blood should cool the cautery, take another. There should be several ready for the purpose. Take care, he says, not to cauterize the nerves in the neighborhood, for this will add a new ailment to the patient's affection.—Walsh: *Makers of Medicine*.

CHRONIC DUODENAL ULCER *

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ROCHESTER, MINN.

In the presidential address delivered before the American Surgical Association in 1900, Dr. Robert F. Weir¹ called attention to the surgical possibilities of ulcer in the duodenum. In his masterly presentation of the subject he dealt chiefly with the acute cases, especially those in which perforation had taken place. Within the following year the condition was recognized in examining patients in our clinic and several patients were operated on. The previous history in each case was so distinctive as to attract attention at once. Before the perforation occurred, the patients suffered from intermittent digestive disturbances followed by intervals, sometimes of great length, in which they were fairly well. The symptoms complained of were characteristic — hyperacidity, hypersecretion, hunger pain, food relief and, in the later stages, the phenomena which accompany obstruction.

These various findings were most interesting and led promptly to a more careful examination in similar cases in which we had been operating for so-called pyloric obstruction, supposedly due to ulcers of gastric origin. The investigation showed that a high percentage of the ulcers believed to be pyloric were in reality in the first portion of the duodenum.

In 1904 I reported to the American Surgical Association fifty-eight cases of undoubted duodenal ulcer in which C. H. Mayo and I had operated.² Even at that time we had no conception of the frequency with which duodenal ulcer had occurred. This is shown by a comparison of the statistics of cases in which operation was done in our clinic as noted at subsequent dates: In 1904 the relation of gastric ulcer to ulcer of the duodenum was: gastric 73 per cent., duodenal 27 per cent.; in 1907, gastric 52 per cent., duodenal 48 per cent.; in 1910, gastric 35 per cent., duodenal 65

per cent.; in 1914, gastric 27 per cent., duodenal 73 per cent.

Our work during this early period was greatly stimulated by the splendid contributions of Robson and Moynihan, whose observations and results agreed with those in our clinic. The fact that surgeons working simultaneously in different countries should come to the same conclusion seemed very significant.

The idea that duodenal ulcer was more frequent than gastric ulcer was slowly evolved. Surgeons investigating conditions at the operating table were more readily convinced than physicians working along the lines of specialized gastro-enterology. A prominent specialist in gastro-intestinal diseases once asked, "How is it possible that you, a general surgeon, see so many

of these cases while I who am devoting all my time to this work see so few?" I could only answer, "The thickness of the abdominal wall prevents you from seeing them."

Postmortem statistics have been and are still quoted in opposition to the view that duodenal ulcer is a frequent condition. For example, the statistics of Rokitsansky,³ master pathologist, were published in 1839. Brinton,⁴ whose statistics are so readily quoted on every occasion, published his work in 1857. These did not represent Brinton's personal observations, but what he had gleaned from postmortem records obtained from diverse sources previous to that time and did not necessarily represent facts but their interpreta-



Fig. 1.—Types of pyloric vessels in relation to the location of the pylorus.

tion in the light of the time when the statistics were compiled. The statistical method of settling such questions is none too good at best and when the statistics are from fifty to seventy-five years old they can hardly be accepted as representing modern thought on the subject of gastric and duodenal ulcers.

The methods of clinical study have been even more chaotic. For example, compare the clinical diagnoses of gastric ulcer on admission to the hospital with the necropsy findings ten years ago. Take three hospitals in Philadelphia: University Hospital, clinical diagnosis of gastric ulcer 0.48 per cent.; Pennsylvania Hospital,

*Read before the Association of American Physicians, May 11, 1915, Washington, D. C.

1. Weir: Address of the President; Perforating Ulcer of the Duodenum, *Tr. Am. Surg. Assn.*, 1900, xviii, 1-37.

2. Mayo: Duodenal Ulcer, a Clinical Review of Fifty-Eight Operated Cases with Some Remarks on Gastrojejunostomy, *Ann. Surg.*, 1904, xl, 900.

3. Rokitsansky: *Oesterreich Med. Jahrb.*, 1839, xviii, quoted by Welch, W. H., *Simple Ulcer of the Stomach*. In *Pepper's System of Medicine*, Philadelphia, 1886, ii, 481.

4. Brinton: *On the Pathology, Symptoms and Treatment of Ulcer of the Stomach*, 1857, London, Churchill.

clinical diagnosis 0.13 per cent.; Blockley Hospital, as the result of necropsy findings giving 1.42 per cent. of gastric ulcer (Francine⁵). In other words, in two hospitals of exactly the same character in the same city ulcer was diagnosed clinically nearly four times as often as in the other, while both fall short of the actual postmortem findings in the third hospital from three to eleven times. Duodenal ulcer was seldom mentioned as a clinical or necropsy finding. Francine says: "We cannot base accurate or conservative conclusions on data obtained from clinical observation."

Without going further into the question of the relative frequency of gastric and duodenal ulcers, it may easily be seen that the clinical and postmortem demonstration of peptic ulcers has been, to say the least, misleading. The Germans, who were slow to investigate duodenal ulcer, were the greatest comfort to those who did not believe that duodenal ulcer occurred with any degree of frequency. A celebrated German surgeon said in explanation: "We relied too much on the supposed knowledge of the gastro-intestinal specialist; he was so positive that we really thought he knew."

The change in opinion in Germany within the last two years has been very remarkable and is best demonstrated by Kümmel's⁶ statistics of the Eppendorf Hospital. Quoting from his recent paper: "It is not uninteresting for me to explain to you how in the relatively short time, especially within the last few years, the number of duodenal ulcers has increased among us and how a notable gain in the *actual objective material* in our *pathologic institutes* has been brought to light by Fraenkel."

Of equal significance is the work of Schrijver⁷ of Amsterdam who shows the same striking increase in

RELATIVE NUMBERS OF GASTRIC AND DUODENAL ULCERS (KUMMEL)

From 1897 to end of 1911,	191 gastric ulcers to 16 duodenal.
1912,	10 gastric ulcers to 7 duodenal.
1913,	11 gastric ulcers to 30 duodenal.
First three months 1914,	no gastric ulcers to 12 duodenal.

the recognition of duodenal ulcer. Those experiences can be multiplied from all the advanced European clinics. The clinical frequency of duodenal ulcer has been

demonstrated by exact methods under the sense of sight in the operating room.

Wilkie,⁸ of the Royal Infirmary of Edinburgh, has found forty-one (9.9 per cent.) duodenal ulcers in 490 postmortems. In only six cases had antemortem diagnoses been made; in these operations had been done. Wilkie quotes Gruber that 75 per cent. of duodenal ulcers found after death had not been diagnosed during life.

The experimental production of gastric and duodenal ulcers as yet appears to have little bearing on chronic callous ulcer. There is a type of acute ulcer probably toxic in origin which gives rise to sudden severe symptoms often followed by perforation or hemorrhage. These patients left untreated either die or completely recover within a few weeks. The ulcers are multiple; there is no callus and several ulcers may perforate simultaneously. So far as I have been able to observe, experimental ulcers belong to this class and

are of very little value in determining the character and position of the chronic callous ulcer of the duodenum. The latter are usually single, seldom begin with an acute attack, and as a rule the earlier symptoms are less severe than the later ones.

It is interesting to speculate as to what diagnoses were made in the cases of duodenal ulcers prior to our present knowledge. It is altogether probable that a large percentage of chronic duodenal ulcers were not diagnosed at all. Some of them were believed to be gastric ulcers.

A high percentage of acute perforations were believed

to be acute appendicitis since the fluids quickly gravitate into the right iliac fossa, and the appendix as well as the surface of the intestine early shows marked evidences of peritonitis. Ten years ago it was taught that an appendix apparently normal in its mucosa, under certain conditions, permitted bacteria to pass into the peritoneal cavity, causing septic peritonitis. The mistake was often not discovered even at operation and the death of the patient came after extensive peritoneal involvement had obscured the site of perforation in the duodenum sufficiently to prevent recognition. The experience of the Massachusetts General Hospital as reported by Codman⁹ is instructive in this respect.

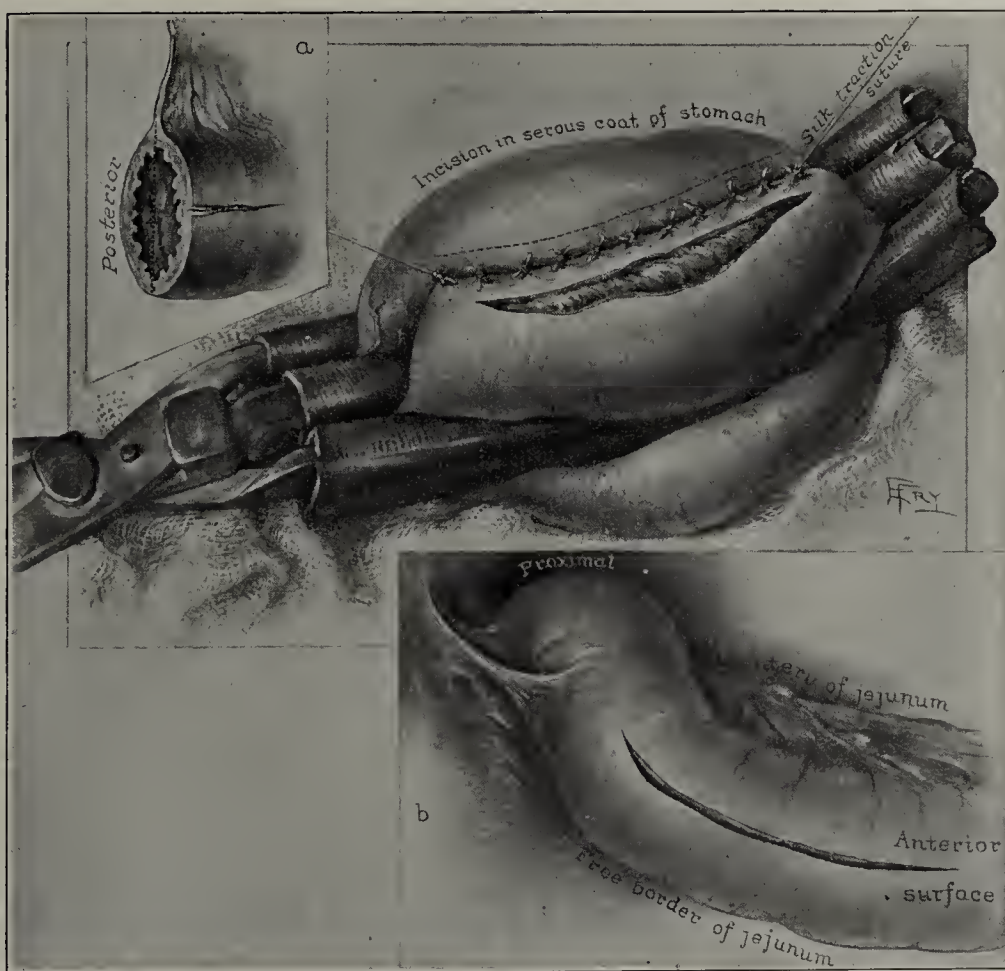


Fig. 2.—Interrupted seromuscular sutures, posterior row, in place. Peritoneal and muscular coats of jejunum incised to mucosa. Dotted line on stomach indicates line of incision. a, line of incision in jejunum, not opposite mesentery but on the upper left side. b, line of incision in jejunum.

5. Francine: The Incidence of Gastric and Duodenal Ulcer in Philadelphia, Am. Jour. Med. Sc., 1905, xxix, 429.

6. Kümmel: Zur Chirurgie des Ulcus Duodeni, Beitr. z. klin. Chir., 1914, xcii, 290.

7. Schrijver: Das Ulcus Duodeni, Berlin, Karger, 1914.

8. Wilkie: Observations on the Pathology and Etiology of Duodenal Ulcer, Edinburgh Med. Jour., 1914, xiii, 196.

9. Codman: On the Importance of Distinguishing Simple Round Ulcers of the Duodenum from those Ulcers which Involve the Pylorus or are above it, Pub. Mass. Gen. Hospital Med. and Surg., Papers, 1910, iii, 3582; Diagnosis of Ulcer of the Duodenum, *ibid.*, p. 83.

I shall not go into the question of the etiology of duodenal ulcer. It is quite evident that the same causes which produce gastric ulcer produce duodenal ulcer. The thrombosis and embolism theory, the nerve theory, the bacterial theory, the mechanical theory, and the erosion theory all have their advocates. The latest recruit to the infection theory is Rosenow,¹⁰ whose splendid investigation as to the relation of the streptococci in the terminal capillaries of the mucosa to ulcer of the stomach and duodenum is most illuminating. This theory is borne out by the edematous inflammatory character of the ulcerous duodenum found when operating during an exacerbation of the symptoms and further by the fact that following acute perforation of an ulcer, if the patient is so fortunate as to recover, the ulcer heals as though some harmful agent had been extruded. If later other symptoms are manifested they are due to the obstruction or deformity which follows in the wake of ulcer.

One possible source of injury to the mucosa of the lesser curvature of the stomach and duodenum which may have some bearing on the etiology of peptic ulcer and also to cancer of the stomach is hot drinks. Solid food is masticated in the mouth and then passes into the fundus of the stomach where it is retained during the early period of gastric digestion. If the food is very hot, it is more or less cooled in the act of mastication, but drinks are taken into the stomach much hotter than can be borne in the mouth. Anyone taking the trouble to experiment will probably find they have been

in the habit of swallowing fluids much too hot to be held in the mouth comfortably. The stomach and duodenum give little immediate indication that the fluid is too hot. These hot fluids are carried rapidly along the lesser curvature into the duodenum to the exact situation in which the majority of ulcers are found, possibly removing the protective mucus which prevents autodigestion and which may result in chronic irritation. Extremely cold drinks may have the same effect.

The experiments of Jefferson¹¹ as to the canalis gastricus have shown that liquids, when taken in considerable quantity, pass rapidly along the lesser curvature and into the duodenum without mixing with the food mass in the fundus.

The pyloric veins are most valuable in differentiating gastric from duodenal ulcer. A short, stumpy vein comes out from above and another from below the pylorus, sometimes sending a small branch across the top of the pylorus (Fig. 1). These veins are quite unlike the vessels of other situations of the stomach and when their peculiarities have once caught the eye they serve readily to locate the pyloric ring. Gastric ulcer in the pyloric end of the stomach is not often mistaken for duodenal ulcer but for cancer, as in this situation a tumor usually forms in connection with the ulcer as the result of muscular hypertrophy and edema.

The large majority of ulcers of the duodenum are located in the first 1½ inches, more often on the anterior wall. A number begin just below the pylorus and at first glance they appear to involve the pyloric ring, especially when extensive and obstructive but careful examination will show that they are duodenal. The deeper, larger ulcers and those which bleed exces-

sively are more often situated on the posterior wall, the callus sometimes extending into the head of the pancreas. Such ulcers may be concealed from view underneath the pyloric ring, but seldom involve the gastric mucosa. When an ulcer is situated on the posterior wall, a superficial contact ulcer will usually be found opposite on the anterior wall. The mucosa of the duodenum is thin, smooth and granular, and chronic duodenal ulcers may not therefore have the characteristics we have learned to expect from experience with gastric ulcers. I have excised a number of duodenal ulcers in which

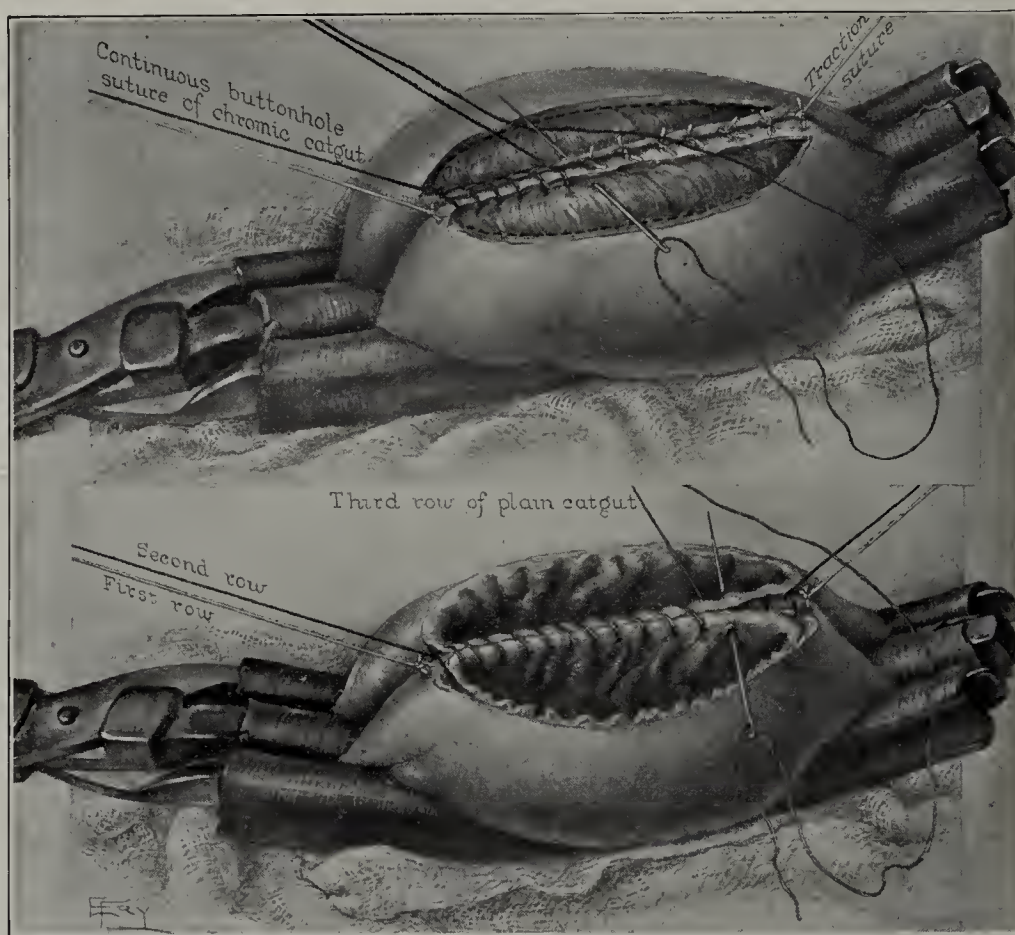


Fig. 3.—Upper figure shows through and through catgut suture of posterior wall before opening the mucosa. Dotted line shows where mucosa is divided. Lower figure shows mucosa flaps stitched across with catgut suture.

there was considerable scar tissue in the submucosa and muscularis and marked evidence of localized peritonitis; yet the actual ulcer was a mere slit or dimple surrounded by an eroded, discolored, "moth-eaten" patch of mucosa. This is the type of ulcer which occurs on the anterior wall unless there is a corn-like thickening over the top of the ulcer, in which case it will have the size, depth and callus characteristic of gastric ulcer.

Ulcers may exist in the duodenum at any point above the opening of the common duct or even down as low as the opening. I have observed three cases marked by repeated hemorrhage in which the ulcer involved the papillae of the common duct on its superior surface.

A high percentage of duodenal ulcers perforate the mucosa and muscularis to the peritoneal coat. These are classified as chronic perforations; complete per-

10. Rosenow, E. C.: Production of Ulcer of the Stomach by Injection of Streptococci, *THE JOURNAL A. M. A.*, Nov. 29, 1913, p. 1947.
11. Jefferson: *Jour. Anat. and Physiol.*, 1915, xlix, 165.

foration having been prevented by thickening of the peritoneum or adhesions to the gallbladder, omenta, suspensory ligament of the liver, etc. Many times an acute perforation actually takes place with the recovery of the patient, since the opening may be small, allowing but little fluid to escape and that fairly sterile. In such cases patients have a localized peritonitis with extreme pain lasting for several days and then make a spontaneous recovery. I have explored a number of such cases during an attack of acute localized peritonitis and have discovered the duodenal opening which had been spontaneously closed by adhesions. Occasionally absorption of the escaping products is incomplete and a phlegmon, usually underneath the liver, forms which can be opened and drained. If this is done gently the original source of leakage in the duodenum will probably not be reopened.

The symptomatology of duodenal ulcer is so well known that in the typical cases failure of diagnosis should not occur. The hunger pain and food relief, hyperacidity and hypersecretion and, in the later stage, obstructive phenomena, leave little doubt as to the character of the lesion. Failure in differential diagnosis may be due to accompanying diseases of the gallbladder, appendix, etc., which occur in about 16 per cent. In our experience, actual hemorrhage takes place in somewhat less than 25 per cent. of the cases, but if one is satisfied to ask the patient questions and accept doubtful evidence as to black stools, etc., this percentage can be increased to as much as 70 per cent. We

have not found occult blood a reliable symptom and do not attach a great deal of importance to it. I say this with some reluctance, since many diagnosticians for whom I have the highest respect believe that it is a diagnostic sign of very great importance.

The Roentgen ray is a very important and increasingly valuable means of diagnosis. By this means, when taken in conjunction with the clinical history, a diagnosis can be made in approximately 95 per cent. of cases.

The physical examination, including the use of the stomach tube, is important as evidencing hypersecretion and food retention, tumor, visible peristalsis, etc. Laboratory diagnosis, that is, microscopic and chemical examination of gastric contents, has some value but is largely of a corroborative nature and has been very greatly overestimated. Dividing into four groups the means of diagnosis, the history is of first importance, the Roentgen ray second, the physical examinations

(stomach-tube findings, etc.) third and the purely laboratory findings a poor fourth.

One of the most curious phenomena connected with duodenal ulcer is its intermittency. The disease usually begins in young males (eighty-three males to seventeen females); after a period of some weeks of symptoms there is a cessation more or less complete and the patient goes for months without any knowledge of his ailment. Then the symptoms recur and after a time the usual remission takes place. This may go on for years until finally obstruction supervenes and the symptoms become more or less constant, although the gastric muscles may by hypertrophy become competent to overcome considerable obstruction, in this respect acting quite like the heart in valvular disease—periods of competency followed by periods of incompetency.

A study of the history of the natural course of chronic duodenal ulcer makes the prospects of permanent cure by medical means open to question. I have seen a number of so-called "medical cures" and have

not been able to determine that there was any material difference between them and the spontaneous remissions. The ulcer, as far as Roentgen-ray evidence is concerned, shows no physical change in the period of improvement. In operating during this period, no sign of healing is found. By means of alkalis, restricted diet, frequent feeding, largely milk and cream, whereby chemical corrosions are controlled, patients with chronic duodenal ulcers are relieved; a remission of the symptoms being secured and maintained for an indefinite length of

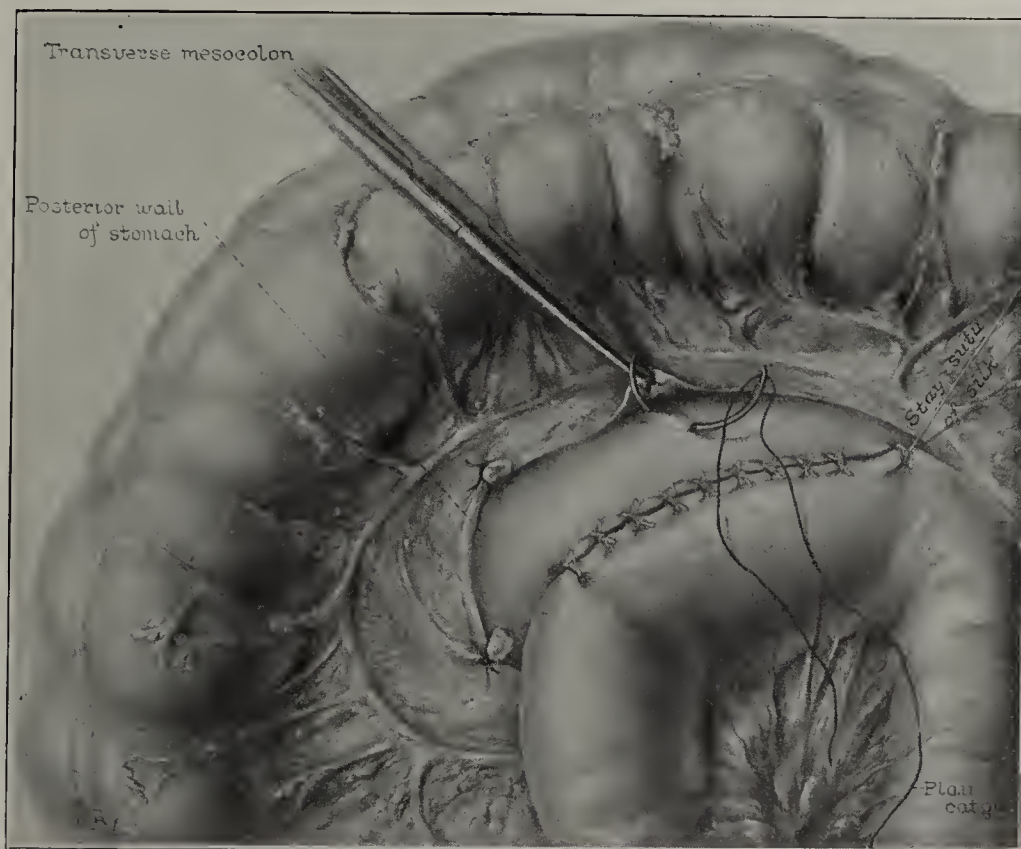


Fig. 4.—Stay suture distal to the anastomosis and suture of margin of the opening in mesocolon to stomach. Note that stomach hangs below transverse mesocolon making a funnel.

time. But such patients cannot be looked on as cured unless they can go back, without a recurrence of trouble, to the regular diet of the grade and character obtainable by the average man. As a matter of fact, relapse usually takes place under such circumstances and the dangers of perforation and hemorrhage are ever present.

Other things being equal, after failure of reasonable medical treatment, patients with unhealed chronic duodenal ulcer should be considered surgically. To evade operation in the unhealed case is, I believe, a risk not commensurate with the value received from operative interference. No class of patients gives better results following surgical intervention.

A recurrence of symptoms after operation is most often due to defective surgical technic, usually a gastrojejunal-stitch ulcer occurs caused by the use of continuous silk or linen threads. Such sutures may hang, causing ulceration and trouble for months

or years. The stitch ulcer produces the same symptoms as the original ulcer: hunger-pain, food-relief, hypersecretion, and hyperacidity. I have reason to believe that many of the poor results following gastro-enterostomy are the sequelae of sutures which have finally passed out.

The clinical course of stitch ulcers is quite typical. The patient is operated on for chronic duodenal ulcer and gastro-enterostomy is done. He is relieved and for from three to six months feels fairly well; he then begins to develop the former symptoms and it is supposed that the original ulcer has recurred. In the course of some weeks or months, about the time the suture finally separates, gradual improvement takes place.

Recently a large number of articles have appeared dealing with the necessity of closure of the pylorus to prevent food from passing down into the ulcerated area. The evidence as to the necessity of this procedure is not clear. Stitch ulcers and improperly selected patients are responsible for the recurrence of the symptoms in most instances. We have not found that the patients in whom the pylorus was blocked have in any way had results superior to those in whom it was not blocked following simple gastro-enterostomy. If perforation is impending I think it wise to block the pylorus and cover the ulcer; if there have been hemorrhages this should be done and the vessels in the vicinity of the ulcer carefully tied. But there is no evidence that the routine blockage of the pylorus is advisable or necessary, and if it cannot be done without additional risk, I think perhaps it had better be left undone.

The enthusiastic operator who has made gastro-enterostomies because of symptoms or for supposititious ulcers which he believed he could see or feel has greatly harmed gastric and duodenal surgery. In our clinic more than 100 unnecessary gastro-enterostomies have been cut off because of secondary complications such as chronic bile regurgitation, etc. Fourteen of these were our own patients operated on in the early period when it was not understood that a patient should not be operated on unless the ulcer could be actually demonstrated. At the time of these secondary operations careful search did not reveal evidence that ulcer of the stomach or duodenum had ever existed. Now that blockage of the pylorus has become popular, an alibi is established in advance inasmuch as the scar made by the ultimate passage of the suture into the gastro-intestinal lumen creates a reasonable doubt as to whether the scar is due to healed ulcer or to the thread. In other words, pyloric blockage often establishes false testimony.

In the large majority of cases gastro-enterostomy is the ideal operation for duodenal ulcer with or with-

out infolding the ulcer (Figs. 2, 3, 4). In selected cases, excision of the ulcer in conjunction with the gastroduodenostomy of Finney is the operation of choice. In those rare cases in which true jejunal ulcer forms following gastro-enterostomy, the jejunal ulcer should be excised, the stomach and jejunal openings closed and the Finney operation done after cutting off the gastro-enterostomy. Following surgical intervention, the patient should be under good medical advice until permanent cure is assured.

VESICULAR ALBUMINURIA

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For days after the seminal vesicles are filled with collargol solution through an incision into the vas

(vasostomy), this black substance appears in the urine, for the peristaltic contractions of the vesicles press their contents into the prostatic urethra and thence into the bladder. If the patient pass the first half-ounce of urine into a small glass, the bulk of the urine into a large glass and the last ounce or thereabouts, into a third, it will be seen that the first half-ounce has the largest percentage of collargol (deepest color), the second the least, and that the third is usually intermediate in blackness. It is obvious that not merely collargol, but also the natural contents of the vesicles in health and disease, must at times be discharged by peristalsis into the prostatic urethra, thence to flow into the bladder and be voided



Roentgenogram made an hour after filling with collargol solution, and fifteen minutes after bladder had been irrigated and then filled with air. A, seminal vesicles; B, pool of collargol solution in the bladder, expressed from the vesicles by peristalsis.

with the urine. The vesicular contents normally include nucleoproteins, albumoses and globulins, all of which are precipitated by nitric acid, though only the globulins are coagulated by heat. While the percentage of these in the urine is commonly minute, yet it becomes at times sufficient to give distinct precipitates by the usual tests. Diseased vesicles furnish globulin, albumin, pus and blood, all of which may be diffused through the urine in the bladder.

How shall we distinguish vesicular from renal albuminuria? Not by the presence or absence of spermatozoa, as was formerly supposed, because the vesicular contents are albuminous even when the sperms are imprisoned in the testicles by bilateral epididymitis or vasectomy. Catheters in both ureters furnish urine free from vesicular contamination, but ureter catheterism is not generally practiced. The three-glass method, already described, furnishes a simple means of differentiation: Albuminous substances furnished

to the urine by the vesicles are unevenly distributed, the precipitates by heat and nitric acid being distinct in the first half-ounce and the last ounce of urine, less distinct or even absent in the intermediate ounces, while albumin of renal origin is evenly diffused throughout.

In a recent case of intermittent albuminuria, it was found that the first half-ounce and last ounce of urine usually contained albumin and microscopic blood, while the intermediate portion was commonly free from both. The emitted semen contained macroscopic blood. Catheters introduced into the ureters yielded urine free from blood and albumin. During several months his prostate and vesicles were frequently massaged by Dr. Wishard in Indianapolis and by myself, without appreciable effect. In June, 1914, I irrigated his right vesicle with peroxid through a vasostomy, and filled it with collargol solution; during the ensuing eleven months his semen has been free from blood and his urine from albumin.

Peristalsis of the vesicles, hitherto unrecognized, reveals a possibly frequent source of transient albuminuria without renal disease.

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THE EXCRETION OF MERCURY BY THE GASTRIC MUCOUS MEMBRANE*

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AND

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It has been known for a long time that mercury may be recovered from the stomach washings of patients who are under the systemic influence of this metal. The presence of mercury in the gastric contents does not depend on the method by which the drug is administered. So far as we have been able to determine, no attempt has been made to ascertain the mechanism whereby the mercury finds its way into the stomach contents. There are at least three obvious explanations. In the first place, the mercury¹ excreted by the salivary glands may be swallowed with the saliva, or it may be that the mercury is excreted in the upper part of the duodenum and regurgitated into the stomach. In either case, the presence of the metal in the gastric contents may be regarded as a contamination. Finally, it is possible that the mercury is actually excreted by the gastric mucous membrane. Whichever explanation is correct, the presence of mercury in the gastric lumen is important, for when the drug is passed on into the small intestine, it is again absorbed.

This cycle of absorption, excretion and reabsorption may explain the persistent systemic action of mercury, and probably accounts for the prolonged stay of the metal in the organism. On the other hand, the cycle may be a real danger in patients who have taken large doses of mercuric chlorid either accidentally or with suicidal intent. In fact, Lambert and Patterson¹ have recently urged the importance of gastric lavage as part of the routine treatment of mercuric chlorid poisoning.

At the suggestion of Professor Lambert, we undertook to determine whether the mercury found in the

stomach is swallowed with the saliva or whether it is excreted by the gastric glands. The importance of clearing up this point is evident, for if mercury is of salivary origin, lavage is not so essential a part of the treatment, since the entrance into the stomach may be prevented by directing the patient to eject his saliva. If the mercury, however, is actually excreted by the gastric mucous membrane, lavage is of the utmost importance.

Three series of experiments were carried out.

In Series 1 rabbits were used. The animals were kept in clean cages for twelve hours before they were anesthetized with ethyl carbamate. The esophagus was tied off above, and a small rubber catheter was passed into the stomach through a small incision in the gullet and tied into place. By this procedure, contamination of the stomach contents by mercury of salivary origin was impossible. The mercury, in the form of mercuric chlorid, was injected subcutaneously. The animals were then placed on an electric pad and surrounded by hot water bottles. At the end of a given period the rabbits were exsanguinated and the stomach was excised and opened. The contents were removed and the mucous membrane washed with Ringer's solution. The stomach contents and the washings were then subjected to Vogel's test for mercury.² The results are shown in Table 1.

TABLE 1.—RESULTS IN SERIES 1

Rabbit No.	Dose mg.	Hours Between Injection and Examination	Vogel's Test for Mercury
46	20	7	Positive
74	20	4½	Positive

In Series 2, cats were employed. Anesthesia was induced by chloroform and continued with ether. The animals were then decerebrated. The further preparation was identical with the method used for the rabbits. Mercuric chlorid was injected subcutaneously.

TABLE 2.—RESULTS IN SERIES 2

Cat No.	Dose mg.	Hours Between Injection and Examination	Vogel's Test for Mercury
40	20	8	Positive
58	20	5	Doubtful
34	20	4	Positive

In Series 3, decerebrated cats were again used, but the duodenum as well as the esophagus was tied off. The mercuric chlorid was injected slowly into the jugular vein.

TABLE 3.—RESULTS IN SERIES 3

Cat No.	Dose mg.	Hours Between Injection and Examination	Vogel's Test for Mercury
68	20	8	Positive
79	15	6	Positive
83	15	6	Positive
102	15	4	Positive
91	15	3	Doubtful
76	15	2	Negative
84	15	1½	Negative

In a number of cases the urine and stools were also examined for mercury. The metal was found in the urine within two hours after its administration and within four and one-half hours in stools.

From these experiments it seems probable that mercury is excreted by the gastric mucous membrane, and that gastric lavage is an essential part of the treatment of mercurial poisoning.

* From the Department of Pharmacology of the Columbia University, College of Physicians and Surgeons.

1. Lambert and Patterson: Arch. Int. Med., to be published.

2. Vogel, K. M., and Lee, O. I.: Detection of Mercury in the Excretions, THE JOURNAL A. M. A., Feb. 14, 1914, p. 532.

THE ISOLATION IN CRYSTALLINE FORM OF THE COMPOUND CONTAINING IODIN, WHICH OCCURS IN THE THYROID

ITS CHEMICAL NATURE AND PHYSIOLOGIC ACTIVITY *

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During the past twenty years, investigation has firmly established, among other things, the following two facts: (1) The thyroid contains some substance capable of producing marked physiologic effects, and (2) iodine is a constant constituent of normal and pathologic glands. These two facts are emphasized because most of the controversies concerning the thyroid have arisen from attempts to explain the relation between the physiologic activity and the presence of iodine.

It is obvious that no final conclusions could be arrived at until either some substance possessing physiologic activity had been isolated in pure form and shown to be a normal constituent of the gland, or until the compound containing iodine had been isolated in pure form and its physiologic activity determined.

Last December I¹ reported the separation from the thyroid of a preparation containing 60 per cent. of iodine. The present paper is a summary of the results thus far obtained. In brief, the compound containing iodine, the presence of which, as a normal constituent of the thyroid, was foretold by Baumann² nineteen years ago, has been isolated in pure crystalline form, and further, it has been shown that this compound is the substance in the thyroid which is responsible for the physiologic activity of the gland.³

Previous investigation has shown that the compound containing iodine is firmly held as a constituent of the thyroid proteins. Hence separation

of this compound must be preceded by a breaking down of the proteins into the simpler constituents of which they are composed. Baumann attempted this hydrolysis, using 10 per cent. sulphuric acid, but no satisfactory cleavage of the molecule resulted. The hydrolysis which has been successful was accomplished with sodium hydroxid in alcohol as a medium for carrying out the process.

A large number of compounds are obtained by this splitting up of the protein, but they are separated into two groups by the addition of acid. Those compounds insoluble in acid are designated Group A, and those soluble Group B.

The total iodine in the gland is found to be divided almost equally between the two groups. By further hydrolysis of the A group the compound containing iodine has been separated in pure crystalline form. Its exact formula cannot now be stated, but it appears to be di-iodo-di-hydroxy-indol. It crystallizes in microscopic needles that melt around 220 C. It is very insoluble in alcohol, ether, water, acids and sodium carbonate. Dilute hydrochloric acid dissolves 1 part in about 200,000. It is readily soluble in dilute alkali and ammonia.

No definite substance possessing physiologic activity has been isolated from the B group, but it is known to be a complex mixture containing amino-acids. The iodine in B is in organic combination, but the nucleus to which it is attached is unknown.

The thyroid having been separated into several different constituents, it seemed desirable to test each one for its possible physiologic activity. It was found that the typical effects of administration of desiccated thy-

roid—a rapid increase in pulse rate and vigor, increase in metabolism with loss of weight, and increase in nervous irritability—are all produced by the A constituents.

The next step showed that in A, containing about 5 per cent. of iodine, the effects produced are directly proportional to the amount of iodine present. And finally, in the purification of A and the separation of the iodine compound in crystalline form, the same typical effects were produced through all the various stages of purity, up to and including the crystalline compound containing 60 per cent. of iodine.

In testing B for physiologic activity, it was found that no apparent effects are produced when B is given experimentally to a normal animal or human being, but that a considerable degree of activity is manifest when B is given to patients suffering from cretinism, myxedema and certain conditions of the

skin. However, no toxic effects have been produced by the administration of B, even in large amount.

This nontoxic effect of B is in strong contrast to the action of A. Although both A and B contain iodine, it has been shown that the toxicity of A is in direct proportion to its iodine content, but B iodine given in equal amount produces no apparent effect.

As previous investigators have pointed out, it is not iodine per se that is necessary. This work shows that it is the iodized indol that produces the physiologic activity. The actual amount of the crystalline iodine compound necessary to produce marked effect is exceedingly small. A total of 11 mg. (one-sixth grain), given in divided doses during a period of fourteen days to a cretin weighing 40 pounds, increased the pulse rate from 90 to 140. A total of 30 mg. (one-half grain), given in divided doses over a period of eighteen days to a woman weighing 112 pounds, increased the pulse rate from 75 to 130. Not only in rate but also in apparent vigor of the beat the cardiogram of a heart, after administration of the iodine com-



Crystals of the iodine-containing compound which occurs in the thyroid.

* From the Mayo Clinic.

1. Kendall, E. C.: A Method for the Decomposition of the Proteins of the Thyroid, with a Description of Certain Constituents, *Jour. Biol. Chem.*, 1915, xx, 501.

2. Baumann, E.: Ueber das normale Vorkommen von Jod im Thierkörper, *Ztschr. f. physiol. Chem.*, 1895-1896, xxi, 319.

3. The physiologic activity referred to is the production of the so-called hyperthyroid symptoms, tachycardia, increase in metabolism with loss of weight and increase in nervous irritability. Some other constituents of the gland possess physiologic activity, but of minor importance.

pound, simulates a cardiogram of a patient with exophthalmic goiter.

What, then, is the relation of this iodine compound and the symptoms of exophthalmic goiter? Pathologic investigation has shown that the severity and duration of the symptoms are accompanied by definite histologic changes in the thyroid. It has been shown that in the severest forms of exophthalmic goiter the parenchyma is far more active than in the normal gland.

Analysis of 137 thyroids from exophthalmic goiter cases showed that, in those glands having a thin, watery secretion, the iodine content was very low, but as the secretion became thicker and less diffusible, the percentage of iodine increased.

These results point to two functions of the thyroid: One function is the manufacture of the iodine compound, and the other that of acting as a reservoir for this compound. We have no means at present of measuring the manufacturing capacity of the gland, but we do know that it is greatly increased in exophthalmic goiter. The reservoir capacity of the gland is obviously proportional to the iodine content. The total amount of iodine in the severest form of exophthalmic goiter averaged 7 mg., and the total iodine in glands in which the secretions had become thick and less diffusible was 35 mg. That is, the reservoir capacity had increased 500 per cent., and when it is known that 1 mg. a day of the pure crystalline iodine compound will produce marked toxic symptoms in a normal person, the important rôle played by the iodine compound in the production of symptoms of exophthalmic goiter is evident.

The separation in pure form of the iodine compound is the first necessary step in the further study, not only of pathologic conditions, but also of the normal physiology of the gland.

SUMMARY

1. By an alkaline alcoholic hydrolysis, the thyroid proteins are broken into many simpler constituents. These may be separated into two groups: the acid insoluble compounds are designated Group A; those acid soluble, Group B.

2. From Group A a pure crystalline compound, containing 60 per cent. of iodine, has been isolated. It appears to be di-iodo-di-hydroxy-indol.

3. Group B contains iodine in some unknown form of combination. It is a mixture containing amino-acid complexes and a low molecular weight.

4. Administration of A produces in the dog and in the human being a rapid increase in pulse rate and vigor, and increase in metabolism and nervous irritability. This physiologic activity is produced by the compound containing iodine in all stages of purity up to and including its crystalline form.

5. Given in excess, toxic symptoms are produced. The amount of the iodine compound required to produce toxic effects is exceedingly small.

6. In exophthalmic goiter two abnormal conditions exist. First, the secreting capacity of the gland is greatly increased and, second, the reservoir capacity of the gland is greatly decreased. The iodine compound plays an important rôle in the production of the symptoms of exophthalmic goiter.

7. The constituents of Group B produce no toxic symptoms, but in cases of cretinism, myxedema and certain skin conditions, they exert physiologic activity.

THE AIMS OF THE ASSOCIATION OF AMERICAN PHYSICIANS *

S. J. MELTZER, M.D., LL.D.

NEW YORK

It is not only customary, but it is by the order of the constitution, that the president opens the first session of the annual meeting by an address. I shall use the words of the first president of the association as a starting point for my remarks. President Delafield said:

We want an Association in which there will be no medical politics and no medical ethics; an association in which no one will care who are the officers.

I shall deal first with the last-mentioned remark. We still do not care who the officers are. It is the prerogative and the duty of the incumbent of the office of the presidency to express his views on subjects which concern the welfare of the association. Now I wish to say that in my opinion the members of the association shall care more than they do, who are their officers, and especially who shall be their president. In the course of our existence the constitution was so amended as to invest the president with autocratic powers, while his election gradually became, by mere custom, entirely undemocratic. I presume that not many of you know the exact procedure. The five councilors fill each year the coming vacancy in their ranks. The oldest councilor becomes vice-president and then president. While the recommendations of the council are formally submitted to your vote, I am not aware that they were ever voted down. In my opinion this oligarchic form of government harbors a danger. It may readily happen that the *progressive* majority of the members will be continually governed by entrenched *regressive* elements. I do not mean to imply that we are actually confronted with such a situation; I merely wish to call your attention to the possibilities which such an anomalous situation may have in store for you. I do not wish to offer any remedial suggestions; these must come from the members.

Having served as an officer of the association for the last seven years, I am in a position to make the agreeable statement that medical politics and medical ethics still play practically no rôle in the procedure of election to membership in the association. It holds true, in general, that each year of the numerous candidates the best men are elected to fill the vacancies. But I wish to state warningly that we are not entirely free from danger. I am not afraid that we shall ever elect to membership one who was convicted for a criminal act. But avoidance of coming in collision with the criminal code or even a strict compliance with the ethical code of the American Medical Association are not unrefutable evidences of highmindedness. Commercial success in practice of medicine, social standing and social relations, manipulated publicity, the familiar principle of "one hand washes the other" and evils of a similar character are the pernicious elements which may endanger the high standard of our association. I speak not merely from theory. As president, I am entitled to express the wish that the association should comprise not only the most gifted,

* Remarks made at the opening of the thirtieth meeting of the Association of American Physicians by its president, May 11, 1915, Washington, D. C.

most learned and best-known physicians of the land, but should consist at the same time of high-minded, clean-handed men with a tinge of idealism, I appeal to you that in proposing candidates and electing them to membership, the moral standard of the candidate should be one of the primary objects of consideration.

The reference of the first president to politics and ethics and the historical remarks of another president reveal the cause, or rather one of the causes for the creation of this association. It was chiefly the unsatisfactory conditions which prevailed at that time in the American Medical Association that caused medical men of a higher type to form new national associations. A generation passed since the birth of this association. The change in the standard of American medicine which took place in this comparatively short span of time is marvelous indeed. Was our association an important factor in this progress? I believe that one of our presidents claimed it indeed. But justice compels me to state publicly that the credit for this achievement must be given chiefly to the great national democratic body, the American Medical Association. Since its reorganization, since the scientific part has been divorced from the politics of the Association, the character of the scientific proceedings changed completely. The purely medical work of nearly all the sections is now carried on generally by the scientifically productive, progressive medical element of the whole country which generally participates but little in the political activities of the organization. Furthermore, the new policies adopted by the recognized association undoubtedly exerted a most beneficial influence on the development of medicine in this country. I need only mention the work of the Council on Medical Education and of the Council on Pharmacy and Chemistry. The aims and the success of the last-named committee exerted even an international beneficent influence on medical therapeutics. Not the least of the merits of the regenerated American Medical Association is the high standard which THE JOURNAL is maintaining; it is undoubtedly now one of the best medical journals in the world. In this laudable work of the new American Medical Association, some of our members have taken an active part. But our association as a body cannot claim credit for the progress which was made in medical affairs of this country during the period of its existence; it was not brought about by any definite designs or policies of this association.

If the Association of American Physicians exerted an elevating influence on American medicine, it did so by its mere existence. When it was founded a generation ago, the effort was made to incorporate in it the best medical men which could be then found in the country. Since then, year by year, an effort was made to admit only those who were the best of the available material at each period. With the introduction of the institute of associate membership, a remedy was acquired to correct mistakes.

From the start our association formed a constituent part of the body known as the Triennial Congress of American Physicians and Surgeons. Like the other constituent societies, for instance, the surgical or the ophthalmologic, our association represents a certain special part of the medical practice; it represents *internal medicine*. This association, however, has one advantage over all of them. All practical medical subjects presuppose the knowledge of the pure medical sciences, for instance, physiology, pathology, bac-

teriology, pharmacology or hygiene. But the Association of American Physicians alone has the advantage of counting among its members investigators of these various sciences. I say, it has the advantage; there are some among us who may not consider it an unmixed blessing.

Delafield, in the first presidential address, spoke of an association of physicians and pathologists. Osler, ten years later, added bacteriologists. We now have among our members also physiologists, pharmacologists and investigators in the fields of hygiene and preventive medicine. Permit me to define my own position as to the aim and the composition of the membership of this association. I entirely agree with the sentiment that the object of this association is, and should be, clinical medicine in both of its aspects, the scientific and the practical. Purely physiologic or chemical communications which have only a remote bearing on medicine do not belong before this forum. Neither should medical scientists whose work and interest lie at a great distance from clinical medicine be elected to membership of this association. But let me say this to you: For thirty-odd years I have been engaged in a more or less active way in the scientific as well as in the practical sides of medicine. It is my profound conviction that clinical medicine has a great future before it; but that the real success will come only from a close association of clinical medicine with the medical sciences.

The object of our association is to increase our knowledge of the intricacies of medicine, to learn from one another the new things we have unraveled and to instruct one another in the art of advancing our knowledge. That object will be best attained when the men studying the sciences of medicine and the men studying and handling diseases will come together and have a chance to be stimulated and instructed by one another. Of course both parties must be openminded, must be anxious to learn, and must have a deep interest in medicine and a full grasp of what it really means. Diseases are experiments which Nature makes on men and beasts. A mind trained in observing properly natural phenomena and studying critically experimental results is best prepared to interpret Nature's experiments, to grasp Nature's method in correcting physiologic aberration and to try courageously to improve on these methods and to discover or invent new ones. The best physician of the future will be the brainy man who spent many years in studying the methods employed in acquiring knowledge in the pure medical sciences and then in applying all his mental energies to a broad study of diseases. The field of the clinician is not confined to diagnosis and therapy alone, as was stated in one of the presidential addresses by a leading clinician. Great physicians were often also great original investigators. By diagnosis and therapy alone we would, for instance, have no knowledge of Bright's, of Graves' or of Addison's disease; we would not have known of myxedema or acromegaly. In fact, a good deal of our knowledge of the significance of the ductless glands and internal secretion was established by clinical observations, and at first even against violent opposition of some classical physiologists. An instance, illustrating the value of cooperation between clinical men and men in the medical sciences, is the discovery of the blood pressure raising principle of epinephrin by Oliver and Schäfer. It was the physician Oliver who first noticed, by insuffi-

cient methods, that the administration of extract of suprarenals seemed to increase the blood pressure. By obtaining the cooperation of the physiologist Schäfer, the subject was investigated by proper physiologic methods, and the discovery of epinephrin, which attained such great importance, was safely established.

I therefore say again that it is of great advantage to our association to have among its members investigators in the various fields of the medical sciences. Clinical medicine and medical sciences must be brought closely together and work in harmony; that will assure a steady progress of the science and practice of medicine. This union is what distinguishes our association from other societies and which gives it the right of continual existence.

Some older members complain that the papers presented at the meetings are getting above their heads. While this may be a fact, it cannot be made the basis of a complaint. The papers of the program of an annual meeting reflect in general the character of the medical studies which prevail at that period. The science of medicine is progressing. Do these members wish that our science should stop progressing as soon as they, for one reason or another, cannot follow it? The very same members who make this complaint were progressives at some time or another; otherwise they would not have become members of this association. Their work at their time was probably above the head of those who remained then behind them.

If the character of the papers on our program reflects the nature of the problems which occupied the minds of our members in the past year, the number of these papers show their intense scientific activity. A long program awaits you—and me. I shall have to be strict in enforcing the time limit to the speakers. I have the good will to be impartial and shall therefore cut short my own remarks.

PATHOLOGY OF WAR SURGERY*

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SAN FRANCISCO

It has been said that "Peace hath its problems no less than War." That war, however, may concentrate certain problems of peace, which are well under control in times of peace, this, and past wars have clearly demonstrated. The dangerous forces of nature, which an enlightened humanity has begun to control, come very much to the fore when humanity turns upon itself.

The object of civilized warfare has always been to render the opposing soldier a noncombatant with as little danger as possible. For this purpose we have Hague conventions, banning the use of dumdum bullets. Hague conventions take account, however, neither of the ever-present microbe nor of inclement weather, nor yet of the abuses of nature that the present methods of warfare make inevitable. It is these factors that we are fighting, and their further exposition may therefore not be out of place.

The elaborate machinery of a "Service de santé militaire" is intended to combat these dangers. An ambulance such as this is a necessary element in such

a machinery, and a laboratory organization a not unimportant cog.

Our work in the department of pathology has necessarily limited itself to the problem of war surgery. The special character of the patients at the ambulance has necessitated examinations with reference to the kind of infection and the manner in which their wounds reacted to this. Our function has been, and is, to supply the microscopic eyes to the surgeons and the clinicians. It would be impossible in a short space to describe in detail each phase of the work carried out in the laboratory. I shall attempt to give only a general idea of the things we have tried to do.

The department, organized in November, has carried out to the present time, March 30, 1915, about 850 examinations, fifty necropsies and twenty biopsies. The greater part of these examinations has been chiefly that of the blood and the urine. Suspected abscesses, where generalization in the blood stream had not yet taken place, demanded an inquiry into the reacting powers of the blood. We have had 153 occasions to do this. Injuries in the neighborhood of the kidneys, possible postoperative affections of the kidneys, and infections of the kidneys in cases of spinal paralysis have required the examination of urinary specimens over 200 times.

The occurrence of tropical infections where so many of our wounded have either lived or been born, has had to be considered, this more especially where unexplained fever was present. In seven cases the malarial parasite was found to have caused the rise of temperature.

Owing to the care with which the cases have been admitted, we have fortunately been spared infectious fevers. It has been necessary twelve times only to make the differential diagnosis between typhoid fever and simulating surgical infections.

It is not uncommon for men who have healed lesions of tuberculosis, and then lead a trench life, to have these lesions develop anew. We have examined seventy-four sputums in which this possibility had to be considered.

In any community, infectious throat inflammation is an ever-present factor. Here, we have had sixty-eight examinations in which this element of diagnosis has arisen. In this, as in the other preceding cases, it is not bullets alone that slay, but bacilli that are continually adding to the dreadful toll.

It is a difficult thing for the surgeon to see the kind of bacterium with which he has to contend, with the exception of the pyocyanous infection. The color of the pus does not sufficiently show the nature of the infecting microbe. Bacteriologic examination of the pus exuding from a wound becomes of importance for this reason. We have, in all, examined 118 wounds. Our results, as well as the results of a series of examinations conducted in the university laboratory in conjunction with the laboratory of the hospital, I shall cite below.

From the very outset we have been obliged to take into consideration the temporary nature of the hospital. To organize a complete laboratory of any permanent character meant a diversion of monies from a perhaps much more necessary aim. We have therefore contented ourselves only with the absolute essentials necessary to increase the usefulness of the laboratory to the attending surgeons. The organization of the laboratory consists at present of a series of rooms

* Read before the Medical Society of American Ambulance, Paris, March, 1915, and the St. Francis Hospital Clinical Society.

placed at our disposition by the kindness of the medical board and the ambulance committee. This has permitted the setting aside of: one room especially for bacteriologic investigation; one room for clinical and chemical analysis, and one room reserved exclusively for histologic examinations of tissues excised which were of a questionable nature.

The acute character of the cases in which operation was performed has made necessary only twenty-one examinations of the latter sort.

In the fifty necropsies which have been performed, the causes of death have either been secondary fatal hemorrhages from previous wounding of blood vessels reopened after a few days as a result of the sloughing of tissue, or infection of wounds of the brain, spinal cord, chest or abdomen. Under the latter heading may also be included the infections consequent to large compound fractures of either the upper or lower extremities. Tetanus was the cause of death in only two cases. Pneumonia was an occasional complicating cause after previous injury to the jaw in which swallowing had been interfered with by the swelling of the tissues of the floor of the mouth.

The vagaries of the wounding projectile were as strange as it is possible for the mind of man to conceive; and naturally so, when one considers the rain of bullets to which these men were exposed. In one case the bullet entered the left side of the abdomen at a point between the spleen and the left kidney, continued upward, and in its course injured the tail of the pancreas, traversed both walls of the stomach, and continued on through the diaphragm, finally to lodge in the muscular substance of the heart, close to the right auriculoventricular valve. This patient lived ten days after the injury. In another case the bullet had entered the left back of the chest, close to the spinal column, had ploughed its way through the lung, through the diaphragm, into the stomach and thence proceeded calmly on its way as any morsel of food. This man likewise lived a period of almost two weeks, ultimately to succumb to a suppurative pleurisy.

Cases of secondary hemorrhage have been likewise varied. Three patients — after a previous wound of either the jaw or the mouth — died of hemorrhage of the lingual artery; the vessels injured originally at the moment of the wound and controlled in the field, after several days began to bleed afresh with ultimate death from hemorrhage. These have been fortunately few. In one case of bullet wound of the jaw, the bullet passed through the back of the mastoid process, and at necropsy was found to have involved the vertebral artery. This explained the surgeon's inability to control the hemorrhage by ligating the internal and common carotid of that side. One of the rarest occurrences encountered at necropsy was a soldier with a compound fracture of the jaw, who died three days after the receipt of the injury, as a result of hemorrhage from the severed inferior dental artery. All of these conditions have been object lessons in the care and treatment of similar cases.

Injuries to the head and spinal column with a fatal outcome make up almost 30 per cent. of the fatal cases. Most of the injuries produced by the entrance of projectiles to the brain or spinal cord still resist our advanced methods of therapy. If not immediately infected, it seems a difficult thing to prevent later infection. A number of cases of gunshot wounds of the skull develop septic meningitis, caused either by

the staphylococcus or the streptococcus, weeks after the wound is apparently healing satisfactorily. This is a field in which some advance is still to be looked for.

Tetanus, that dread disease of previous wars, has practically lost its terrors. The universal administration of antitetanic serum has conclusively proved its value. We have had only two deaths of this disease; one soldier had received an injection of serum immediately on his arrival at the hospital, but infection with the *Bacillus tetani* had unfortunately been too far advanced to be arrested at that time; the other patient had not received serum owing to the absence of any visible wound — the condition for which he had been admitted was that of frost bite of both lower extremities. He died of tetanus two days after admission. This demonstrates how important is the prophylactic administration of antitetanic serum in any condition in which the skin vitality may be diminished. It also demonstrates the good judgment of the surgeons in charge in insisting on the use of serum in every case admitted to this hospital — a rule which, except in the instance mentioned, has never been deviated from.

We have had seven fatal cases of gaseous gangrene infection. These have all been acute cases admitted with symptoms of fully developed gas gangrene infection, which have succumbed in a few days despite all possible efforts. I shall go more fully into this condition later.

As was to be expected, a fairly large percentage of the fatal cases was due to infection of wounds. In some of these, infection of the bone marrow was the primary cause; in others, extension of the infection into the blood vessels of the neighboring region gave rise to a purulent thrombophlebitis with spread of infection throughout the body. In a few instances, the cause of death was chronic sepsis attendant on a suppurative infection of one or more points of the body.

Of abdominal injuries which have resulted fatally, we have had only two instances. The distance of this ambulance from the front is perhaps the best explanation for its rare occurrence here.

The greatest number of fatal cases has been unpreventable. Most deaths were caused either by conditions not amenable to surgical treatment, or by the advanced state of the infection at the time of entrance. Very few were due to conditions that had not been recognized sufficiently early. Despite the greatly increased number of admissions, including cases much more severe than even in the early days of the hospital, the four deaths we have had to record since February 1 to the present date (March 30, 1915) sufficiently attest to the increased vigilance of the attending surgeons. May I be permitted to touch on the mortality of this hospital? We have had occasion in the past to realize what a frightful mortality attends surgical wounds inflicted in war time. In the total admissions, numbering well over 1,400, there have been eighty-one deaths, 6 per cent., a mortality rate which hospitals, even in peace times, might point to with a great deal of pride. How much more reason have we to be proud of so low a mortality rate with such severe, complicated injuries? We have attempted to do our little share toward helping to decrease this mortality rate by increasing the possibilities for more accurate diagnosis and adding to the indications for surgical intervention.

In research we have been able only to scratch the surface. The paucity of help and equipment is our only excuse. As previously stated, in conjunction with Dr. Huffman of the university laboratory, I have carried out bacteriologic investigations in a series of sixty-two consecutive cases. It was possible to demonstrate that of the sixty-two cases, seventeen were found harboring the *Bacillus perfringens*—in one case pure, in all other cases associated with the staphylococcus, with the streptococcus, with the *Bacillus coli*, with the pyocyaneus, and two up to the present unidentified anaerobic bacilli. The common pus producers, well known to surgeons in times of peace, have not kept their unwelcome presence from us. Staphylococcus and streptococcus have been frequent visitors. The staphylococcus has been found thirteen times; the streptococcus only six times. Clinically, old wounds showed almost a pure staphylococcus infection. When badly infected and discharging for a long period of time, the perfringens and the pyocyaneus bacilli were commonly found present. In the 118 cases in which we had occasion to carry out bacteriologic investigation in the hospital laboratory, the *Bacillus perfringens* was seen thirty-three times. On seven occasions this was the only microbe evident. These were all cases of gas gangrene, for the most part fatal.

The frequent occurrence of the *Bacillus perfringens* and other anaerobic bacilli has prompted us to carry out attempts at vaccination with the Weinberg mixed vaccine. I may safely say that it has never done harm; in cases in which the perfringens seemed to be the predominant organism, it has seemed to be of decided value. In a series of ten cases treated on the Lakeside service, wounds infected with the perfringens bacilli healed rapidly. In one case, in which an infection of a stump was present in which this bacillus was found associated with other bacteria, the use of the vaccine brought subjective as well as objective improvement. The wounded patient insisted that the treatment had helped to diminish his pain. Objectively, the discharge had very evidently diminished in quantity. In a series of eight cases treated on Dr. Blake's service, in which the *Bacillus perfringens* likewise had been found, one patient in whom the vaccine treatment had been instituted rather late died. In the others, the rapid subsidence of temperature and the comparative rapidity with which the wound healed seemed an indication of its efficiency. It is needless to say that the number of cases treated is far insufficient to be able to draw definite conclusions. They are sufficient in number to indicate the path that might be followed with possibly excellent results.

Of vaccine and serum therapy in general we have not been given sufficient cases to draw any very definite conclusions. Antistreptococcus serum has been used in five instances. Two cases of streptococcus septicemia did not respond, although large doses of the serum were administered intravenously. One soldier whose wound discharge revealed, on examination, the presence of anaerobic streptococci, was healed in a remarkably short space of time after the use of the serum, a rapid subsidence of the temperature and a marked subjective increase of comfort following injection. In two other cases the use of the serum locally in wounds seems to have been of help. The press of work has not enabled us to follow up consistently this form of treatment.

The use of autogenous vaccines has been limited. Several cases of staphylococcus septicemia did not respond. Two local infections have been followed by amelioration of the symptoms.

May I be permitted to make a plea here for a more extended use of this method of therapy? When, if not at such a time, can we draw definite conclusions as to its value?

The most interesting form of wound infection encountered here has naturally been that of the gaseous gangrene—not a newly discovered disease, as supposed in some quarters, but a fairly old disease, which, owing to the concentration of individuals and the methods of warfare, has sprung suddenly into prominence. Infection of wounds by anaerobic bacilli had been seen in previous wars. The question as to the anaerobic nature of the infection was naturally left undetermined. Bacteriologic laboratories then, as today, were not considered a *sine qua non*. Small wonder that it had been left to us to combat this disease with its etiology and therapy practically unknown.

The first essential naturally was to determine definitely the actual nature of the disease. The first definite case in which the bacillus was isolated from the blood, sufficiently early after death to make its causal rôle absolute, occurred at this ambulance. A culture of the heart's blood, taken three hours after death, proved to be infected exclusively with the *Bacillus perfringens*. Since that time the number of cases has multiplied in which the *Bacillus perfringens* has been found to be the causal factor. There are other bacteria, however, that will produce gas in gangrenous tissues. The *Bacillus proteus*, the *Bacillus coli* at such a time do not remain innocent invaders. In eight undeniable clinical cases of gaseous gangrene, we have in seven instances found the perfringens; in one other instance the *Bacillus putrificus* was associated with the streptococcus. In two of these instances the use of the Weinberg vaccine, given at a late date, did not prevent the patient's death. We have not been able to infect guinea-pigs with this bacillus alone. Only by the previous injury of tissue have we been able to produce what may be clinically called gaseous gangrene. At the Pasteur Institute, injury of the muscle seems to have been all that was sufficient.

Pathologically, the lesions have been almost uniform. A punctured wound of the skin, associated in every case with injury to a large blood vessel, and in most cases with a fracture of the bone—this seems to have been a *sine qua non*. Following this, at intervals of from one to four days, infection with superficial gangrene, extensive destruction and necrosis of the tissues immediately adjacent to the wound, marked cloudy swelling of the muscles above and below the wound, extensive edematous infiltration interspersed with gas bubbles varying in size, are always present, and, externally, a characteristic discoloration of the skin, with a characteristic, pungent fetid odor, once smelled, never forgotten. Vesicles, varying in size from that of a pea to almost as large as the flat of the hand, are present, filled with a sanious fluid. Occasionally this fluid was found straw-colored. These blebs were examined bacteriologically; in a few instances they showed the presence of the characteristic bacillus; in other instances no bacillary infection could be found, with perhaps the exception of the banal skin bacteria. The examination of the serous infiltrating fluid showed invariably, except in the case previously mentioned,

the bacillus of Welch. In some cases the characteristic changes in the tissues remained localized to the affected limb; the opposite limb, or even the opposite part of the body, showed none of these. Occasionally the local changes seemed to have been arrested at Poupert's ligament, even though the blood was later found full of bacteria. In all cases, except where the *Bacillus putrificus* was found, the heart was found to be filled with bubbles of gas, and likewise other larger vessels of the body, as well as the vessels of the brain. The hemorrhage underneath the skin layer found so often in biopsies as well as at necropsy, could be explained after a histologic examination of the tissues. The toxin of the bacillus seems to exert a special selective action on the muscular layers of the blood vessel walls, so that an escape of the blood becomes almost natural.

Despite the small number of cases examined, I feel safe in venturing to say that the production of gas plays a not unimportant rôle in the causation of death in this disease. The acute attacks of pain complained of by the patient previous to death, the rapidity with which the fatal symptoms set in, can only be likened to caisson disease, in which air emboli are the chief pathologic factor.

In cases of abscess with gas, when the septicemic features of the disease have not developed, it is the toxin production, I am sure, that is responsible for the wearing down of the patient's vitality. Histologically the changes can best be summed up as hemorrhage, edema and gas production. The parenchymatous changes in the muscle fibers which are the predominant features histologically are an early and well-marked pathologic change constantly present. This undoubtedly contributes in a large measure to the pouring forth of blood cells and the general infiltration of the tissues with serum.

In limbs fixed immediately after amputation we have found this change, namely, the splitting and coagulation necrosis of the muscle fibers of the media, which seem to point to a special selective action of the virus of the disease on the muscle coats of the blood vessel walls.

Two cases that we have had occasion to study bacteriologically here have responded, one to amputation, and the other to an intravenous injection of the serum prepared by the injection of cultures of the *Bacillus perfringens*. This also points the way to further investigation.

The etiology of this infection may perhaps be explained by the positive presence of anaerobic bacilli in the outer clothing of soldiers. We have not carried out this phase of investigation very extensively, but on several occasions we have examined the clothing of soldiers who have been brought directly from the battlefield and have found these bacilli present.

That the presence of this bacillus is not alone the factor that permits of the production of gaseous gangrene infection is proved by the comparative frequency with which it is found in ordinary wounds. The contributing cause is always, I think, an associated lesion of a blood vessel that will produce sufficient gangrenous tissue for this bacillus to thrive in ease, and by the production of protamin toxins, break down the resistance of the surrounding tissues and enable it to continue its vicious cycle unmolested. We have found this associated injury in every case examined at necropsy. The absence of leukocytes in the immediate

vicinity of the infecting area, their scavenger activities when no dead tissue is present to permit of the growth of the *Bacillus perfringens*, seem to me a fairly good indication of the soundness of this hypothesis. All these are facts which only an extended investigation can either completely verify or disprove. I trust it will fall to the lot of the laboratory units that will come here in the future to settle these points definitely. As I have said before, we have merely ruffled the surface. It remains for them to dive deep into the sea of nature and bring forth the pearls of truth.

INFANT MORTALITY DUE TO LABOR*

C. S. BACON, M.D.

CHICAGO

The conservation of infant life, the prevention of infant mortality, is a subject that has been given much attention in recent years, not only in this country but also throughout the world. A strong national society has been organized to stimulate general interest in the subject, and to secure lay and professional cooperation in controlling the causes of the high mortality.

One of the important phases of this subject is an obstetric problem. Infant mortality during labor and due chiefly to labor is very high. The accidents of labor which destroy the fetus causing stillbirth, or those which injure it so that the infant dies shortly after birth are many. A study of these accidents involves a review of many obstetric problems. In such a review, we approach the most important questions of dystocia in a way that should lead to valuable suggestions for practice.

STATISTICS OF INTRAPARTUM MORTALITY

A statistical study is interesting and valuable, but unfortunately we have little data in the United States. In the mortality statistics of the United States Census Bureau, we have mortality statistics for the registration area, which embraces 65 per cent. of the population of the United States. For the rest of the country we have only the population statistics. Even in the registration area we have no record of births. Nevertheless, it may be of some value to make estimates, using the rates of birth and mortality from other countries in order to secure a more detailed picture of the subject. Even if the approximate figures be far from exact, they will lead us into no serious error. The causes of stillbirths are the same here as in Europe, and our study will show the relative importance of the different etiologic factors in intrapartum mortality. No claim is made for the scientific accuracy of the results; they are only helpful and suggestive in the study of the obstetric problem.

Let us assume the present population of the United States as about 100,000,000, that of Chicago as about one fortieth as much and that of Illinois as two and one-half times as great as that of Chicago or one sixteenth that of the United States. Then let us assume that Chicago and Illinois have about an average birth rate and mortality rate. This is true of the mortality rate of Chicago and probably reasonable for the birth rate. Of course we know very little about the mortality rate of the rest of the state, for, unfor-

* Presented before the Chicago Gynecological Society, May 21, 1915.

unately, Illinois has no vital statistics law that is recognized by the Census Bureau, and therefore it is not included in the registration area.

Let us assume that the average birth rate for the United States and for Illinois is about 24 per thousand. This would give about 2,400,000 births annually in the United States, 150,000 in Illinois, and 60,000 in Chicago.

Brothers found the number of stillbirths in New York City to be about 8 per cent. of the births. This rate is probably too high, because the figures of the number of births on which it is based are too small. In various European clinics the rate is between 4 and 7 per cent. In the German empire it is between 3 and 5 per cent. There are nearly 3,000 stillbirths reported in Chicago, or, according to our estimate about 5 per cent. of the births. The number of reported stillbirths is probably everywhere somewhat below the actual number occurring. We shall probably not be far from the truth if we say that there are 120,000 stillbirths annually in the United States, 7,500 in Illinois and 3,000 in Chicago.

In considering the question of intrapartum mortality, it is necessary to determine what proportion of fetal deaths occur before the onset of labor and how many occur during labor. This fact could be determined easily if the condition of the stillbirths was reported, for, as is well known, the fetus becomes macerated when it remains in the uterus long after death. Reports from a number of clinics show that in nearly half of the stillbirths the fetuses are macerated. It is also important to observe that the proportion of macerated fetuses is much greater among the premature than among the children at or near term. These premature, nonviable and macerated fetuses represent the stillbirths due to antepartum disease of the mother or fetus, such as syphilis, nephritis, infection, etc. A study of this group is important, but not within the scope of this paper, which is concerned only with intrapartum mortality. Accepting the fact that, without great error, from two fifths to one half of the fetal deaths occur before labor, we may take from one half to three fifths of the figures given before for the number of non-macerated or recently dead stillbirths, that is, for the fetal mortality during labor. We then have from 60,000 to 70,000 for the United States, about 4,000 for Illinois and 1,600 for Chicago.

In studying the effect of labor on infant mortality, we must consider not only the number of stillbirths, but also the number of deaths that result from accidents of labor when death occurs within a few days of birth. The census report gives over 5,000 deaths from "injuries of labor" in the registration area. This would correspond to about 8,000 from the whole United States. There are also about 29,000 deaths during the first week of life from congenital debility and prematurity in the registration area, or 45,000 in the United States. Over half of these infants are under 1 day old. It is of course impossible to say for how many of these deaths the labor is responsible, that is, how many could have been prevented by a better management of labor. The premature child is more easily injured even in a spontaneous and apparently normal labor. Strong uterine contractions with a deficiency of liquor amnii may produce hemorrhage in the brain or lungs. Likewise, lack of care immediately after birth will cause refrigeration to

94 F. or lower, which becomes the important factor in the early death of the child. It is certainly conservative to estimate that from 5,000 to 6,000 of these 45,000 deaths could be prevented by a better conduct of labor.

Moreover, there are in the registration area nearly 1,000 deaths during the first seven days from convulsions, and a like number from bronchitis, bronchopneumonia and pneumonia. This will correspond to about 1,600 deaths in the United States in each of these classes. Certainly a large number of these are due to injuries and accidents of labor, and probably nearly half are preventable. If we say that 7,000 of the 56,000 deaths in the first seven days of life not due to injuries of labor are due to labor, we are undoubtedly within the limit of conservative statements. Adding to these the 8,000 ascribed to injuries of labor, we have 15,000 children dying from labor within a week, and half of them the first day.

We then have the following figures denoting the number of deaths due to labor: For the United States, 65,000 stillbirths and 15,000 deaths subsequent to birth, or 80,000. Likewise in Illinois, 5,000, and in Chicago, 2,000. This would give a fetal mortality due to labor of $3\frac{1}{3}$ per cent.

In the recent presidential address of J. Whitridge Williams before the American Association for the Study and Prevention of Infant Mortality, the author makes a study of 705 fetal deaths in 10,000 cases of labor. In this series were included all deaths during labor as well as those occurring during the first two weeks after birth. Selecting out the cases probably due to labor to compare with our own, I find 285, or a fetal mortality of 2.85 per cent. The causes of fetal death were as given in Table 1.

TABLE 1.—CAUSES OF FETAL DEATH

Cause	No.
Dystocia	124
Placenta praevia.....	22
Ablatio placentae.....	13
Toxemia	46
Prematurity (one eighth of the cases).....	6
Unknown (not macerated).....	74
Total	285

CAUSES OF INTRAPARTUM MORTALITY

We may now consider the influence of malpresentation of the fetus, other forms of dystocia and obstetric operations in determining the intrapartum mortality. Cross-presentations are almost always fatal unless corrected by operation. If the frequency is about 0.5 per cent., the number of cross-births in the United States is about 12,000 annually. An average death rate of 40 per cent. gives us a mortality of 4,800. Similar computations give us 300 deaths from cross-births in Illinois and 120 in Chicago.

Prolapse of the cord is responsible for about the same number of deaths. This accident occurs in many of the cross-births as well as in breech presentations, and is responsible for many of the deaths charged to these malpresentations.

Face and brow presentations taken together are slightly less frequent than cross-presentations, but the mortality should not average much above 12 per cent. This would give about 1,500 deaths yearly in the United States, from 90 to 100 in Illinois and 40 in Chicago.

Breech or pelvic presentations occur in about 3 per cent. of all labors. This rate would give 72,000

breech labors yearly in the United States. The total mortality is from 20 to 25 per cent., corresponding to from 15,000 to 18,000 deaths due to this condition. Likewise we find in Illinois 4,500 cases with a mortality of about 1,000, and in Chicago 1,800 cases with a mortality of 400. In these cases, prolapse of the cord also plays a rôle.

Taken together, we have about 24,000 deaths from the three varieties of malpresentation. As the total number of births in malpresentations is about 4 per cent. of the total number of births or about 100,000 annually, we have the infant mortality about 24 per cent. This leaves about 56,000 infant deaths in skull presentations, or about 2.4 per cent. In other words, the infant mortality due to labor is ten times as great in these malpresentations as in skull presentations.

Passing now to the skull presentations, I shall consider the forceps operations. It is very difficult to estimate the frequency. In some sections, forceps are applied by physicians in from 40 to 50 per cent. of all cases. In other districts the frequency of forceps does not exceed that of well-managed clinics, that is, from 2 to 4 per cent. Probably if we consider the whole country as well as the state, we shall be conservative if we estimate the frequency to be between 6 and 7 per cent. of all labors. That would give us 160,000 forceps operations in the United States yearly, 10,000 in Illinois and 4,000 in Chicago. The mortality from forceps differs greatly according to the kind of operation. Low forceps are not very dangerous, while high forceps have a fetal mortality of from 50 to 90 per cent. Probably an estimate of 15 per cent. fetal mortality for all operations is conservative. This would give us about 24,000 deaths annually in the United States, 1,500 in Illinois and 600 in Chicago.

To these sources of infant mortality we may add eclampsia, or puerperal albuminuria and convulsions, as it is called in the International List, which is the cause of about 4,000 fetal deaths each year, rupture of the uterus, placenta praevia and ablatio placentae, everyone of which caused from 1,600 to 2,000 fetal deaths annually. Also a number of other rare accidents of labor or kinds of dystocia add to the infant mortality. Many of the deaths due to these causes have been already included under some other heading. This group adds about 12,000 deaths to those already enumerated in the preceding paragraphs.

Summing up, we find Table 2 expressing the approximate infant mortality from the causes already given.

TABLE 2.—CAUSES OF INTRAPARTUM INFANT MORTALITY

Causes	In United States	In Illinois	In Chicago
Malpresentations	24,000	1,500	600
Forceps operations	24,000	1,500	600
Miscellaneous causes	12,000	750	300
Total	60,000	3,750	1,500

Recalling the estimate of 80,000 deaths due to the accidents of birth, we find 20,000, or 25 per cent., unaccounted for. It is interesting to compare this with Williams' findings. He gives 127 deaths due to unknown causes. Fifty-three of this number are macerated stillbirths, however, leaving seventy-four unknown, or 26 per cent. of the 285 deaths probably due to labor. This result probably corresponds pretty well with the experience of most obstetricians. For about every fourth child that dies during or shortly after the labor, the death cannot be attributed to any

of the accidents of labor or forms of dystocia, already enumerated. For reasons, about to be given, I shall ascribe these deaths to the kind of dystocia not yet considered, namely, abnormal uterine contractions.

Completing our table and reducing it to percentages, we have the data given in Table 3.

TABLE 3.—CAUSES OF INTRAPARTUM INFANT MORTALITY

	Per cent.
Malpresentation	30
Forceps operations.....	30
Miscellaneous causes, including placenta praevia, ablatio placentae, ruptured uterus, toxemia, etc....	15
Pathologic uterine contractions.....	25

PATHOLOGIC UTERINE CONTRACTIONS

I wish to call special attention to the last cause and try to justify ascribing so much importance to it. The danger of abnormal uterine contractions is not, as a rule, sufficiently recognized. Before labor begins, the oxygenation of the fetal blood occurs in the placenta. A continuous and abundant circulation of the maternal blood furnishes the oxygen and removes the waste from the fetal blood. When the uterine contractions begin, the maternal circulation is disturbed. So long as the contractions last only a short time and are separated by considerable intervals of relaxation, there is no appreciable disturbance to the fetus. Our main index of the fetal condition is its circulation or heart tones. The frequency of the heart tones changes but little or not at all during the early contractions of labor.

When the contractions last longer and occur more frequently, there is more disturbance in the placental circulation and more derangement in the fetal circulation. If the contractions last more than one and one-half minutes, and if the intervals between contractions are shorter than the contractions themselves, the condition is pathologic and dangerous. If the contractions become more frequent and prolonged so that there is hardly any interval, we have the condition called tetany uteri, which almost always results in fetal death.

Such excessive contractions may occur early in labor, but they generally come on later. They are often the reaction of the uterus to obstacles to delivery, and so occur in contracted pelves, bad presentations, etc. They are excited by operative interference. They are the cause of fetal death not only in the 25 per cent. of causes given in the table, but also in some of the other categories. In all malpositions, fetal death is frequently due to excessive contractions, excited by the delay to labor. It may be true that in 50 per cent. of all intrapartum fetal deaths, the immediate cause of death is excessive uterine contractions.

If it should be objected that 20,000, or 25 per cent., of all fetal deaths is too large a number to be ascribed to this cause, it must be remembered that the mortality rate is nevertheless small. From 2,400,000 labors each year we deduct 100,000 malpositions and 200,000 forceps cases and cases of toxemia, placenta praevia, etc., leaving 2,100,000, in which 20,000 deaths make less than 1 per cent. A certain number of these cases are undoubtedly contracted pelves, and the injuries produced by the pressure required to mold the head to make its translation possible are factors that combine with the excessive uterine contractions to injure the child. It is, indeed, difficult always to apportion the blame. Even when postmortem examinations are made, the findings are not decisive. A

careful study of the clinical history is, however, often conclusive. The contractions are normal for hours, and the child in good condition. Then comes a period of perhaps only an hour or two of very severe pains, long and hard, with short intervals, after which the fetal heart tones are wanting.

It is very important, therefore, to watch the uterine contractions with great care in long and hard labors, and especially toward the end of labor, when excessive contractions are more apt to occur. The diagnosis of the contractions is easily made by watching the patient and noting the hardening of the uterus by laying the hand on the abdomen. The diagnosis of the condition of the fetus is made by counting the fetal heart tones. Whenever there is danger, the heart tones should be counted every ten to twenty minutes.

The management of excessive contractions to prevent fetal death is to control the contractions. The best means is the hypodermic injection of morphin, and anesthesia. One-fourth grain of morphin is generally sufficient in the first stage of labor. If necessary, this dose could be repeated, for at this time there is not very much danger of morphin affecting the child. In the second stage, ether may well be combined with morphin, or substituted for it. Should the obstacle to delivery that excites the excessive uterine contractions be at the obstetric outlet, that is, should the head be on the perineum and held back by a tense, unyielding vulvar ring, episiotomy should be done. If the head is not at the vulva but down in the pelvis, and the cervix is well dilated, and if, in spite of morphin and anesthesia, the danger to the child is great, forceps may be applied. As a rule, however, forceps will increase the danger of fetal asphyxiation and should not be used unless an easy and quick extraction is possible.

MORTALITY FROM THE USE OF FORCEPS

The prevention of intrapartum death in case of bad presentation involves the correct management of these forms of dystocia, and cannot be entered on in detail in this paper. In regard to the deaths due to forceps operations, it must be said that forceps are employed much too frequently—often on account of the entreaties of the patient and her friends, often to hasten the labor for the convenience of the physician. Whenever forceps are used for these reasons, and the child is lost, its death is rightly charged against the operation, which is not far removed from the category of malpractice.

There is a great difference in the danger of high forceps and low forceps. The former has been used far too much in contracted pelvis. We have learned that other operations are safer both to mother and to child. Cesarean section or hebosteotomy is in proper cases to be chosen, while the induction of premature labor must be considered in cases seen early enough in pregnancy. Above all, these cases should be studied long and with care. Exact diagnosis, not only of presentation and position, but also of station, should be made. One who rushes into a high forceps operation thinking he has to do with a head in the pelvis, and then is astounded to find that he must exert all his strength to extract a child that is dead or dying, should learn that obstetrics has advanced in recent years, and that the high forceps is an operation that is very nearly discredited.

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THE LATER HISTORY OF THE TYPHOID CARRIER H. O.

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In two previous articles, the history¹ of a typhoid carrier, H. O., and his treatment by typhoid vaccine² have been reported. The more recent developments in his case show that he was not cured by the vaccination or by the extirpation of the gallbladder, and that after an interval of many months, during which typhoid bacilli could not be found in the feces, he infected other persons.

Through the courtesy of Surgeon R. M. Woodward, medical officer in command of the United States Marine Hospital in San Francisco, I have had the privilege of drawing on the records of the hospital for the greater part of the material here presented.

REVIEW OF THE EARLIER REPORTS

The sailor, H. O., was sick with typhoid fever in the United States Marine Hospital in San Francisco from Nov. 15, 1907, to Jan. 15, 1908. During a period of four years, from March 6, 1908, to March 19, 1912, he worked on several steamships, but most of the time on the *Acme*. During this period he infected twenty-seven officers and sailors with typhoid fever. Four of them died. An investigation by the San Francisco Department of Health into the cases on the *Acme* brought H. O. under suspicion as a carrier and the source of the infection. He was studied in the City and County Hospital for a period of two weeks in December, 1911, but typhoid bacilli were not found by the city bacteriologist in a series of examinations of his feces, undoubtedly owing to intermittence in the discharge of the bacilli in detectable numbers.

The State Board of Health later gathered circumstantial evidence which pointed to H. O. as a carrier responsible for the cases, and a specimen of feces obtained March 3, 1912, was found to contain many typhoid bacilli.¹ H. O. did not handle or serve food on shipboard, and it is probable that the infection was transmitted to his comrades in various ways, but chiefly through the water in a cask from which the men dipped drinking water.

March 19, 1912, Surgeon James M. Gassaway offered to admit H. O. to the United States Marine Hospital. Since that time, except for a short period of parole, H. O. has remained voluntarily at the hospital, although technically under quarantine by the California State Board of Health. Every effort has been made by the staff of the hospital to free him from the carrier state.

The article by Currie and McKeon² takes up the history at this point. Between March 28 and Oct. 14, 1912, specimens of feces were examined weekly and biweekly at the laboratory of the United States Public Health Service in San Francisco. The typhoid bacillus was isolated twelve times, but not later than June 19. Examination of the urine consistently give negative results.

In an attempt to cure H. O., an autogenous typhoid vaccine was administered between April 27 and June

1. Sawyer, Wilbur A.: A Typhoid Carrier on Shipboard, *THE JOURNAL A. M. A.*, May 4, 1912, p. 1336.

2. Currie, Donald H., and McKeon, F. H.: History of a Typhoid Carrier, *THE JOURNAL A. M. A.*, Jan. 18, 1913, p. 183.

28, 1912, in ten doses increasing from 25 million to 1,500 million bacilli. As typhoid bacilli could not be found in the stools from June 19 to October 14, a period of nearly four months, it was suspected that the treatment had resulted in a cure, but Currie and McKeon held their final conclusion in reserve pending more prolonged observation.

PERSONS INFECTED DURING THE PATIENT'S PAROLE

When the long series of examinations of the feces of H. O., made at the laboratory of the United States Public Health Service, and also two examinations made Aug. 9 and 27, 1912, in the State Hygienic Laboratory, had failed to reveal typhoid bacilli, it was agreed by Surgeon Woodward, the California State Board of Health, and the Health Department of San Francisco that it would be safe to release him temporarily from quarantine. He was discharged from the hospital, Oct. 14, 1912. He signed an agreement to report to the Marine Hospital for examination once a month for six months. It was understood that this provisional release from quarantine would be made permanent at the end of that time if his condition remained satisfactory. He reported according to the agreement, and examination of his feces continued to give negative findings. He was employed from Oct. 20, 1912, to about Jan. 10, 1913, as winch driver on the steamer *Noyo* of the coastwise lumber trade.

Nov. 15, 1912, a seaman, O. H., from the *Noyo* was admitted to the United States Marine Hospital in San Francisco for typhoid fever. He recovered and left the hospital Jan. 14, 1913.

Another seaman from the *Noyo*, F. C., was admitted to the same hospital for typhoid fever, Dec. 23, 1912. He had a severe and typical attack. The Widal test was positive. He died, December 28.

Jan. 9, 1913, a sailor, L. K., ill with typhoid fever, entered the United States Marine Hospital in Los Angeles. He had been on the *Noyo* from Dec. 16 to 24, 1912, and in all probability had been infected between those dates. The diagnosis was confirmed by a positive Widal test. This patient recovered.

It seemed highly probable that these three sailors had received their infection from H. O. while working with him on the *Noyo*, a ship previously free from typhoid fever. The captain and crew of the *Noyo*, knowing about the experience on the *Acme*, suspected that this was the case. As a result H. O. was discharged about Jan. 10, 1913, and the seamen's union asked the Marine Hospital to make an investigation.

The investigation was made by Passed Assistant Surgeons D. H. Currie and H. G. Ebert of the United States Public Health Service. It showed that the conditions on the *Noyo* were favorable for the transference of typhoid fever from a carrier among the crew to the other sailors. The men secured their drinking water from a dilapidated water tank having a common drinking cup tied to it. In using the cup the hand was partially immersed, and pollution of the water in the tank was inevitable. Moreover, this tank was situated near the water-closet, which was in an unclean condition at the time of the inspection. The investigators suspected that H. O. was the source of the infection and recommended that he be again placed in quarantine at the Marine Hospital, and that the nature of the water containers used on coastwise vessels entering the port of San Francisco be called to the attention of the State Board of Health.

The investigators expressed the opinion that a tight container for drinking water with a faucet would greatly lessen the chances of infection if a carrier were aboard, and that the arrangement exemplified on the *Noyo* was a constant menace to sailors. The conditions for transfer of infection on the *Noyo* were very similar to those found earlier on the *Acme*.¹ The open water-cask of the latter vessel had furnished an obvious opportunity for the transfer of infection.

The series of typhoid cases on the *Noyo* stopped when H. O. was discharged, just as the long series on the *Acme* had abruptly terminated when he left that ship.

Jan. 17, 1913, H. O. was readmitted to the United States Marine Hospital in San Francisco, and was again placed under quarantine by the State Board of Health. During the three months of his parole he had infected three persons, one of whom had died.

REMOVAL OF GALLBLADDER

Examination of the feces of H. O., Dec. 27, 1912, and Jan. 23 and Feb. 6, 1913, failed to reveal the typhoid bacillus, but it was present in a specimen obtained January 28. This positive specimen proved that the patient was still a typhoid carrier, a conclusion already reached on account of the infections on the *Noyo*.

At that time the existing literature gave considerable assurance that chronic carriers discharging typhoid bacilli in their feces usually owed their condition to a diseased gallbladder, and that its extirpation would result in a cure. After mature consideration Surgeon Woodward recommended removal of the gallbladder, and H. O., anxious to be freed from the danger of harming others, consented to be operated on. Feb. 12, 1913, Surgeon Woodward operated on H. O. and removed the gallbladder and its duct. H. O. rapidly regained his usual good health.

The gallbladder, contrary to expectations, contained no gallstones and was normal. A painstaking bacteriologic examination at the laboratory of the United States Public Health Service in San Francisco showed that the contents of the gallbladder did not contain typhoid bacilli, although colon bacilli and a few other organisms were present. In this carrier the gallbladder was not the focus at which the intermittent infection of the intestinal contents originated. It may, nevertheless, have been a place favorable to the multiplication of typhoid bacilli received in the bile from a focus in the liver, if such a focus existed.

After the operation, frequent examinations of the feces of H. O. were made. Nine examinations from March 4 to April 1 were negative. April 8, 1913, a specimen was obtained from which the typhoid bacillus was isolated. The removal of the gallbladder, like the treatment with typhoid vaccine, had failed to cure the carrier state. In necropsies it has been shown a number of times that the gallbladder of a typhoid carrier may be free from typhoid bacilli. Bindseil,³ Messerschmidt⁴ and Goebel⁵ have reviewed the literature and have presented cases of their own. In five out of

3. Bindseil: Bakteriologischer Sektionsbefund bei einem chronischen Typhusbazillenträger, Ztschr. f. Hyg. u. Infektionskrankh., 1913, lxxiv, 369.

4. Messerschmidt, T.: Bakteriologischer und histologischer Sektionsbefund bei einer chronischen Typhusbazillenträgerin, Ztschr. f. Hyg. u. Infektionskrankh., 1913, lxxv, 411.

5. Goebel: Bericht über das Sektionsergebniss bei zwei chronischen Typhusbazillenträgern, Ztschr. f. Hyg. u. Infektionskrankh., 1914, lxxviii, 555.

twenty-two thorough necropsies on chronic typhoid carriers, the typhoid bacillus was not present in the gallbladder. In the series of twenty-two cases, the typhoid bacillus was not infrequently found in the gallbladder and in the bile ducts of the liver, usually in the contents, and sometimes in the walls. In rare instances it was found in the spleen, and in single instances in the bone marrow, lung, and (in the presence of tuberculous lesions) in the suprarenal and kidney.

LATER EXAMINATIONS

From April 10, 1913, to April 7, 1915, a period of two years, the feces of H. O. were examined seventy-one times and typhoid bacilli were found in only three specimens, obtained Nov. 28 and Dec. 5, 1913, and Feb. 11, 1914. During the last fourteen months of this period, forty-two examinations were made and all gave negative results. In the examinations a suspension of the feces in broth or sterile water was streaked over the surface of Endo or Drigalski medium, or both. After proper incubation the typhoid-like colonies were studied further by cultural and serologic methods.

ISOLATION OF THE TYPHOID BACILLUS FROM THE STOMACH CONTENTS

When the examinations of feces had given negative results for over a year, Assistant Surgeon N. E. Wayson, medical officer in charge of the laboratory of the United States Public Health Service in San Francisco, used a method suggested by Carnot and Weill-Hallé.⁶ On two occasions he obtained bile for examination by feeding H. O. 150 c.c. of olive oil on an empty stomach and removing the stomach contents one hour later through a stomach tube. After allowing the stomach contents to stand, he removed and examined the lower layer, containing the bile. In the first specimen, obtained Jan. 26, 1915, typhoid bacilli were not found, but an organism was isolated which resembled the paratyphoid A bacillus. From a second specimen, obtained in the same way, March 16, 1915, the typhoid bacillus was isolated. An examination of the feces eight days earlier had been negative. The finding of typhoid bacilli in stomach contents containing bile showed that H. O. was still a carrier, March 16, 1915, and suggests that the bacilli may have come with the bile from the liver.

ISOLATION OF THE TYPHOID BACILLUS FROM FECES OBTAINED BY PURGATION

April 12, 1915, H. O. was given podophyllum in the evening. The following morning magnesium sulphate was administered. During the next twenty-four hours three stools were obtained. The first was firm, like most of the stools from H. O., and the second was soft. Typhoid bacilli could not be found in these two specimens. The third stool was semifluid, and Dr. Wayson found that it contained typhoid bacilli in large numbers. During the preceding fourteen months, typhoid bacilli had not been found in the feces of H. O.

When H. O. was being investigated by the State Hygienic Laboratory in March, 1912, a semifluid stool containing very many typhoid bacilli was obtained after the administration of fluidextract of cascara and magnesium sulphate.¹ It was suspected that active

peristalsis increased the number of typhoid bacilli in the feces by stimulating the flow of infected bile (or other material), or possibly by enabling more of the typhoid bacilli to survive some unfavorable condition in the intestinal contents.

VIRULENCE OF THE TYPHOID BACILLUS FROM H. O.

That the typhoid bacilli from H. O. were highly virulent had been repeatedly shown by severe and fatal cases among the sailors who came in contact with him. Additional evidence was obtained through an accident in the State Hygienic Laboratory.⁷ June 15, 1914, an assistant engaged in making an anti-typhoid vaccine attempted to transfer with a pipet a suspension of live typhoid bacilli of the strain originally obtained from the feces of H. O., March 3, 1912. A small amount of the suspension was drawn against the tip of the tongue and the teeth. The mouth was at once washed out repeatedly with 50 per cent. alcohol. Nine days later the symptoms of typhoid fever began with headache. The course of the disease was mild and brief. The temperature did not go above 39.6 C. (103.2 F.) and returned to normal on the ninth day of the illness. The Widal test was negative at the onset, but strongly positive later. This accident showed not only that the typhoid culture isolated from H. O. was virulent, but also that a culture which had been grown on nutrient agar for two and a quarter years and transferred at least monthly was still capable of producing typhoid fever in human beings.

SUMMARY AND CONCLUSIONS

1. Although frequent examinations of the feces of the typhoid carrier H. O. gave negative results for four months after he had been treated with autogenous typhoid vaccine, he infected three persons when subsequently released from quarantine on parole. The total number of persons infected by this carrier is thirty, including five who died.

2. In a further attempt to cure this carrier, the gallbladder and its duct were removed surgically, but the typhoid bacillus was found in the feces several times after the operation. Examination of the gallbladder showed that it was normal and that its contents were free from typhoid bacilli.

3. After forty-one successive examinations of feces during a period of fourteen months, all with negative results, the typhoid bacillus was isolated from stomach contents containing bile.

4. Certain typhoid carriers are unusually dangerous and must be controlled by quarantine or other adequate supervision.

7. Sawyer, W. A.: A Typhoid Infection Contracted in the Laboratory, *Month. Bull. California State Board of Health*, 1914, x, 80.

6. Carnot and Weill-Hallé: Method for Determining the Presence of the *Bacillus Typhosus*, abstr., *Paris Letter, THE JOURNAL A. M. A.*, Jan. 16, 1915, p. 260.

Health Leaflets.—The Bureau of Public Health Education of New York City, in cooperation with neighborhood societies, publishes and distributes monthly neighborhood chronicles in the form of a four-page health leaflet, containing on the first page local news of the particular district of the city from which the leaflet will be distributed. They will be issued from about ten different sections of the city. The remainder of the matter in the leaflet will be the same in each. The remainder of the matter in the leaflet will be the same in each. This is expected to be an effective means of reaching the public in regard to health matters which affect them most closely. The leaflets will be distributed from house to house by the neighborhood associations.

RECOVERY IN TWO CASES OF STREPTOCOCCUS MENINGITIS FOLLOWING LUMBAR LAMINECTOMY AND DRAINAGE

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The mortality of streptococcus meningitis is so very high that any method of treatment which offers even a slight possibility of a cure of this condition is deserving of our consideration. While the treatment which we have employed is not a new one, it has proved so successful and so rapidly ameliorative that we believe it should be given a more extended trial.

In 1914, Barth¹ reported recovery in three cases of streptococcus meningitis following lumbar laminectomy and drainage. It was our good fortune shortly after this to have admitted to the surgical ward of the St. Louis City Hospital the following cases:

CASE 1.—History.—L. B., an Italian laborer, aged 65, was brought to the City Hospital, Oct. 27, 1914, at 12:50 p. m., complaining of pain in the back of his neck, vomiting for the last three days, and pains in his legs. He was very stupid and spoke little English. Questioning elicited the following indefinite history: About three weeks before he entered the hospital, he fell about 7 feet from a huckster's wagon, alighting on his head, neck and shoulders. He suffered a laceration of the scalp, and was unconscious for a few moments. Following this accident, he was unable to work because of pain in his head, weakness, nausea, and "whistling in his ears." He remained at his employer's for three weeks under home treatment, until the present attack began, at which time he was brought to the City Hospital. He was a wandering Italian laborer, and unfamiliar with the country. He was injured in a rural district, some miles from the city, and long distance telephone communication with his employer failed to add anything to the foregoing history.

Examination.—The patient was fairly well nourished and developed, and was conscious, but dazed. General physical examination revealed nothing, except those changes due to oncoming senility. Neurologic examination: Pupils small, left smaller than the right, regular in outline, react to light and accommodation; facial contraction apparently equal, tongue deviates slightly to the right; neck rigid; upper tendon jerks equal, but very active; abdominal and cremasteric reflexes equal, but active; knee-jerks equal, but very rapid; Achilles active and equal; no ankle clonus, no Babinski, Chaddock's external malleolar sign positive on the right; double Kernig; lower extremities hypersensitive; patient disoriented as to time and person, and speech is rambling if attention is not held. Temperature 97.6, pulse 72.

At 8:30 p. m. or seven hours later, the patient was unconscious, and could not be aroused. Examination revealed a very rigid neck, abdomen retracted and hard, a double Kernig sign, and Babinski with Chaddock's external malleolar sign. Temperature 98.4, pulse 62. On lumbar puncture, a turbid fluid escaped under pressure. Examination of a centrifuged specimen showed numerous pus cells, with extracellular organisms resembling streptococci. Bouillon and agar cultures examined the following day showed pure cultures of streptococci. After lumbar puncture, the diagnosis of purulent meningitis was justified, and immediate operation advised.

Operation.—The patient was prepared for operation, and at 11 o'clock, under spinal anesthesia, a typical lumbar decompression was performed. The spinal anesthesia was a complete success. An incision was made over the third and fourth lumbar vertebrae. The muscles were separated from the spines of the third and fourth vertebrae, and when the bleeding was controlled, the spinous processes were removed at the base with bone forceps. The Hudson burr was used to perforate the laminae at the base of the divided spinous process, and the rest of the laminae were removed with rongeur forceps. The ligamentum subflavum was then incised to expose the dura of the cord. In order to prevent the too rapid escape of the spinal fluid, it was thought best to lower the head of the table. The dura was then incised and a free escape of turbid fluid took place, which was readily controlled by gauze sponges. A rubber dam was then inserted to the dura and the wound carefully closed in layers except for the drain in the lower end of the wound.

The postoperative course of this case was uneventful, except for loss of sphincter control for a period of about nine days. His temperature was never above 99 degrees; he regained consciousness after two days and complained of having headache for several days. Neck rigidity disappeared on the fifth day following operation, and Kernig's sign disappeared several days later. The drain was removed on the fifth day following operation. On the fourteenth day, the patient was up in a wheel chair, and was walking two days later. Cerebrospinal fluid escaped from the wound almost until the time of his discharge, but the wound closed externally with slight meningocele. He was discharged, recovered, Nov. 27, 1914.

CASE 2.—History.—M. K., a schoolgirl, aged 8, was brought to the City Hospital Dec. 16, 1914, with the following history: Five weeks before, she had become ill with an attack of tonsillitis, to which she was subject. She apparently recovered from this attack, but about three weeks ago her ears began to ache, and a family physician, who was called, put drops in her ears, which gave her relief. At this time, a swelling about the size of a walnut appeared behind her right ear, but soon disappeared. December 13, the patient again became ill, complaining of severe headache, and was brought to the hospital three days later. On her entrance to the hospital, the child appeared quite ill. She was conscious and rational, but cried and moaned from pain in her head. She vomited several times the day of her entrance. General physical examination revealed no gross lesions; pupils were equal and reacted to light and accommodation; tonsils were large and injected; her neck was slightly stiff, but yielded to manipulation with some pain; she had slight tenderness over the right mastoid. Temperature 99.8, pulse 92. Neurologic examination elicited no pathologic reflexes; Kernig's sign was not present. At this time, a provisional diagnosis of mastoiditis was made.

For three days following her entrance to the hospital she rested well, with no medication. An ice bag was applied to the right mastoid region. Rather suddenly on the evening of December 19, three days after entrance, her temperature rose to 100.4, she complained of severe headache, and examination showed a rigid neck and a double Kernig. A lumbar puncture produced 20 c.c. of bloody fluid. By the next morning she had developed an internal strabismus, neck rigidity was marked, Kernig's sign was very pronounced, and her temperature was 103.4, pulse 120. A lumbar puncture resulted in 20 c.c. of cloudy fluid. Examination of a centrifuged specimen revealed many leukocytes with streptococci. Cultures examined the next day showed pure cultures of streptococci. At 6:30 p. m. an operation was advised and lumbar decompression performed.

Operation.—Under ether anesthesia a 2-inch incision was made over the third lumbar vertebra. The muscles were separated from the spines and the third and fourth spinous processes were removed with bone forceps. The Hudson burr was then used to trephine through the laminae at the base of the divided spinous process. The ligamentum subflavum was then incised and the dura exposed. At this point

1. Barth: Arch. f. klin. Chir., 1914, cv; abstr., THE JOURNAL A. M. A., Oct. 24, 1914, p. 1509.

the head of the table was lowered to prevent the too rapid escape of the spinal fluid. The dura was then incised and a turbid fluid escaped. A rubber dam was then placed on the dura and the muscles were sutured in place and the skin closed, except at the lower angle where the drain came out.

The postoperative course of this case was much more severe than in Case 1. The temperature varied from 102 to 101 F., and did not reach normal until January 4. The most striking and alarming feature was a rapid pulse, which remained 128 to 140, until January 4, when it dropped to 96. The patient complained of backache and headache for about four days following the operation. For two weeks following the operation, she was rather weak, but while her convalescence was slow and prolonged, attention must be called to the fact that symptoms of meningeal irritation were never prominent, and after the fifth day there was no evidence of meningeal irritation otherwise than a slight rigidity of the neck and a spasticity of the limbs, which remained until about January 10. After the fourteenth day, convalescence was progressive, and the patient was discharged as recovered, Feb. 6, 1915.

The result in these cases was so remarkable that we began to look up the literature on the subject, and found reference to similar operations performed by Barth,¹ Rolleston and Allingham,² Wynter,³ Cushing⁴ and others, although it was later on condemned by Cushing along with the operation of cerebellar decompression combined with laminectomy and through-and-through irrigation advocated by Leonhard Hill. The objection to the method of Hill as well as that of laminectomy was that the purulent exudate at the base of the skull sooner or later blocked off the escape of the cerebrospinal fluid from the foramen of Magendie, and thus defeated the purpose of the operation. That this objection is open to argument is seen by the work of Barr.⁵ He trephined a patient dead from meningitis and did a lumbar puncture, leaving the cannula in place. Then he tapped the lateral ventricles and allowed a methyl blue solution to flow into the ventricles under a very low pressure, and observed the escape of the fluid from the lumbar cannula, showing that even in this patient dead from meningitis the normal channels of the cerebrospinal fluid were not blocked. Postmortem examination showed that the methyl blue fluid had found free access to the base of the brain, and the exudate was thoroughly stained by this solution. He also did the same thing in a patient on whom he had operated as a last resort, using a normal saline solution, and observed its appearance at the lumbar opening. The patient was in no ways injured by the procedure, although dying shortly after this. On the death of the patient he repeated the same thing with the methyl blue solution, and demonstrated the patency of the normal channels. Several patients have been cured by repeated lumbar punctures,⁶ and Gorse⁷ reports a case of recovery of a patient on whom he had performed a lumbar puncture with a Rosenthal needle, which leaves the sheath or cannula in place for permanent drainage. The patient recovered after thirteen days of continuous lumbar drainage.

Murphy⁸ described an operation of drainage of the sacral cisterna with cerebellar decompression and irrigation, and reports a recovery.

Haynes⁹ and Kopetsky¹⁰ strongly favor cerebellar decompression and drainage of the cisterna magna, but reported no cures in six cases in which operation was performed in this manner. Day¹¹ did not get a cure in nine cases with operation by the Haynes method. In spite of strong appeals for the operation, therefore, it does not seem to fulfil the expectations of its advocate.

The successful outcome in our cases was undoubtedly due to the early diagnosis and prompt treatment, and herein may lie the secret of success in this disease. The mortality in acute purulent meningitis is very high, and unless treated surgically is almost invariably fatal. As a rule the onset of the disease is sudden. The symptoms are intense and the course is short, rapidly tending toward a fatal issue. Netter,¹² in a study of sixty-five cases, found that fifty-four died within four days. Death is the result of two factors, increased intracranial tension and toxemia. The first factor can be influenced by repeated lumbar punctures, or by permanent drainage. The second factor of toxemia may be overcome possibly by the dilution of the toxins through the rapid secretion of the cerebrospinal fluid. It is estimated that the normal secretion is replaced every three or four hours by an entirely new supply, and in abnormal conditions, as fracture or lumbar puncture, the alteration in normal tension may result in a very rapid increase in the amount of this secretion.¹³

Streptococcus meningitis is a surgical disease, just as acute purulent peritonitis is a surgical one, and here again we see the analogy; the mortality is extremely high in peritonitis unless we early establish thorough drainage. Therefore we may perhaps draw the conclusion that early operation and permanent drainage will offer a lessened mortality in acute purulent meningitis.

VISIBLE ACUTE DILATATION OF THE STOMACH DURING LAPAROTOMY

REPORT OF TWO CASES WITH OBSERVATIONS

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Frequent reports of postoperative dilatation of the stomach are made, but rarely of a case occurring which is visible through the laparotomy wound during operation. The explanations of the postoperative cases are almost as numerous as the number of cases reported. It has been said that probably more than one cause or a combination of causes may be responsible for such a condition.

I have long been of the opinion that none of the reasons heretofore named as the cause of dilatation of the stomach were entirely satisfactory. I have had the idea that in nearly all if not every case the air had been taken in through the mouth in some modified process of deglutition.

As a boy I can well remember an old horse named Charlie which, when approached for the purpose of being saddled, would gulp down large chunks of air (aerophagy), causing such distention of his belly that it was with difficulty that the girth could be properly

2. Rolleston and Allingham: *Lancet*, London, 1899, p. 889.

3. Wynter: *Lancet*, London, 1891, i, 981.

4. Cushing: *Keen's Surgery*, iii, 140.

5. Barr: *Brit. Med. Jour.*, Nov. 26, 1911.

6. Klapp: *München. med. Wchnschr.*, 1915, lxii; abstr., *THE JOURNAL A. M. A.*, March 20, 1915, p. 1039.

7. Gorse: *Bull. Soc. de pédiat. de Paris*; abstr., *THE JOURNAL A. M. A.*, Dec. 17, 1910, p. 2186.

8. Murphy: *Surg., Gynec. and Obst.*, April, 1907.

9. Haynes: *Laryngoscope*, xxii, 865.

10. Kopetsky: *Laryngoscope*, xiii, 797.

11. Day: *Laryngoscope*, xxiii, 1041.

12. Netter: *Osler's Modern Medicine*, vii, 176.

13. Seelig and Hagler: *Interstate Med. Jour.*, March, 1915, p. 248.

cinched. Veterinarians are familiar with this fact relative to horses.

The two cases reported here with observations may possibly throw some light on this condition.

CASE 1.—A. G., woman, white, aged 22 years, admitted to the Harlem Hospital, Monday, Sept. 29, 1913, had a negative family history, and the previous history was negative except for two attacks of appendicitis. On the preceding Friday the patient was seized with general abdominal pains which after twenty-four hours localized on the right side, in the lower quadrant of the abdomen. The patient had been nauseated but had not vomited; had had fever, and bowels had been constipated. She was brought to the hospital in an ambulance.

Examination.—The patient was fairly well nourished and developed, conscious and rational. Pupils were equal and regular, reacting normally to light and accommodation. Mucous membranes were clean and moist. Tongue was slightly coated. Throat clear. Heart was normal in outline and position; sounds clear, no murmurs heard. Pulse was regular and of good force and tension, increased in rate. Lungs were clear. Breasts were full and soft, and there were no masses or tender areas. The right side of the abdomen was rather rigid, tender and tympanitic; no masses were felt; there was no shifting dullness. Liver, spleen and kidneys were not felt. Skin was clear. Extremities were normal. Lymph nodes were not enlarged. Reflexes, knee jerk. Sexual organs were negative. Urine was clear, amber, specific gravity 1.020, acid; after operation, specific gravity was 1.015. Albumin, glucose, casts, leukocytes negative; few epithelia.

BLOOD EXAMINATIONS

	Sept. 29, 1913	Sept. 30, 1913	Oct. 1, 1913
No. cells counted.....	100	100	100
Leukocytes	10,000	9,400	10,400
Polymorphonuclears	70%	67%	64%
Lymphocytes	30	30	30
Transitionals	1	3	6

Temperature was 102, pulse 80, respiration 20 on admission. Widal partial agglutination but no complete loss of motility. Dil. 1:40, time thirty minutes.

Operation.—Oct. 1, 1913. Nitrous oxid and ether anesthesia, Bennett and open, nitrous oxid gas two bags, ether 3 ounces, was begun at 2:55 p. m., and stopped at thirty minutes. Total time of operation was twenty minutes. Anesthesia was maintained for twenty-five minutes. Anesthesia before operation, ten minutes. Patient took anesthesia well. Skin was prepared by painting with iodine, 3.5 per cent., as usual. A right rectus incision 3 inches long was made through the abdominal wall into the peritoneal cavity. A cecum mobile was found, and an appendix that showed only slightly external inflammatory changes; tubes and ovaries were normal. The appendix was clamped, mesentery ligated, then removed. At this point patient began to swallow (?) air, and the stomach became markedly distended and presented itself at the laparotomy opening, extending well beyond the lower angle of the incision until the lower border of the stomach had reached the brim of the true pelvis. The stomach did not look pale with thin walls, as one would naturally expect from such distention, but it was solidlike, and looked more like a solid mass as a fibroid of the uterus with its red congested color and distended engorged vessels. The finger could hardly indent the wall of the distended stomach. The hand could not possibly be introduced through the wound into the abdominal cavity. It was absolutely blocked by the distended stomach. A stomach pump was hastily inserted with the greatest ease, meeting no obstruction at the cardia. The distal end of the pump was submerged in water. An enormous volume of gas was expelled, as evidenced by large bubbles that appeared in the water. The stomach began to empty and immediately returned to the normal. The abdominal wound was closed with No. 2 plain catgut in three layers, and the usual sterile dressing applied. At the time I was most

impressed by the absence of epigastric protrusion or other evidences of abdominal distention. The patient made an uneventful recovery.

Pathologic Report.—The specimen is an appendix 2 inches long, white, no adhesions, no perforations, vessels slightly injected. Histologically, sections show muscularis and peritoneal coats normal, mucosa slightly thickened and infiltrated, small follicular ulcers present on mucosa.

Diagnosis.—Acute catarrhal appendicitis.

Retrospective History (by Dr. Reilly).—For the past three years the patient has been troubled with constipation. For the past year she has been complaining of other digestive disturbances about once a week; she would have attacks of sharp pain in the epigastrium, going through to back; by lying flat on her abdomen the pain would disappear gradually. It was relieved mostly by belching; the patient never vomited. There were no diarrhea, no acid eructations, no heartburn. Dizziness had been almost constant since June last. This dizziness was so marked the last few weeks that the patient had to rest after dinner each day in order to obtain relief. She says she ran a race last spring while at a picnic; at the finish she was seized with sharp pains in the right iliac region. The pain lasted about a week.

CASE 2.—H. P., white man, aged 29 years, admitted to the Harlem Hospital Jan. 9, 1914, with unobtainable previous history, had been very constipated for a year and had had epigastric distress and pains. Pains came on usually from one to three hours after meals. It was impossible to get details of good history. He complained of gas and belching. For the last two weeks the pains had been very bad and he had been obliged to stop work and stay in bed. On several occasions, but especially in the last two weeks, he would wake up with his mouth full of what he thought was blood, which was dark in color. He had no cough, no shortness of breath, had never vomited, and had never seen blood in stool, but it had been very dark on several occasions. There had been no urinary disturbances.

Operation (for gastro-enterostomy).—Anesthesia, gas and ether, Bennett and open, two bags of gas, ether 5 ounces, was begun at 2:25 p. m.; operation, forty minutes; anesthesia, one hour; anesthesia before operation, ten minutes.

While the stomach, which had been pulled partly through the laparotomy wound, was being examined, it suddenly commenced to enlarge. We could distinctly feel and hear large gulps of air (?) entering the stomach and hear a noise in the throat; yet the patient was apparently not swallowing; that is, the thyroid cartilage was apparently still and there was no visible motion of the throat. The stomach was getting larger and larger and so tense that for a moment we were concerned with fear that it should rupture. Firm pressure was being made on the stomach, and an attempt was also made to replace that portion of the stomach outside within the abdomen; but it could not be done. A stomach pump was inserted with the outer end submerged in a basin of water, and large volumes of gas escaped, making itself manifest by bubbling up in the water. The stomach immediately returned to normal size and we proceeded with the examination. A healed-over gastric ulcer was found near the pylorus. A posterior no-loop gastro-enterostomy was performed. The patient made an uneventful recovery, and did not have any further dilatation of the stomach.

Retrospective History (by Dr. Reilly).—Complaint dated back two years. Pain comes on as usual immediately after meals and lasts from fifteen to twenty minutes. Patient has lost 7 pounds during the last year. Has bitter taste in mouth in the morning. Immediately after bowels move, he has severe pain in epigastric region above umbilicus often accompanied by sour eructations. The pain after meals often radiates to the back like a needle sticking him. Urine negative, sputum negative.

Blood Count.—Cells counted, 100; leukocytes, 9,000; erythrocytes, 5,200,000; polymorphonuclears, 72 per cent.; lymphocytes, 20 per cent.; hemoglobin (Sahli) 97 per cent.

It is interesting to note that there was wide divergence in opinion of all those present at both operations as to whether or not the patients swallowed. While we all agreed that we heard the noise in the throat in both cases, it was variously described. We mostly agreed that it was not an ordinary deglutition act. I believe that it was a reflex deglutition act—a kind of clonus of the muscles of deglutition so rapid as almost to escape detection, a spasmodic deglutition of air (aerophagy).

Common to the two cases was the very rapid noise in the throat, and no discoloration of the water in which the tube was submerged. It was a colorless gas that escaped. The stomach was absolutely empty; no fluid, no solid particles escaped through the tube in either case. Neither patient vomited or had abdominal distention after the operation. Neither of the patients had swallowed the anesthetic at the beginning of the anesthesia.

In Case 2, while the stomach was being held in our hands, it felt as if one was holding a gas bag while it was being filled intermittently with volumes of gas. Not only could we hear the noise in the throat and the rush of air into the stomach, but it could also be distinctly felt.

After my experience with the first case I determined to do certain things with the next case should I ever be so fortunate as to observe again such a condition. For instance, I had determined to collect the gas in a bell jar under water in order to ascertain if we had a sudden rapid elimination of gas into the stomach from some very complicated source of which at present we know little or nothing; but when the second case presented itself it came so suddenly and took us so by surprise that we were so much concerned not to let the stomach rupture that we neglected to do those things. It must be understood as a matter of course that the stomach always contains a certain quantity of gas, derived partly from gases swallowed with the saliva, partly from gases which pass backward from the duodenum. The saliva contains much more carbon dioxid than an equal volume of venous blood, a part of which is set free by the acids of the stomach. The air in the stomach is constantly undergoing changes whereby its oxygen is absorbed by the blood, and for one volume of oxygen absorbed, two volumes of carbon dioxid are returned to the stomach from the blood. Hence the amount of oxygen in the stomach is small and the carbon dioxid considerable.

If this be true, then it is not necessary for the patient to swallow the entire volume of air necessary for a given distention for two reasons: First, there is some slight increase in volume from expansion due to the increase in temperature in the stomach of from 20 to 30 F. above the temperature of the air of the operating room. The coefficient denoting the increase in volume for 1 degree F. of air whose elasticity is constant equals 0.002039, and it is probably higher; for the air heavily laden with the more expansive ether fumes, however, it is a negligible increase, to be sure, as compared to the second, the possible sudden doubling of its volume through the more complex mechanism of the interchange of gases.

The fact that both cases showed clear gas from the stomach demonstrates that if the elimination of the black hematogenous highly toxic material common to some forms of sepsis and intestinal paresis comes from the mucous membrane of the acutely dilated

stomach, then it does not escape until the distention has been maintained for a definite period. About this time I commenced to watch carefully after operation my patients who were having gastric dilatation, and they were frequently observed, particularly the nervous, high strung sensitive ones, wetting their lips with the tongue, then rolling up a combined bolus of air and saliva, and frequently swallowing. One little fellow in particular who had been operated on for abscess appendicitis with considerable peritonitis had to have his stomach washed two and three times a day because of the gastric dilatation and black vomit. He did not need another washing after being cautioned to cease swallowing. I now regularly instruct patients of this type that they must not swallow air.

Although Braun and Riedel, after considerable experimental work, concluded that they found no evidences of a valvular closure of the cardia, we could not empty by forcible pressure of four hands the stomach of Case 2, but in spite of our efforts to empty the stomach, at each gulp (?) more air would enter and none leave, as if there was a valvelike action somewhere, probably at the cardia.

Considering the enormous mortality of postoperative acute gastric dilatation, variously estimated at from 63 to 75 per cent., I am impressed most by the rapid recovery of both patients without after-effects. The lesson is perfectly obvious; early emptying of the stomach before the overdistention injures the capillaries of the mucosa, and the consequent rapid filling with enormous volume of highly toxic fluids supervenes. The high mortality is due to a too late recognition of the true condition. Acute dilatation of the stomach must be maintained for some time before it can be observed as a distention of the abdomen.

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THE PROGNOSIS OF AURICULAR FIBRILLATION *

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I shall endeavor to emphasize a fact in relation to patients with auricular fibrillation which seems to me to have attracted much less attention than is due to its importance; that is, that the presence of the irregularity does not greatly increase the gravity of the prognosis.

We have a fair idea of the amount of restricted activity imposed by the different lesions of the cardiac valves, but we are only lately coming to realize that an irregular heart does not of necessity seriously cripple the individual. Sinus arrhythmia we know may be disregarded, and usually looked on as normal; extra-systoles do not seem to lead to hypertrophy or cardiac failure even when present constantly over long periods of time; but the continuous irregularity of auricular fibrillation has been considered a grave abnormality of function. My endeavor will be to point out how this impression arose, and how it should be qualified.

The inception of fibrillation sometimes comes as a distinctly sudden event in the course of the patient's history, with the prompt appearance of symptoms of

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considerable severity. In these cases the heart rate is rapid from the start, in the neighborhood of 120 per minute. Most frequently the rate at onset is slower than this, in the neighborhood of 80 per minute, and this rhythm may be present for a considerable time without symptoms on the part of the patient. On attempting moderate exertion, the rate increases and dyspnea, palpitation or precordial discomfort appear, though at first they do not persist for long. Without treatment, the course is one of progressively increasing limitation of activity. The dyspnea or other symptoms appear with less provocation, the heart rate is more rapid in the intervals, edema appears and the patient is confined to his room or his chair. The heart cannot maintain its efficiency with the shortened diastole resultant from the rapid ventricular rate. It tires more and more easily and is finally completely unable to carry on a sufficient circulation.

This breaking down of the cardiac reserve takes a variable amount of time, the variations depending perhaps on the quality of the cardiac muscle, on the demands the patient makes on his heart, or on the associated pathologic conditions, for fibrillation rarely occurs in an otherwise normal individual. My impression is that this period of failure varies from two or three to many months, though it is usually impossible to mark exactly the time of onset of the irregularity.

Under energetic treatment with digitalis the cardiac failure in either type of case is promptly corrected. Twenty minims of the tincture four or five times daily, or an equivalent amount of the other preparations will usually relieve the dyspnea and palpitation in 24 to 48 hours, and by the fourth day the patient is quite comfortable and the heart rate reduced to 85 or 90. By reducing the dosage of digitalis properly its toxic effects can be avoided, and the heart rate kept in the neighborhood of 60 to 80 per minute. The patient will recover his strength and be able to go about, and will be discharged. He is now, from the physiologic standpoint, just where he was at the onset of fibrillation, except that the heart has suffered from the dilatation and will the more readily increase in rate when called on for extra effort. Increased rate means shortened diastole—that is, a shortened period of rest—and in a month or more cardiac insufficiency is well reestablished.

To show what is often the course in such a case I will introduce the history of a man aged 63, with a heart moderately enlarged, and irregular, but no murmurs. He was first seen in December, 1913, having had edema of the legs at various times for four years, with varying dyspnea on exertion. After three weeks he was so well that he stopped treatment. He returned in May, 1914, again with failing heart, and stopped treatment after two weeks feeling well. He returned with cardiac failure in September and November, 1914, and in January and March, 1915, each time stopping treatment as soon as he felt well. This man is a janitor and does sweeping and cleaning only, having no heavy work.

This is the cycle which gave to auricular fibrillation its bad repute. The chronic circulatory disability with periods of marked cardiac failure, afforded a most unpleasant outlook. We are learning now how to avoid this. The patient must not be discharged when he has recovered his strength after the dilatation, but must be kept under observation, must continue the digitalis, must in fact take enough of this drug so that

its effect on the vagus will maintain the heart at its optimum rate, usually about 70 per minute. In my experience this amount of digitalis has varied from 20 to 40 minims of the tincture daily in divided doses.

If by this means we maintain the heart at its optimum rate, the mere fact of irregularity seems to have little if any harmful effect on the patient's cardiac reserve under conditions of strain, and he is not subjected to those periods of circulatory failure which otherwise are a certain though irregular occurrence.

To illustrate what can be done toward making the patients comfortable and even useful and how much this gloomy prognosis must be modified, I will cite some cases under observation at present, in which the patients are able to be about and to work in spite of their irregularity, and some of them are performing unusual physical exertion. Besides the fibrillation, some of these patients have lesions which are of considerable gravity, and these lesions must be taken into account in considering the extent of the patient's disability.

REPORT OF CASES

CASE 1.—A man, aged 47, weight 250 pounds, had an enlarged heart, irregular, but with no murmurs. Systolic blood pressure 240 mm. Hg, diastolic 140 mm. Hg. The urine shows a trace of albumin and at times hyaline casts. He was first seen in June, 1914, with a history of gradually increasing palpitation and dyspnea over a period of six months, and of edema for a month. Under treatment he was soon about again and complaining only of weakness in the legs; was able to climb stairs and to walk without difficulty. He has had no cardiac failure up to the present except on one occasion to be mentioned, and for two periods was at work. During September, 1914, his work involved carrying 10 to 30 pounds weight up one or two flights of stairs. He would take from one to four or five loads, and then would have a period of rest. He felt so well that after three weeks he stopped the digitalis, and in ten days had to stop work on account of cardiac failure, with palpitation and dyspnea. His heart rate was now 132. He recovered under treatment, and during December he again worked, loading and delivering pianos, but had to stop this after a month owing to gradually increasing symptoms, in spite of continuing digitalis. His heart rate was 100, and he showed slight edema of the legs, and become dyspneic after walking six blocks. He was soon again in good condition, and has had since then a sedentary occupation, but must take 10 minims of the tincture twice daily to maintain his comfort, and his heart rate at 85. There have been three months of cardiac insufficiency during the last ten months; part of this was due to stopping treatment.

CASE 2.—A man, aged 61, with mitral stenosis and auricular fibrillation, was first seen in August, 1914, with a history of dyspnea on exertion, of varying severity for a period of three years. For two weeks he had had marked palpitation, dyspnea on walking and severe precordial pain. There was no edema. The heart rate was 145 per minute. This man is a janitor, and besides considerable sweeping and brass polishing has to keep a large coal furnace going. After a month, by September, 1914, he was able to work and has continued to do so, taking 10 minims of the tincture three times daily. His heart rate is about 70 per minute. During December he was called on to shovel coal into the cellar. He could not do this for more than half an hour without palpitation and dyspnea. This is the only occasion on which he has complained of cardiac symptoms during his eight months under treatment.

CASE 3.—A woman, aged 64, has mitral regurgitation, roughened aortic cusps and a somewhat enlarged and irregular heart. She was first seen in March, 1912, with moderate edema, considerable dyspnea and cough. This patient does housecleaning for her family, and washing and ironing, and has not been decompensated or had cardiac symptoms since

coming under treatment, a period of three years. She takes 10 minims twice daily and has a heart rate of 60 or 70 per minute.

CASE 4.—A man, aged 25, shows an evident mitral stenosis. In November, 1912, following a very hard basket-ball game he was attacked by precordial discomfort, and palpitation, which decreased and disappeared during a month under treatment. His pulse, though regular before, was now irregular, and has remained so. By January, 1913, he had no cardiac symptoms and medication was stopped. In June, 1913, he again had slight palpitation and dyspnea which was relieved by a month of digitalis, and since then he has been under constant observation though taking no digitalis for periods of from three to four months at a time. He is an active young man in a large printing house. He played basket ball even when fibrillation was present until advised to stop it in March, 1914, and since then has kept up regular gymnasium work. He is able to run for a quarter mile without bringing on more dyspnea than would be shown by an average normal person not in training. His heart rate is usually about 75 and he has been free from cardiac symptoms for two years.

CASE 5.—A man, aged 51, with systolic blood pressure 210 mm. Hg, diastolic 130 mm. Hg, has a heart moderately enlarged and irregular, and showing no murmurs. The urine, at times, contains albumin and hyaline casts. He was first seen in July, 1914, having had increasing dyspnea on exertion and a substernal tightness for the preceding 4 to 6 weeks. His heart rate was 120. There was no edema. He returned to work in two weeks and has continued until the present under the influence of 10 minims of the tincture three times daily, the heart rate being 80. He can climb stairs freely and his work necessitates handling though not lifting 60-pound packing crates. He has been nine months under treatment without symptoms.

CASE 6.—A man, aged 65, with a heart considerably enlarged, irregular and showing no murmurs, was seen in September, 1914, having had some dyspnea on exertion for a year or so, increasing lately and accompanied by edema. He did not have these symptoms after a month of treatment and has been living a normal life since then. He can take long walks and climb stairs with ease. He takes no other exercise and is not engaged in work. He takes 10 minims of the tincture three times daily or if he feels a little out of sorts every four hours. He thinks that increasing the dose makes him feel better though the heart rate is always about 80. He has been seven months under that treatment.

CASE 7.—A man, aged 53, with a moderately enlarged and irregular heart, but no murmurs, was first seen in November, 1913, having had dyspnea on exertion for four months and lately edema. He worked as elevator man and porter in a wholesale house and handled boxes weighing about 30 pounds, loading them on and off the elevator. He returned to work after a month, but on stopping digitalis in January, 1914, his symptoms returned. He was away from work only ten days and has continued since then taking 20 minims of the tincture twice daily and being free from complaints. His heart averages 75 beats per minute. He was free from symptoms for seventeen months, except for a short time when he stopped treatment.

These patients are all in excellent condition at present and have continued so as long as they have remained under treatment, a period varying from seven months to three years. They are free from cardiac symptoms under the ordinary demands of their life. Two of them, Patients 1 and 2, show inability to do work of a very severe character which most of the others have not attempted; Patient 4, on the other hand, had he a regular heart, would be considered to have a remarkable degree of cardiac reserve for one with mitral stenosis.

From the course of these patients we might be able to draw two conclusions, one as to the treatment of

such cases and one as to their prognosis. The question of treatment I shall not dwell on because it is pretty generally felt by now that patients with auricular fibrillation should have continual observation and almost continual medication even though they are about and feeling well. The heart needs a sufficient period of rest between beats in order to avoid fatigue and maintain its functional integrity, and this prolongation of diastole can only be obtained by keeping the heart slowed by digitalis to about 70 beats per minute. For this purpose very small doses do not suffice; at least 10 minims of the tincture, twice daily, are usually necessary.

The question of prognosis I wish most to emphasize. It should not be so gloomy as it is at present. Here are seven patients having this irregularity. They are all comfortable, all but one at work, and some of them are performing exercise of no inconsiderable severity. They are doing this, not only in spite of their irregular heart action, but also in spite of the endocarditis, hypertension or myocarditis which is present in each respective case. Were the irregularity of such serious import as it is often considered to be we could not have patients so free from discomfort as these are for such long periods of time.

Cowan, in his recent book, states that the prognosis in this type of irregularity is always more grave than in comparable cases with sinus rhythm. "The inception of permanent auricular fibrillation is the beginning of the end, though many patients are able to lead quiet lives for a year or two." Lewis, in Osler's System of Medicine, says that fibrillation "loads an already defective muscle with an extra burden, the burden of increased ventricular rate and shortened diastole."

Mackenzie appears to feel less pessimistic as to the prognosis of the arrhythmia. "It is in all probability the extent of the divers associated pathologic conditions which determines the prognosis of auricular fibrillation." He has seen patients who in spite of treatment failed rapidly after the onset of the irregularity, but has "repeatedly seen fibrillation set in and the individual be altogether unconscious of its presence" for a time. He reports the case histories of three patients who were about and living nearly normal lives for six years after the irregularity was noticed, and one for twelve years after.

It is but comparatively recently that we have learned the necessity of continual medication in the presence of auricular fibrillation. Mackenzie, who was the first to make use of it, will be noticed as having given the least severe prognosis. I feel that we should go even further than Mackenzie and say that if the heart is kept slowed by proper treatment the prognosis of auricular fibrillation should be no more grave than that of the associated pathologic condition.

SUMMARY

The continuous irregularity of auricular fibrillation has been looked on as causing a poor prognosis. This is due to stopping treatment as soon as the patient recovers from an attack of acute cardiac failure.

By continuing the digitalis in sufficient quantity to keep the heart slowed to about 70 beats per minute, there will not be a recurrence of the cardiac failure.

Seven such cases are cited in which the patients have remained under treatment without cardiac symptoms for periods of from seven months to three years.

Since these cases are all complicated by conditions of considerable gravity, and since they have performed such considerable physical exertion so long as their heart was maintained at a slow rate, it is concluded that the irregularity, per se, adds little or nothing to the gravity of the prognosis of the individual.

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TROMBIDIOSIS

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MINNEAPOLIS

Trombidiosis, or to use perhaps a better term, trombidiasis cutis, is a condition of the skin, due to the attacks of the red jigger. It has long been known, although it is evidently infrequently diagnosed, in spite of the fact that hundreds and thousands of cases occur in the United States each summer. In Minnesota there are many hundred cases each summer during the months of July, August and September. Diagnosis is important, as proper treatment relieves the patient of many days of suffering, amounting in some cases to a kind of torture, as Erasmus Wilson¹ has expressed it; and clears up many puzzling cases of skin disease occurring during the summer season. Synonyms are "autumnal erythema" and "harvest disease."

The parasite which causes this condition in Minnesota belongs, in the cases which I have examined, to the species *Trombidium irritans* or *Leptus irritans* (Riley). The hexapod larva only attacks man. The adult jigger has eight legs and is found on bushes, grass, etc., never attacking man. The *Trombidium irritans* or red jigger is also called the harvest bug, harvest mite, mowers' mite, red bug, chigger and gooseberry bug. It belongs to the family of Trombididae under the order of Acarina. There are two species in America, the *Trombidium americanus* and the *Trombidium irritans*. The *Trombidium americanus*,² the rarer form of the jigger in America, is pyriform in shape. It buries the anterior half of its body in the skin, causing a papular eruption. It attacks children especially, and is often found in the scalp and axilla.

The *Trombidium irritans*, the cause of trombidiosis in Minnesota and probably most of the cases of trombidiosis in the United States, is rounded or oval, and orange red. It is from 0.178 to 0.1855 mm. in length, and from 0.1295 to 0.140 mm. in breadth. It has three pairs of long legs (0.1925 mm.), covered with numerous fine hairs. These hairs are not so coarse or so numerous as those shown in the illustration in Kuchenmeister.³ Each leg terminates in fine claws. The head shows very clearly the lancetlike piercing apparatus, by means of which the mite gets under the skin.

The *Trombidium irritans* is found here mainly on the grass and bushes near the numerous lakes and streams, especially where the soil is sandy. In Minneapolis the red jiggers are found at the sandy beaches at Lake Calhoun, often attacking the bathers at the Public Baths, causing considerable anxiety to some

of them, who fear they have some serious skin disease. They are also quite frequently found at Lake Minnetonka. The red jigger may be found on grass, bushes, corn, clover, grapevines, gooseberry bushes, weeds, blackberry bushes, beans and room flowers. In England the red jigger is found especially in chalky or limestone districts near the sea. The same or a similar parasite is found on the dog, mole, fieldmouse, grasshopper, fly and mosquito.

The red jiggers or mites deposit eggs in or on the ground in the early part of July.⁴ As many as 400 of these brown spherical eggs may be found massed together. After a short time the larvae with three pairs of legs appear. Normally they feed on various insects as plant lice, young caterpillars, etc. It is at this stage that they may attack man. In a few weeks, after feeding on some kind of insect, the larva changes to the mature adult mite. The mature mite is parasitic on insects, but does not attack man. The mature mite hibernates in sheltered places or in the soil and appears the next spring. There seems to be but one brood a year.

SYMPTOMATOLOGY

The *Trombidium irritans*, on finding itself on the human body, runs about very actively, and soon selects a place to bore into the skin. By means of its long legs the jigger raises its body and pierces the skin at right angles, and if possible, along a hair follicle. If undisturbed it makes its way until its body is entirely concealed in the skin, where it dies in about a week. In one or two hours the jigger has sunk its head into the skin, and the patient commences to experience a marked itching sensation. If the patient is seen at this time he will unerringly point out the location of every jigger on his body, even if forty or more are present, as in one of my cases. After ten or twelve hours the animal is completely buried in the skin. Usually marked urticarial swelling now occurs, so that often the jiggers cannot be seen, even after very careful examination. Erythematous, urticarial, papular, pustular and eczematous lesions may occur, but urticarial lesions constitute the ordinary form of the disease. The itching is greater than that from any other parasite. Banks⁴ states that the red bugs burrow beneath the skin and cause intense itching. "It is an unnatural situation for the mites, and they soon die; but the waiting is not pleasant."

The jiggers are often arranged in semicircles or in the form of a necklace, especially when occurring on the body. The *Trombidium irritans* may be found on the feet, ankles, legs, arms and, especially in women, about the breasts and waist line. Fever may be caused by the jiggers in some cases. Some persons are immune and never suffer from attacks of the *Trombidium irritans*, even when in badly infested places, where their companions are severely attacked. Other persons are frequently attacked even when they stay a short time in places that are not badly infested. The reaction of different individuals also varies, some having marked urticarial lesions, and others simply an erythema about the bite. The urticarial swelling about the bite is markedly increased by rubbing and scratching.

DIAGNOSIS

The disease occurs only in July, August and September. Severe itching, with an urticarial eruption on

1. Wilson, Erasmus: Diseases of the Skin, 1857.

2. Duhring, L. A., and Stelwagon, H. W.: Pepper's System of Medicine, 1886, iv.

3. Kuchenmeister, Frederick: Manual of Parasites, Sydenham Society, 1857.

4. Banks, Nathan: Proc. U. S. National Museum, 1905, xxviii.

the arms, legs or trunk, in patients who are near the lakes during these months, is suggestive of trombidiosis. On close examination, the bright orange-red mite can be made out, often in the center of an urticarial papule. Trombidiosis must not be confused with the straw itch due to the *Pediculoides ventricosus*. Straw itch is caused by a similar mite, which, however is white, and does not burrow into the skin. The disease caused by the *Sarcopsylla penetrans* or "jigger flea" does not occur here.

PROPHYLAXIS AND TREATMENT

Prophylaxis consists in keeping away from infested places, and, if exposed, a bath should be taken as soon as possible to remove or drown the mites.

Practically all the books and articles on this subject recommend sulphur ointment, alkaline washes, etc., which certainly give little relief, and do not mention the extraction with a needle and treatment with tincture of iodine, which I have found very effective. If diagnosis is made during the first twelve or twenty-four hours, all the jiggers can be easily removed with a needle. This requires good eyesight and some skill and practice. The jiggers as removed should be placed in a bottle containing alcohol, as some of the jiggers are very active after removal with a needle, and will again bore into the skin if they have an opportunity to do so.

After twelve hours, removal is more difficult, because of urticarial swelling, although often many may be found and removed. A peculiar feature of these cases is that the pruritus is so annoying that all patients enjoy the search for the mite, even though considerable bleeding results from the use of the needle. After removal of the mites, relief is pronounced, and the lesions quickly disappear. After each jigger is removed, the spot should be touched with tincture of iodine. This is also the best remedy for the lesions in which the jigger cannot be found. In these cases, painting tincture of iodine on each day gives considerable relief, and within a week the jiggers die and the pruritus ceases.

SUMMARY

1. Trombidiosis or trombidiasis cutis, the condition of the skin due to the attacks of the red jigger, occurs commonly in Minnesota and probably in nearly all the states of the Union.
2. Trombidiosis occurs only in July, August and the early part of September.
3. Removal of the jiggers by means of a needle and the application of tincture of iodine is the most effective method of treatment.

Knowledge, the Enemy of Quackery.—"No laws will ever be able to prevent quackery, while people believe that the quack is as honest a man, and as well qualified, as the physician. . . . The most effectual way to destroy quackery in any art or science, is to diffuse the knowledge of it among mankind."—William Buchan, M.D., in *Domestic Medicine*, 1783.

THE DETERMINATION OF PULSUS ALTERNANS BY THE SPHYGMOMANOMETER

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BUTTE, MONT.

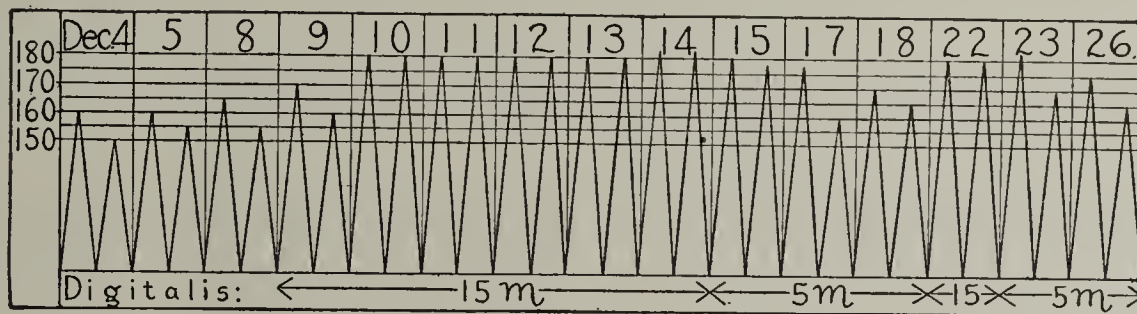
The grave significance of pulsus alternans has been abundantly confirmed. Any simple method for the detection of the condition certainly deserves emphasis. Herrick¹ calls attention to the value of the sphygmomanometer in diagnosing alternating pulse. He says:

When the systolic pressure is being tested in a patient in whom an alternating pulse is present, a manometer pressure may be reached that cuts off every other beat—the weaker beat—thus halving the rate of the pulse at the wrist.

I have used the same method for some time and have found it reliable and most helpful. The following case illustrates the condition and confirms Herrick's findings. In this case the effect of digitalis therapy on pulsus alternans is well shown merely by following the blood pressure. The blood pressure was taken by the auscultatory method.

Mr. X., aged 53, entered Murray Hospital, Dec. 4, 1914, complaining of marked dyspnea and a severe cough. The family history was negative. The patient had always been

exceptionally strong and had lived an active outdoor life. He gave a history of hard chancre on the finger twelve years previously, followed by some skin manifestations. He had thorough mercurial treatment at the time, and three years ago



First four days, one half of beats heard at from 160 to 170 mm. Hg; all the beats heard at 150 to 160 mm. Hg; definite alternation on 15 m inims tincture of digitalis every four hours, the blood pressure rose to 180 mm. Hg and alternation disappeared.

salvarsan, with repeated courses of mercury since. Four years ago the patient received a severe injury to the thorax and since then has been slightly dyspneic. Otherwise, the personal history is negative. The patient was seen at this hospital in 1911; then, the Wassermann was negative. The patient showed rather marked arteriosclerosis and mild chronic nephritis. The blood pressure at that time was 190 mm. Hg. The urine had a specific gravity of 1.010, a trace of albumin, and an occasional hyaline cast. The heart was slightly enlarged.

On his present admission to the hospital the patient gave a history of a heavy, severe cold several weeks before, followed by marked dyspnea, and a persistent cough with asthmatic attacks at night. On examination, the patient showed marked myocardial weakness. The heart, both to percussion and Roentgen examination, was very large; the right heart was markedly dilated. The pulse was of fair volume, rather high tension, regular rhythm, rate one hundred per minute. No alternation could be detected by the touch. The patient was markedly orthopneic. There were a few râles at the bases of the lungs. There was slight edema of the ankles and of the eyelids. The Wassermann and luetin tests were negative. The urine was 600 c.c. for the twenty-four hours, specific gravity 1.022, and showed a trace of albumin and an occasional hyaline cast; occasionally there was occult blood. The systolic blood pressure was 160 mm. This, because of the high pressure recorded in 1911, was considered cause for alarm. While the systolic

1. Herrick, J. B.: Pulsus Alternans Detected by the Sphygmomanometer, *THE JOURNAL A. M. A.*, Feb. 27, 1915, p. 739.

blood pressure was being taken, it was observed that, between 150 and 160 mm., only one half of the beats could be heard; there was typical alternating pulse. The heart showed tick-tack rhythm. The chart shows the condition well and the variation in the pulse when digitalis was administered.

December 9, the highest systolic pressure was 170 mm. One half of the beats came through at this height; all of the beats came through at 160 mm.; all sounds disappeared at 130 mm.; there was definite tick-tack rhythm. On that day the patient was given tincture of digitalis, 15 minims every four hours. Twenty-four hours later the blood pressure went to 180 mm., and all beats went through at this point; the alternation had entirely disappeared; all sounds were gone at 140 mm.; the tick-tack rhythm had disappeared; the second sound was quite sharply accentuated.

December 11, 12 and 13 the blood pressure remained at 180 mm., with no alternating quality present. December 14, the dose of digitalis was reduced to 5 minims every four hours. December 15, there was slight alternating and two days later the condition was marked. The highest systolic pressure was 178 mm., and all beats came through at 160 mm. December 18, the patient was again put on 15 minims of the digitalis. The blood pressure promptly rose and showed no alternation. Two days later the dosage was again reduced to 5 minims, and pulsus alternans promptly returned.

The patient left the hospital, December 26, much improved, but still dyspneic on slight exertion. He soon began moderate work. His doctor reports that the decompensation rapidly returned. By March 1, 1915, there was marked edema of the extremities, with extreme ascites. The patient died March 28, 1915.

CONGENITAL ABSENCE OF PATELLAE

AND OTHER PATELLAR ANOMALIES IN THREE MEMBERS OF SAME FAMILY

GEORGE RUBIN, M.D.

CHICAGO

Although a number of observers have reported cases of congenital absence of patellae, yet out of six standard textbooks of anatomy consulted, only one (Piersol's) calls attention to this anomaly. It says:

Congenital absence of the patella on one or both sides has been noted in a number of instances, and has in some cases been observed in several members of the same family. The functional disability was slight or altogether unnoticeable.

These observations agree perfectly with the findings in cases here presented.

Another anomaly which exists in two of the three cases is an incomplete development of the thumb nails. The two conditions, namely, absence of patellae and absence of thumb nails, are strangely correlated.

Little¹ collected eighteen cases in a family of four generations in which there were no patellae and no thumb nails. He does not state whether the two conditions coexisted in all the cases or whether some had one and some the other, or how many had both anomalies. It is, perhaps, reasonable to suppose that those conditions existed singly in certain individuals. Heredity is certainly a strong factor in these cases. The three cases in this report show plainly the influence of heredity.

CASE 1.—Mrs. W., aged 33, born in France, had unimportant family history except that her mother had no thumb nails. The patient had had rickets in infancy; otherwise

the personal history was uneventful until about ten years ago, when a heart lesion was discovered. The lesion is still present and consists of a mitral regurgitation. Except for the murmur, the patient shows no other symptoms. The thumb nails are practically absent. Some horny tissue is present right near the matrix. The right patella is about half the normal size. The left patella is no larger and is displaced, but the latter condition was due to an accident.

CASE 2.—Robert W., aged 10, son of Mrs. W., Case 1, also born in France, had rickets, but no other conditions that would have any bearing on this case. While looking over the boy for an eruption which was diagnosed measles, my attention was drawn to the peculiarly shaped knee. The anterior aspect was flat and looked very broad in proportion. On close examination no patellae could be felt. This was later confirmed by roentgenoscopy. The nails of the thumbs were normal.

CASE 3.—Henriette W., aged 4 years, born in Chicago, daughter of Mrs. W., Case 1, and sister of Robert W., Case 2, was a marantic baby and has still symptoms of pronounced rickets. There were no other conditions relevant to the case. The knees were examined on account of the findings in her brother and with the same result, that no patellae could be found. It was also verified by roentgenoscopy. The thumb nails are partly developed.

The patella is known as the largest sesamoid bone in the body. The anterior surface is covered by the fibers of the quadriceps extensor tendon, which serves as its periosteum. The development begins in the third fetal month as a cartilaginous deposit. Ossification begins between the second and fifth year. The bone is not fully formed till after puberty or even later. The function of the patella, according to Lickley,² is as follows:

The patella forms a more suitable pulley for movements around the condyle than the tendon itself. A minor advantage is of keeping the upper end of the patellar ligament in a plane well in front of the axis of flexion and extension. There is also a defensive function. The most important function is to supply the quadriceps extensor muscles with a lever on which to act.

As far as can be ascertained by physical examination and observation by physician and individual, no inconvenience is suffered on account of absence of the patellae. Being mindful of the late and possibly delayed ossification, Dr. Van Horn, who has done the excellent Roentgen-ray work in these cases, used especially soft tubes so as to outline any cartilaginous deposits if there were any, and at the same time to see the course of the tendon. The latter could be easily traced.

It seems difficult to explain these anomalies first singly, that is, the absence of patellae or thumb nails, and second, the relationship of the two anomalies.

In the three cases here presented there seems to be present one common condition, and that is rickets. Whether or not that can be assigned as the cause would be difficult to say. Perhaps an intra-uterine rickets with or without postnatal rickets is the cause of these peculiar phenomena.

25 East Washington Street.

To Facilitate Expulsion of the Placenta.—I have often experienced the ease with which the placenta presents itself at the vaginal orifice on requesting the patient to flex the knees and raise the hips slightly from the bed—of course the fundus is firmly grasped before and during the procedure.—J. T. LELAND, M. D., Herman, Minn.

1. Little, quoted by Thorndike: Tr. Am. Orthop. Assn., Philadelphia, 1898.

2. Lickley, J. Dunlop: Jour. Anat. and Physiol., 1904, xxxviii.

Special Article

PRACTICAL PHARMACOLOGY*

(Continued from page 1989)

XXIV

EVACUANTS—(Continued)

4. EVACUANTS ACTING ON THE RECTUM

Irritation of the rectum reflexly induces peristalsis in the colon and leads to evacuation of the feces. This rectal irritation may be induced in various ways, the simplest method being a form of local irritation by means of a suppository of soap or glycerin, the injection of a small amount of glycerin or distention by the injection of cold water, or warm water to which soap, glycerin, or other mild irritant, has been added.

If constipation is the result of sluggishness of the movements of the colon, the moderate distention of the rectum by cold water alone will usually suffice to cause a normal evacuation. When the feces have become hard and dry through absorption of an undue amount of their fluid, the normal peristaltic movements are insufficient to drive the intestinal contents along, especially if these have become aggregated into large masses, and the addition of soap to the warm water which is injected slowly, and in sufficient amount so that it penetrates into the colon, aids in softening the masses so that they become at once more plastic and more slippery, and then the peristalsis which is induced by distention of the rectum will suffice to evacuate them.

It is probable that a tube cannot be passed through the rectum into the colon, but if the fluid be injected slowly and with very slight pressure—not more than that exerted by holding the reservoir a foot above the recumbent patient—it will pass gradually into the colon, and may even find its way into the ileum.

Daily stools do not invariably prevent the accumulation of such dry, hard masses of fecal matter, for the colon is so voluminous that soft feces may be forced past such masses which gradually increase in size until they finally obstruct the entrance into the rectum, and cannot be evacuated until they are softened or otherwise broken up.

A warm 5 per cent. solution of sodium sulphate is preferable to water alone for such an enema, because the salt delays the absorption of the water, and permits it to act on the fecal masses for a longer time than it would otherwise.

Glycerin is irritant through its capacity for withdrawing water from the tissues. When introduced into the rectum it sets up peristalsis almost at once by reflex action on the colon. It may be injected in pure form, or added to water or used in the form of a suppository.

Soap may be added to warm water to increase its irritant action on the rectum, or to soften fecal masses as just mentioned, or it may be used in the form of a cone, cut from a piece of castile soap and inserted about 2 inches.

Molasses, oil of turpentine and various other irritants are used as additions to warm water enemas, but they do not require detailed discussion.

* This is the twenty-fourth of a series of articles on useful drugs—on practical pharmacology for the general practitioner. As soon as completed, these articles, elaborated by additional subjects, will be published in book form.

DOSAGE

Glycerin as such is injected into the rectum in doses of from 4 to 15 c.c. (1 to 4 fluidrams) or used in the form of a glycerin suppository. When used in the form of an enema it is usually added in quantities of from 15 to 30 c.c. (4 to 8 fluidrams) to from 500 to 1,000 c.c. (1 pint to a quart) of warm, but not hot, water, to be injected slowly at one time.

Soap enemas are made by dissolving not exceeding 5 per cent. by weight of either hard or soft soap in from 500 to 1,000 c.c. (1 pint to 1 quart) of lukewarm water. Cold water, while often efficient, is not so uniformly satisfactory as water at, or slightly above, the body temperature when fecal masses are to be softened.*

5. MISCELLANEOUS MEASURES

It has been stated by competent observers that many cases of intestinal stasis or chronic constipation are due to an overdigestion of the food as compared with normal conditions, and that the absence of bulk and necessary moisture retard or otherwise prevent peristalsis.

An effort has been made to overcome these, largely mechanical, factors by the administration of substances which are not in any way affected in the stomach or intestines but which will increase the bulk of the feces, prevent undue absorption of moisture and thus facilitate elimination. It has long been recognized that certain foods, such as fruits and whole wheat bread, containing a comparatively large percentage of indigestible material, will assist materially in establishing regular habits.

Much the same effect can be obtained by the administration of agar-agar and of liquid petrolatum or liquid paraffin.¹ The former has long been used in bacteriologic work as a solidifying material for culture mediums. It is a gelatin-like substance extracted in the East Indies from various seaweeds and has the property of absorbing and retaining water. It prevents the dehydration of feces in the large intestine by holding water tenaciously and thereby serves to increase the bulk of the feces.

Liquid petrolatum or liquid paraffin has long been used to accomplish much the same purpose, though originally it appears to have been given largely with the idea of lubricating the feces. When administered before meals it evidently enters the intestine and is there mixed with the food material, thereby increasing the bulk of the intestinal material, protecting it to some extent from digestion and preventing the absorption of the contained water.

DOSAGE

Agar-agar is given in doses of from 5 to 15 gm. (75 to 240 grains) of the coarsely comminuted substance and may be taken either in water or mixed with food.

Liquid petrolatum should be a colorless and tasteless product, and may be prescribed as "Petrolatum Liquidum Leve or Grave," in quantities of from 15 to 30 c.c. (4 to 8 fluidrams) half an hour

* Owing to lack of space the materia medica of this group is omitted from THE JOURNAL. It will appear when this series is published in book form.

1. For a recent study of the clinical use of heavy mineral oil see Bastedo, W. A.: Clinical Experiences with Liquid Paraffin (Liquid Petrolatum), Report to the Committee on Therapeutic Research of the Council on Pharmacy and Chemistry, THE JOURNAL A. M. A., March 6, 1915, p. 808.

or an hour before meals, or in larger doses, from 30 to 60 c.c. (1 to 2 fluidounces) on retiring. Being tasteless and odorless, it can be drunk from a spoon or wineglass, though if preferred, a small amount of oil of peppermint may be added to give a distinctive flavor.

CHOLAGOGUES

Cholagogues are agents which stimulate the liver cells, causing an increased secretion of bile. The greater part of the bile which is secreted normally disappears during its passage along the intestine, but various drugs which increase intestinal peristalsis, or which interfere with the decomposition of the bile by bacteria, cause it to appear in the feces in increased amounts, and such drugs were formerly termed cholagogues, though most of them have no action on the liver cells. Later investigations have shown that very few drugs except the salicylates and bile itself have any true cholagogue action.

Bile is partly an excretion, containing such waste products as cholesterin and lecithin, but cholagogues are employed only with reference to the influence of bile in promoting the splitting and absorption of fats in the intestine, or as an adjuvant to the action of certain evacuants, such as aloes. Bile also indirectly promotes the digestion of proteins in the intestine, since unabsorbed fats envelop proteins and interfere with the action of digestive enzymes on them.

The secretion of bile varies with the amount of blood which circulates through the liver, and it seems probable that a hormone present in the blood stimulates the liver cells to secrete bile. The introduction of hydrochloric acid into the duodenum causes an increased secretion, and it seems probable that this is due to the secretion which is formed from prosecretin by the acid.

Ox bile, or salts of the bile acids and salicylic acid are the only drugs which are commonly used as cholagogues, and their action is feeble at best.

The appearance of fat in undue amounts in the feces suggests the use of cholagogues, but there are seldom any clear indications for their use in adults, except perhaps as an addition to evacuants.

Cholagogues are contraindicated in the presence of jaundice due to obstruction of the bile ducts.

DOSAGE

The dose of the purified ox bile is 0.5 gm. ($7\frac{1}{2}$ grains), but much larger amounts may be used. It is best administered in the form of pills, or preferably in gelatin capsules which have been treated with formaldehyd to render them less soluble in the stomach.*

EMETICS

The first stage of the actions of emetics begins with nausea, salivation, increased bronchial secretion, usually sweating, and often a flow of tears. Great muscular weakness attends this stage and the act of vomiting is usually preceded by increased respiration which then becomes irregular and ceases during the vomiting. Usually the saliva drools from the mouth of animals just before emesis occurs.

Vomiting is accomplished by the coordination of a series of actions which include the following: The pylorus is closed, preventing the passage of the contents of the stomach into the intestine; there are anti-

peristaltic movements of the antrum of the stomach, which move the contents into the fundus; the cardia relaxes while the abdominal muscles contract, compressing the stomach and forcing its contents out through the esophagus and the mouth, and sometimes through the nose. The muscles of respiration are fixed, preventing the aspiration of the vomitus.

The reflexes which control the several active movements and inhibitions of the vomiting act are coordinated through a center in the medulla which lies near that of respiration and which is evidently associated with it physiologically. This center is spoken of as the vomiting center, and stimulation of it either directly or reflexly leads to nausea and vomiting. Occasionally the process is arrested before vomiting actually occurs, and the stage of nausea and general muscular depression may then persist for some time.

There are two types of emetics: those which irritate the sensory nerve ends in the gastric mucous membrane in a specific manner, whereby vomiting is reflexly induced, and those which act directly on the center without coming in contact with the gastric mucous membrane.

Nearly all drugs which violently irritate the mucous membrane of the stomach cause vomiting unless they also induce narcosis or collapse before the emetic action can be developed, and this coordination of the several actions requires some little time, usually from two to ten minutes. Sensory irritation in the stomach does not always cause emesis, and certain drugs induce nausea and vomiting without causing painful stimuli.

The fact that irritants so commonly cause vomiting has given rise to an unfortunate misconception, and it is frequently argued that a given substance must irritate the stomach directly and induce nausea and vomiting if it is irritant when applied to the mucous membranes of other areas, such as that of the nose or conjunctiva. It is true that a substance may be intensely irritant to the nasal mucous membrane and yet be virtually without action on the stomach. This is precisely what one should expect, for one of the functions of the nasal mucous membrane is to protect the air passages against the entrance of foreign bodies, and it accomplishes this by causing sneezing due to irritation of the nasal mucous membrane, hence the latter acquires a high degree of excitability, but the stomach is frequently subjected to the action of a great variety of irritant vegetable substances and it acquires a high degree of tolerance to many of them because its function is to retain ingested material.

Many drugs—perhaps a much larger number than is generally supposed—act directly on the vomiting center. When emesis is the object sought, it may be of less importance to determine the seat of the action than it is in those cases in which it is a side action. We do not know the mechanism of the emetic action of ipecac in full,² but this does not interfere with our employment of it, whereas it is of the first importance to know whether this effect can be avoided by proper methods of administration when it constitutes a side action of a drug which is used for its systemic effects. If such an action is central it can be avoided only by proper regulation of the dosage, and not merely by the choice of the channel by which it is administered.

It is understood that these remarks apply to the usual conditions observed in the more common diseases, and not to those in which the stomach is

* Owing to lack of space the materia medica of this group is omitted from THE JOURNAL. It will appear when this series is published in book form.

2. Recent experiments indicate that the action is at least partly central.

extraordinarily irritable, for even the sight of food or the odor of a drug may cause emesis in such exceptional conditions, and a drug which would have no effect under ordinary circumstances might then cause nausea and vomiting. A few drugs which irritate the stomach directly are also capable of stimulating the vomiting center when they enter the circulation in sufficient concentration, this being probably true of sodium salicylate, even when it is administered in dilute solution.

Nausea of various grades and emesis are encountered so frequently as side actions that it may be worth while to point out the cause in some of the cases in which it is commonly encountered: Nearly all readily soluble salts either dry or in concentrated solution (from 5 to 20 per cent.), cause irritation of the stomach; this can be avoided by using them in dilute solutions.

Hydrated chloral is also very irritant to the stomach, and should be administered in dilute solution, and preferably in a bland fluid.

The digitalis bodies without exception, drugs of the picrotoxin group, including wild parsnips, which are frequently eaten by mistake for parsnips, tobacco or nicotin, lobelia, morphin, atropin (occasionally pilocarpin), and related substances stimulate the vomiting center directly when overdoses are administered by any channel.

Emetics were used formerly more frequently than they are at present, the stomach tube being employed now in the majority of cases in which it is desired to empty the stomach after poisons have been swallowed, and even after their subcutaneous injection if they are excreted into the stomach, as morphin is. The stomach tube may be used for the removal of fermenting masses of food, but tenacious curds, undigested meat, and vegetables which have not been masticated properly, may obstruct the tube, in which case emetics are preferable.

The removal of poisons from the stomach requires the use of rapidly acting emetics when the stomach tube is not available. Emetics are also used to remove foreign bodies from the esophagus and from the upper respiratory passages, and to relieve spasm of the larynx and bronchi in asthma, in nondiphtheritic croup and analogous conditions.

It is frequently stated that emesis may facilitate the passages of gallstones through the bile duct, and it is possible that their action is explainable at least in part by their causing muscular relaxation of the duct.

The nauseant stage of the action of the emetics will be discussed when the expectorants are considered.

It is often stated that emetics are contraindicated after corrosive substances have been swallowed, because of the danger of rupturing the walls of the stomach when they have been weakened by the corrosives, but this danger must be remote in the great majority of cases which the general practitioner is called on to treat. The mechanism of emesis which has been described does not depend on the contraction of the musculature of the stomach alone for expelling the contents, and the contractions of the abdominal muscles serve to compress the walls of the stomach against the contents, but this does not subject them to any severe tension which alone can cause their rupture. Certainly the removal or neutralization of caustics demands action, even though it may involve some risk.

EMETICS ACTING DIRECTLY ON THE STOMACH

IPECAC

Ipecac contains two alkaloids which contribute to its actions, one of which is of relatively little importance. These are cephaëlin, to which the emetic action is due for the greater part; emetin, which was so named when it was supposed to be the only active constituent present; and psychotrin, which is unimportant.

The different alkaloids of ipecac have not been studied in great detail, and we are not able to determine in every case to which we may attribute a given action of the crude drug.

Emetin is known to be less actively emetic than cephaëlin, but commercial specimens of emetin certainly cause emesis whether they are administered intravenously or by the mouth. Emetin is said to appear in the stomach after its subcutaneous injection, and since it acts slowly after the latter method of administration, we may infer that its action is partly local, but it also stimulates the center directly after its absorption. The alkaloid is also irritant to the skin and to the mucous membranes of the nose and other regions, and when large doses of ipecac are given by the mouth, a portion passes into the intestine and may cause diarrhea.

Emetin possesses a specific action on the ameba of dysentery, and it alone appears to be responsible for the therapeutic effects of ipecac in that disease. It is also actively destructive to the endameba that is said to cause pyorrhea dentalis and pyorrhea alveolaris.

It is said to cause irritation of the intestinal mucous membrane when present in sufficient amount, causing inflammation with paralysis of the capillaries, much as colchicin and arsenic do, the symptoms resembling those caused by arsenic.

Ipecac causes prolonged nausea which is useful when it is employed as an expectorant, but a disadvantage when it is used as an emetic. Moderate doses do not cause such severe depression as antimony.

ZINC SULPHATE AND COPPER SULPHATE

These two salts act on the mucous membrane of the stomach and cause vomiting after a fleeting nauseant stage, and as nearly the whole of the dissolved salt is removed when vomiting occurs, the side actions are brief and of little importance in most cases.

When emesis is delayed or when it fails to occur, after the administration of copper sulphate, the latter passes into the intestine and causes diarrhea, but it is absorbed very slowly and almost never gives rise to symptoms of poisoning.

Copper sulphate affords one of the best means at our command of combating phosphorus poisoning when that poison is still present in the stomach. Solutions of copper sulphate deposit an impervious coating of copper on the surface of the phosphorus almost instantly when brought in contact with it, and the rapid emetic action of the antidote serves to remove the phosphorus. The deposition of copper occurs with extreme rapidity even when dilute solutions are used, hence large amounts of dilute solutions are preferable to small amounts of concentrated solutions.

Zinc sulphate causes emesis in the same way that copper sulphate does, and it is equally harmless.

Copper sulphate is used for giving a green color to preserved vegetables, and while there is no proof that enough copper can be taken in this way to cause

injury the practice is properly prohibited in the absence of proof that even such small amounts are altogether harmless. It is said that fruits dried in zinc-lined trays contain notable amounts of the metal, but there is no evidence that they are harmful on that account.

The nauseant stage induced by copper and zinc sulphate is too fleeting to permit of their use as expectorants.

ANTIMONY AND POTASSIUM TARTRATE

Antimony and potassium tartrate, or tartar emetic, acts locally on the gastric mucous membrane to induce nausea and vomiting, but tartar emetic is more actively poisonous when it enters the circulation than are the sulphates of copper and zinc, its systemic effects resembling those of arsenic, but fortunately, the poisonous actions of antimony are seldom observed after its therapeutic use as it is seldom used except in small doses as a nauseant.

When large doses are taken and vomiting fails to remove the greater part of such a dose, tartar emetic passes into the intestine and causes severe diarrhea with corrosion of the mucous membranes and absorption into the circulation. In addition to the usual effects which accompany nausea and vomiting, tartar emetic poisoning is attended with copious watery stools, fall of blood pressure, and slow and labored respiration and depression of the central nervous system, ending in collapse and death in rare instances. Some depression of the central nervous system is present even with emetic doses, hence it is not well suited for use in debilitated patients. As little as 0.15 gm. (2 grains) of tartar emetic has caused death when vomiting failed to occur after its administration. When vomiting is delayed for an hour or more after the administration of the usual emetic dose, tannin, lime-water or magnesia should be given to precipitate the antimony and the stomach should be washed, after which active purgation should be induced.

Tartar emetic ointment is irritant, resulting in pustulation, after its application to the skin, the exact mechanism being unknown, though it has been suggested that the double salt is decomposed with the liberation of acid, to which the pustulation is due. Antimony destroys trypanosomes even in very dilute solutions. Nauseant doses of antimony are free from danger.

OTHER LOCALLY ACTING EMETICS

Warm water, slight irritation of the pharynx, as by tickling with a feather, alum, common salt, alkalies (including ammonium carbonate) mustard and numerous other means are employed in domestic practice to induce vomiting through their reflex actions, but these hardly require detailed discussion here.

EMETICS ACTING DIRECTLY ON THE VOMITING CENTER

APOMORPHIN

Apomorphin is the only drug commonly used as an emetic that induces vomiting by its direct action on the medullary center.

When small amounts of apomorphin are injected subcutaneously, nausea and vomiting are induced within a few minutes, these effects being due to the direct action on the vomiting center in the medulla. Less is required by intramuscular injection, and much less intravenously, to induce the action on the center, but the effects of intravenous administration to dogs

are somewhat peculiar in that a definite amount is required—neither more nor less in many cases. If less than the emetic dose is given no perceptible effects are observed; if too much is given depression occurs without emesis, and the animal remains refractory for some time. All doses above the minimum effective administered in any other way cause emesis. Much larger doses are required by the mouth than by other channels, and a longer interval ensues before emesis is induced.

In experiments on dogs effective intravenous doses cause emesis within five minutes usually, the emesis is not repeated, and after ten minutes the repetition of the same dose will again produce the same effect as the first. This may be repeated many times with little difference in the effects of the subsequent doses.

Small doses of apomorphin depress the higher centers somewhat as morphin does in animals, depression following very promptly any excitation; but in man the depression of the higher parts of the brain is much less conspicuous, the muscular weakness and other symptoms noted being for the most part secondary to the emetic action. Cushny states that apomorphin has not caused death in man, though it does occasionally cause collapse.

When small doses are administered the nausea is brief and vomiting occurs but once or twice, but if large doses are used vomiting may be repeated frequently for some time, or there may be prolonged nausea and great muscular weakness without actual emesis, with a slight degree of somnolence.

THERAPEUTIC USES

The therapeutic uses of the emetics have been suggested already in the discussion of this subject, but it remains to point out special indications for the choice of the emetic.

When it is merely desired to empty the stomach of indigestible or fermenting food, the simplest emetic is to be preferred, and warm water, mechanical irritation of the pharynx, warm solution of salt, warm mustard water, or other domestic measures suffice. When prompt results are imperative, as in poisoning, the use of the stomach tube is indicated, but if this is not available a promptly acting and dependable emetic such as apomorphin is required, and the emesis may be made more certain by resorting to accessory means, such as irritation of the pharynx with the finger or a feather, or the use of one of the domestic emetics, such as water with warm salt or mustard, should the apomorphin prove ineffective in a few minutes.

When simple emesis is desired for the purpose of removing indigestible food, copper sulphate or zinc sulphate may be used, and accessory measures may be employed at the same time.

Syrup of ipecac is still used to induce vomiting in children in nondiphtheritic croup, when it is desired to secure relaxation of the laryngeal muscles.

The use of emetics to facilitate the passage of gallstones through the duct would seem to depend, partly at least, on the muscular relaxation which accompanies nausea, and vomiting, and as this muscular relaxation is greater with apomorphin than with the other emetics in general use, probably because of a specific muscular action of the drug, it probably deserves the preference for this purpose, just as it is utilized in overcoming the motor excitement in acute alcoholism, which, being abolished, is followed by quiet or

sleep. Apomorphin is also used as a hypnotic in small doses.

Ipecac has been used for many years in the treatment of amebic dysentery, its beneficial actions being variously attributed to its tannin and to its alkaloids. There is no reason to doubt that ipecac owes its actions in this condition to its emetin, and since the doses of this alkaloid which are effective in amebic dysentery are not necessarily emetic, this alkaloid has come to replace ipecac largely for this purpose. It may be given orally, intramuscularly or subcutaneously. Halsey recommends the use of pills of ipecac coated with salol, in order that they may pass the stomach undissolved and act on the amebas in the intestine. He calls attention to the fact that the large doses which are required may cause dysenteric symptoms which may be mistaken for the continuance of the disease.

Such large doses are frequently combined with opium to prevent the diarrhea, and to permit the more prolonged action of the alkaloid emetin on the amebas.

The use of ipecac, and especially of emetin hydrochlorid, has been recommended in the treatment of pyorrhea dentalis and pyorrhea alveolaris, which has recently been shown to be extremely common among adults. While emetin is capable of destroying the endameba concerned, reinfection is almost certain to occur, hence the drug can hardly be depended on for a permanent cure.

DOSAGE

The average emetic dose of ipecac is stated to be about 1 gm. (15 grains); the expectorant dose is from one-tenth to one-twentieth the emetic. It is used in minute doses—about 0.005 gm. ($\frac{1}{12}$ grain) as a gastric sedative.

The initial dose for amebic dysentery is 2 gm. (30 grains) and as this amount will usually cause emesis unless steps are taken to prevent it, it should be preceded by a dose of morphin or opium, or it may be directed to be enclosed in gelatin capsules previously treated with formaldehyd or made into pills coated thinly with salol. Unless care is taken in coating the pills an overdose of salol will be administered. It is obviously better to use emetin for amebic dysentery; it should be given in doses of 0.03 gm. ($\frac{1}{2}$ grain).

Copper sulphate and zinc sulphate are given in doses of 1 gm. (15 grains) as emetics. They are not used internally for other purposes.

The emetic dose of apomorphin is 0.005 gm. ($\frac{1}{12}$ grain), injected subcutaneously at intervals of ten minutes until effective, but when used to evacuate poison a somewhat larger dose of apomorphin may be given at once, unless severe depression exists, and emergencies may demand the use of a dose of 0.01 gm. ($\frac{1}{6}$ grain). It is not recommended as an expectorant, but it is sometimes used for that purpose in doses of 0.002 gm. ($\frac{1}{30}$ grain).

The hypnotic dose is about 0.002 gm. ($\frac{1}{30}$ grain) and this or somewhat larger doses may be used subcutaneously in the case of vigorous and violent subjects of alcoholism.

It is stated that 0.004 gm. ($\frac{1}{15}$ grain) has caused the death of a patient enfeebled by bronchitis, but this must be considered an extraordinary case, and remarkably few deaths have been attributed to it. Apomorphin is practically never given by the stomach to induce emesis, because of the large dose required and the delay in the action.

Antimonials are rarely used for producing emesis at present, but are frequently employed as nauseant expectorants. The emetic dose of antimony and potassium tartrate (or tartar emetic) is 0.03 gm. ($\frac{1}{2}$ grain) but this use is not recommended; the expectorant dose is 0.001 gm. ($\frac{1}{60}$ grain) which may be repeated every hour, or so often as may be necessary to maintain a slight degree of nausea and its accompanying increased secretion, provided the dose is not pushed to the point of causing severe depression. It is obvious that robust patients can stand repeated doses better than those who are already debilitated.*

(To be continued)

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

CEPHAELINE.—Cephaeline.—Cephaeline is an alkaloid, $C_{14}H_{20}O_2N$, obtained from ipecacuanha root.

Actions and Uses.—These are identical with those of ipecac. It is relatively more emetic and less nauseant and causes relatively more renal irritation and less cardiac depression. It may be employed as an emetic and expectorant.

Dosage.—From 0.005 to 0.01 Gm. ($\frac{1}{12}$ to $\frac{1}{6}$ grain) in pills or as a powder triturated with sugar of milk.

Cephaeline occurs as snow-white, fine, interlacing needles, which readily turn yellow. It is soluble in ether and sodium hydroxide solutions, melts at from 96 to 102 C., and turns brown when heated to 120 C. With Fröhde's reagent, a freshly prepared solution of 0.1 Gm. sodium molybdate in 10 Cc. concentrated sulphuric acid, it gives a purple color which hydrochloric acid changes to Prussian blue.

Non-Proprietary Preparation:

Syrup Cephaeline, Lilly.—A syrup containing cephaeline hydrochloride equivalent to 0.088 Gm. of cephaeline per hundred Cc. ($\frac{3}{8}$ grain per fluidounce). Cephaeline hydrochloride, $C_{14}H_{20}O_2N \cdot 2HCl + 7H_2O$, used in this preparation, is required to be white, practically neutral, completely soluble in about 1.5 parts of water or alcohol and also completely soluble in a saturated solution of barium hydroxide. Manufactured by Eli Lilly and Co., Indianapolis, Ind.

OUABAIN, CRYSTALLIZED (See N. N. R., 1915, p. 103).

The following non-proprietary dosage form has been accepted:

Ouabain Ampules, H. W. and Co.—Each ampule contains crystallized ouabain, $\frac{1}{2}$ mg. Prepared by Hynson, Westcott and Co., Baltimore, Md.

* Owing to lack of space the materia medica of this group is omitted from THE JOURNAL. It will appear when this series is published in book form.

The Growth of Surgery.—Rational surgery was one of the gifts of the Greeks, but in the 800 years between Hippocrates and Oribasius few names have survived specially associated with this branch of medicine. Who among us off hand could recall more than two or three in addition to Hippocrates and Galen? Yet in this period scores of important schools flourished with great teachers of surgery, men honored in their generation and the glory of their times.—Osler.

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SATURDAY, JUNE 19, 1915

VALUE OF THE LUETIN TEST

The luetin test for syphilis, described by Noguchi in 1911, seems to have fallen into disuse after a rather brief trial. Any test so easy and simple as this, and applicable to so prevalent a disease as syphilis, deserves a thorough trial. Hence a summary of the results obtained in a large series of cases is in order, especially as the review leads to the belief that the reaction is one which clinicians should not neglect.

Luetin is the name given to a sterile emulsion of cultures of the spirochete of syphilis grown from six to fifty days on ascitic fluid-agar (anaerobically). The dose is 0.07 c.c. of the emulsion injected intradermally with an equal amount of normal saline solution. The reaction is considered negative when there results only a small wheal surrounded by a slightly hyperemic, indurated zone from 3 to 4 mm. in diameter, which clears up in four or five days. By general consent, three positive types of reaction are recognized, a papular, a pustular and a torpid. The first is an indurated papule with a surrounding hyperemic zone, which appears twenty-four hours after injection, increases in size up to the fourth or fifth day, and then subsides. The second type is a more intense reaction, and is characterized by a pustule instead of a papule at the point of injection. The so-called torpid type of reaction occurs from four to twenty-eight days after the intradermal injection, and usually takes the pustular form. It is observed most frequently in congenital and parasyphilitic cases. Wolfsohn¹ obtained a torpid reaction in six of twelve patients with cardiovascular lesions. The delay in the appearance of this type of reaction is, of course, a disadvantage.

In general paresis, 75 per cent. of the tests made by Ross² gave positive results. In 121 cases recorded by Kilgore,³ Wolfsohn,¹ Benedek⁴ and Boardman,⁵ 78.5 per cent. gave a positive reaction. These results are not so largely positive as those with the Wasser-

mann reaction in paresis, the latter test, according to Robertson,⁶ being positive in the blood in 99 per cent. of cases, and in the spinal fluid in 94 per cent. In spite of this, there are points in favor of the luetin reaction. It is sometimes strongly positive when the Wassermann reaction is repeatedly negative. Again, it is specific. The luetin test may be quickly performed by the clinician, whereas the Wassermann requires a skilled technician and special equipment, and, under the best of conditions, errors creep in. Tabulated reports of the luetin reaction in tertiary and congenital lues and in tabes are not at hand, but apparently results are positive in about the same percentage as in general paresis.

It has been suggested that severe constitutional disturbances might follow a strongly positive luetin reaction, but the records lead one to believe that this is uncommon. In 351 cases taken from the records of writers previously quoted and from those of Cohn⁷ and Boardman and Gorham,⁸ not only were severe reactions absent, but also it is definitely stated that no constitutional disturbances were noted. Local tenderness about the point of injection is of frequent occurrence.

Recently the specificity of the luetin reaction has been questioned, since other substances injected intradermally may give a local reaction which cannot be distinguished from the luetin reaction. Such a substance is emulsion of ascitic agar. Neisser explains this on the ground that the skin in late stages of syphilis is especially sensitive to trauma. He and others believe that this hypersensitiveness is in itself characteristic of syphilis, and that the value of the luetin test is unaffected by it.

Most observers are agreed that in untreated syphilis, primary and secondary, the test is valueless. This is explained on the assumption that the luetin reaction is an allergic phenomenon, and depends on the reactivity of the patient to the proteins of the spirochete. In the first and second stages of syphilis, the disease is so active that the patient is unable to acquire enough allergic power, that is, the antibodies necessary for the reaction. In tertiary, congenital and parasyphilitic conditions, the necessary power of reaction has been acquired, and here the test is of value.

Ross found that the degree of reaction to the luetin and Wassermann tests run parallel, that is, if the luetin reaction was weakly positive, there was likewise but slight deviation of the complement in the Wassermann test. Similar results have not been reported by others, and there is no good reason known why such similarity should exist, since the Wassermann reaction is not dependent on antibodies, while the luetin test depends on reaction of antibodies with specific proteins.

1. Wolfsohn, J. M.: The Cutaneous Reaction of Syphilis, Bull. Johns Hopkins Hosp., 1912, xxiii, 223.

2. Ross: Jour. Ment. Sc., 1915, lxi, 244.

3. Kilgore, A. R.: The Luetin Cutaneous Reaction for Syphilis, THE JOURNAL A. M. A., April 18, 1914, p. 1236.

4. Benedek: München. med. Wchnschr., 1913, lx, No. 37.

5. Boardman: Boston City Hosp. Rep., 1913.

6. Robertson: Morrison Lectures, 1913.

7. Cohn: Arch. Ophth., 1912, xli, 15.

8. Boardman and Gorham: Boston City Hosp. Rep., 1913.

The advantages of the luetin test lie in the ease with which it is done, the specificity of the positive reaction, and the fact that it may occur when the Wassermann test gives negative results. These facts warrant a general use of the test.

CLINICAL CALORIMETRY IN THE UNITED STATES

The publication of a series of papers on clinical calorimetry¹ in a special supplement to the May issue of the *Archives of Internal Medicine* must evoke a just pride in American medicine. The first contribution gives a summary of the development of calorimetry, particularly as applied to the human subject. Names familiar to all students of physiology—Lavoisier, Regnault and Riesel, Pettenkofer, Voit, Rubner, Zuntz, followed by the Americans Atwater, Rosa, Benedict, Langworthy and Lusk—are brought into their historical relations. The excellent work of the Boston Nutrition Laboratory of the Carnegie Institution of Washington, with its superior equipment of respiration and calorimetry apparatus, has received mention from time to time in *THE JOURNAL*. There Professor Benedict and his numerous collaborators have attempted to establish the fundamental standards of metabolism, not only in normal healthy man, but also in certain diseased states. Elaborate investigations on the energy metabolism in diabetics by Benedict and Joslin, and in infants by Benedict and Talbot, are instances of the substantial contributions which have resulted from the efficient activity of the Boston laboratory.

The first respiration calorimeter ever established in a hospital was made possible by the cooperation of the Russell Sage Institute of Pathology and Bellevue Hospital, New York. Graham Lusk became the scientific director of the institute, and Dr. E. F. DuBois its medical director. The evolution of the bed calorimeter constructed by them represents the successive contributions of a number of earnest young American investigators. The intricate technical details of the elaborate apparatus which enables one to measure the energy metabolism and heat production of man from hour to hour are scarcely of interest to the general reader. The accuracy is such that in observations lasting three or four hours the heat production, carbon dioxide elimination and oxygen consumption, as deter-

mined by special tests, can be measured with an average error of 0.9 per cent., 0.6 per cent. and 1.6 per cent., respectively. In the words of Lusk, "The Sage calorimeter reports 'of the disturbances that Nature works and of her cures,' without having, as concerns the sick human being, at any time, in the slightest degree, affected any patient to his disadvantage, but rather having yielded information regarding his condition which has been beneficial in his subsequent treatment."

The average basal metabolism (at perfect rest, from fourteen to eighteen hours after a meal) of the men studied in the Sage bed calorimeter in Bellevue Hospital agrees closely with that found derived from observations on many individuals in the Carnegie Nutrition Laboratory at Boston. The New York investigators have adopted the figure of 34.7 calories per square meter of the body surface as the average heat production of normal men between the ages of 20 and 50 years.

Up to the present time, the most notable contribution of the Sage calorimeter has related to the metabolism of patients with typhoid fever, an investigation in which Dr. Warren Coleman has collaborated. The results indicate clearly that, in this disease, protein, fat and carbohydrate are oxidized to the same or approximately the same end-products as in health, and in their oxidation give off the standard amounts of heat. Therefore the law of the conservation of energy applies to fever patients. The basal heat production rises and falls in a curve roughly parallel with the temperature. At the height of the fever it averages about 40 per cent. above the normal, but in some cases rises to more than 50 per cent. above the normal.

Typhoid patients can store body fat on an abundant diet while losing body weight and body protein. Loss in weight and loss of protein are usually, though not necessarily, parallel. This raises the much-discussed question as to whether or not there is a toxic destruction of protein in typhoid fever. The large excretion of nitrogen in fever has been attributed to the influence of a toxin arising in the disease, and likewise to the increased temperature. The well-known work of Shaffer and Coleman² with high calory diets proved that there is no toxic destruction in the sense of a nitrogen loss which cannot be counterbalanced by the nitrogen intake. Typhoid patients can be brought into nitrogen equilibrium when their theoretical calory requirement is enormously exceeded. Recent studies in Müller's clinic at Munich³ show clearly that normal subjects in whom a minimal nitrogen elimination level is established experienced no increase in elimination when their temperatures were raised to about 40 C.

1. Lusk, Graham: Clinical Calorimetry, First Paper, A Respiration Calorimeter for the Study of Disease, *Arch. Int. Med.*, May, 1915, p. 793. Riche, J. A., and Soderstrom, G. F.: Clinical Calorimetry, Second Paper, The Respiration Calorimeter of the Russell Sage Institute of Pathology in Bellevue Hospital, *ibid.*, p. 805. Gephart, F. C., and DuBois, E. F.: Clinical Calorimetry, Third Paper, The Organization of a Small Metabolism Ward, *ibid.*, p. 829; Fourth Paper, The Determination of the Basal Metabolism of Normal Men and the Effect of Food, *ibid.*, p. 835. DuBois, Delafield, and DuBois, E. F.: Clinical Calorimetry, Fifth Paper, The Measurement of the Surface Area of Man, *ibid.*, p. 868. Coleman, Warren, and Gephart, F. C.: Clinical Calorimetry, Sixth Paper, Notes on the Absorption of Fat and Protein in Typhoid Fever, *ibid.*, p. 882. Coleman, Warren, and DuBois, E. F.: Clinical Calorimetry, Seventh Paper, Calorimetric Observations on the Metabolism of Typhoid Patients With and Without Food, *ibid.*, p. 887. Lusk, Graham: Clinical Calorimetry, Eighth Paper, On the Diabetic Respiratory Quotient, *ibid.*, p. 939; *abstr.*, *THE JOURNAL*, this issue, p. 2094.

2. Shaffer and Coleman: Protein Metabolism in Typhoid Fever, *Arch. Int. Med.*, December, 1909, p. 538.

3. Graham and Poulton: Influence of Temperature on Protein Metabolism, *Quart. Jour. Med.*, 1912, vi, 82. Kocher, R. A.: Ueber die Grösse des Eiweisszerfalls bei Fieber und bei Arbeitsleistung, *Deutsch Arch. f. klin. Med.*, 1914, cxv, 82.

(104 F.) by means of a steam bath, or their heat production was accelerated by very vigorous exercise. This indicates that rise in temperature alone or increase in heat production alone will not cause an increased protein metabolism. In typhoid patients, the situation is otherwise. In the Bellevue cases, food was given which had an energy content much greater than the amount required by the patients as measured directly when they were in the calorimeter. Although the protein content of the diet, as represented by an intake of 15 grams of nitrogen, was ample to establish nitrogen equilibrium had the diet been given to normal men, it did not accomplish this in typhoid fever. Coleman and DuBois insist that it is difficult to see in this anything except the proof that there is an abnormal destruction of protein in typhoid fever. In some cases the protein destruction continued several days after the temperature had reached a low level. It is impossible to escape the conclusion that the destruction of protein is caused by the toxins of the disease.

Doubt has been expressed at times regarding the ability to absorb the large quantity of fat and protein furnished by the high calory diet in the case of febrile patients. In the cases of seven patients reported in connection with the preceding investigations, the average total fat loss was 4.3 per cent. No differences were observed in the percentage absorption of fat in the early and later stages of the fever or up to the end of the first week of convalescence, when the intake was relatively large. The average nitrogen loss in the feces for all the periods amounted to 1.57 grams, or 11.2 per cent. These facts speak well for the alimentary possibilities of the dietary.

No one can read these noteworthy contributions without an appreciation of the splendid spirit of cooperation which has made them possible.

INTERPRETATIONS UNDER THE HARRISON NARCOTIC LAW

Treasury decision 2213, issued June 7 by the commissioner of internal revenue, establishes a new ruling on Section 6 of the Harrison Narcotic Law, the section exempting certain proprietary preparations from the operations of the law. The section provides that preparations and remedies which do not contain more than 2 grains of opium or more than one-fourth grain of morphin or more than one-eighth grain of heroin or more than one-eighth grain of codein, etc., shall be exempt from the provisions of the act. The decision discusses the question as to whether or not "prescriptions" come within the definition of "preparations" or "remedies" as given in the act. The commissioner says:

The word "preparation" as generally used and understood means ready-made or prepared medicines, and the word "remedies" means that which cures or is efficacious in a

specific disease or diseases under all conditions, while the term "prescription" is the written directions or recipe of a physician for the compounding or preparing of a medicine and directions for its use to meet the existing conditions in the case of a particular patient.

Under this interpretation, the commissioner holds that the exemptions in Section 6 do not apply to prescriptions written by registered physicians unless such a prescription is written for a preparation or remedy prepared in accordance with the U. S. Pharmacopeia, National Formulary or other formula, or for a "remedy or preparation" prepared under private or proprietary formula, carried in stock by a dealer, which may be dispensed without a "prescription." Accordingly, the commissioner directs that every prescription containing a narcotic drug in any quantity, unless it is for a preparation prepared in accordance with the U. S. P. or National Formulary, must have indicated on the prescription the name and address of the patient, the date, the name and address of the physician and his registry number. Such prescriptions cannot be refilled, and must be kept on file by the druggist filling them for a period of two years.

This ruling draws exactly the same line in medicinal preparations that exists between ready-made clothing and clothes made to order. A preparation which is put up in accordance with a distinct formula and which is recognized as a definite preparation is exempt, provided it contains less than the minimum quantity of drugs. A physician's prescription, being written to order for an individual patient for a specific purpose, is not exempt, no matter how small an amount of the prescribed drugs it may contain. The practical effect of this decision is, that under it, physicians must include, in all prescriptions containing any opium or cocain or any of their derivatives, the name and address of the patient, the date, and the name, address and registry number of the physician.

At first glance, this decision will doubtless impress physicians as being a discrimination against them and in favor of proprietary preparations. This is true, but it is because the law, as it passed Congress, discriminated against physicians and in favor of "patent medicine." Section 6 of the Harrison law represents the political influence of the "patent medicine" manufacturer in Congress. It should never have been included in the law. Its insertion weakened the law and was due solely to the inability of the members of Congress to resist the pressure from "patent medicine" interests. This section must be repealed; so long as it stands, the Treasury Department has no choice but to enforce it. To use an exemption clause drafted at the dictation of the "patent medicine" interests to exempt physicians' legitimate prescriptions would be an absurdity. There should be no exemptions of any kind under this law. Every preparation of any kind, containing any amount of opium or cocain or any of

their derivatives, should be subject to the operation of the law. Physicians have never asked that their prescriptions should be exempt. The demand for such exemption comes solely from the proprietary and "patent medicine" interests; to satisfy these interests, the special exemption was made.

It has often been said that the best way to repeal unwise laws is to enforce them, rigidly and impartially. Section 6 of the Harrison law should be repealed at the earliest opportunity. Until this is done, it should be enforced. Physicians certainly do not wish to have their prescriptions put in the same category as "patent medicine" fakes and frauds. Let the dope-containing "patent medicine" stand on its own merits, if it has any, and let it be distinctly separated from the prescriptions of reputable physicians. With this understanding of the recent decision, the position of the Treasury Department should receive the approval of all physicians.

Another Treasury Decision (T. D. 2414, June 10, 1915), giving the interpretation of the Internal Revenue Bureau on another portion of the Harrison law, has just been made public. This decision has reference to the limitation on the professional prescription and distribution of narcotics by persons whether registered or not. The decision states that registration is limited to certain named persons, and that persons not legitimately engaged in the exercise of their trade or profession cannot legally register under the terms of the act, and has special reference to the prescription and distribution of narcotics on mail orders.

According to the decision, a party must be a legitimate producer, importer, manufacturer, seller or distributor of the mentioned drugs; likewise, a physician, dentist or veterinary surgeon can register under the act and dispense these drugs "in the course of his professional practice only." Such physician, dentist or veterinary surgeon can prescribe these drugs "when he has been employed to prescribe for the particular patient receiving such drugs" and on whom "he shall personally attend in his professional practice only," and then only "when employed to prescribe for the particular person receiving such drugs."

The decision further states that it has special application to those persons not registered as physicians who prescribe or distribute narcotic drugs or preparations on mail orders received from so-called patients or who, under the laws of the state or municipal regulations, are not permitted to practice medicine. This and the decision first referred to constitute two of the most important and far-reaching regulations in regard to the curbing of the indiscriminate sale and use of "patent" or proprietary medicines containing narcotics or habit-forming drugs. The extent of the so-called mail-order prescription cannot be estimated, but this recent treasury decision will undoubtedly have a tremendous effect on lessening this growing evil.

THE EFFICIENCY OF VENEREAL DISEASE CLINICS

While the value of hospitals is not amenable to mathematical measurement or to monetary evaluation, nevertheless it is possible, and justifiable for those interested, either as donors, medical directors or business superintendents, to ascertain what are the returns from the investment of money, time and scientific service. If, for instance, a clinic is dealing with a class of cases for the most part curable, and if, as must be the case, the objects of the clinic's existence are to cure the patients applying for treatment or at least to render their defects noncommunicable, then it is a wise procedure to ascertain the efficiency of the methods employed as measured by the results accomplished.

Interesting data bearing on the value of venereal disease work in New York clinics were recently presented before the health section of the National Conference of Charities and Correction in Baltimore by the superintendent of the Bureau of Public Health and Hygiene of the New York Association for Improving the Condition of the Poor. It is announced that further results of the "efficiency tests" being carried out by this association will be presented at the San Francisco session of the American Medical Association. This investigation, following work of a similar kind in Boston and Cleveland, brought out striking though not entirely unexpected results. A number of the clinics were studied, and, while in most of them the records were so inadequate as to make any conclusions unreliable, in a few it was possible to ascertain with reasonable accuracy such facts as the percentage of total patients making only one visit, the percentage actually discharged as cured, etc.

It was stated that from 30 to 50 per cent. of the gonorrheal patients came to the clinics only once, a situation which would seem to make inevitable a tremendous waste of time of the physicians in charge, in addition to which there must be considered the futility of a single treatment in this disease, and the fact that many of these patients temporarily relieved, at least in mind, continue to circulate freely in the community, subjecting others to infection. In none of the clinics were more than 10 per cent. of the patients discharged as cured, a condition which physicians have long vaguely realized, but on which, by their personal efforts alone, they are powerless to improve.

As pointed out in the Baltimore paper, several things are needed before an improvement can be assured. The clinic records must be kept so that those in charge may know at least what is happening to the patients; there should be a mechanism, based on a "live" and "dead" record card system, and a method of follow up either by card or visit, which would encourage persistence on the part of the patient with the treatment until cured. An intelligent, forceful, yet sympathetic presentation to the patient of the seriousness of the

disease, either by the doctor or by a trained social worker, as carried out at the Boston dispensary, will do much to activate a theoretically effective record and follow up system.

In the public health problems of today, there is none more important or urgent than the control of gonorrhea and syphilis. In no field can society less afford to waste energy and funds. The necessity for extension, under either private or governmental auspices, of the mechanism for the control of these most difficult and menacing public health hazards is insistent. Certainly the best utilization on the basis of a 100 per cent. efficiency if possible, of the existing facilities, is demanded on the grounds of efficiency, economy and health.

THE UNIVERSITY OF MINNESOTA AND THE MAYO FOUNDATION

The announcement was made last February¹ that the Mayo brothers of Rochester, Minn., had established the "Mayo Foundation for Medical Education and Research," had endowed it to the amount of \$1,500,000 and, with certain conditions, had offered it to the University of Minnesota. The relationship proposed was for a trial period of six years, after which, if it proved satisfactory, the foundation would be placed under the complete control of the university. The offer was considered favorably by the administrative board of the medical school, and referred to the board of regents for action. A special committee of the board of regents was appointed to make an investigation and to report back to the board. An abstract of their report was published last week,² and on June 9, the recommendations of the committee were adopted by the regents.

The announcement of the proposed union between the university and the foundation aroused an unexpected opposition, and caused a more lively discussion perhaps than has ever been given to a proposed improvement in medical education and research. This opposition was of positive benefit, however, since it resulted in a most thorough investigation of the Mayo Clinic, the research foundation and the terms of the application, and wide publicity was given to the whole matter. This open appeal to public opinion has not only dispelled the opposition but has also more clearly indicated the advantages of the application. The final effort of the opposition was to secure legislative enactment prohibiting the University of Minnesota from affiliating with agencies outside of the campus. This bill, which would have seriously restricted the university's field of activities, failed to pass, and the fact has come to be clearly recognized that the sphere of activity of the university is the entire state, and not the narrow bounds of the university campus.

From a small beginning, many years ago, the Mayo Clinic has developed until it is now recognized the world over. Its aim has been to bring to its clientele the utmost resources of medical knowledge and skill. In fulfilling this purpose, the scope of the medical research has steadily been extended, and a large amount of material and equipment useful in diagnosis as well as in research has been accumulated. Clinical records particularly have been kept and so cross-indexed as to be readily available for statistical study. This development was directly in line with the plan of the Mayo brothers, first conceived seventeen years ago, to establish a research foundation. That affiliation should be sought with the University of Minnesota Medical School was natural, since for years the clinic has been working in close harmony with that school and has obtained from it many research workers.

Medical education in Minnesota has been unified to a remarkable extent in recent years, and it has been placed entirely under the control of the state university. The reorganization of the medical school two years ago resulted in the withdrawal from undergraduate medical teaching of about forty medical instructors and also of several hospitals in St. Paul and Minneapolis in which clinics had been regularly held for a number of years. This condition might have resulted in the formation of another medical school had not the university grasped its opportunity to develop graduate medical instruction. This provided the way by which the excess of teachers and the splendid material in the hospitals could still be used. At the present time, it is stated, graduate courses are being offered in all laboratory and clinical departments except those of genito-urinary diseases and dermatology, and this work has been arranged in systematic courses leading to the graduate degree of Doctor of Science. Provision has been made also for a number of teaching fellowships in advanced medical research. The acceptance of the proposal to unite the work of the Mayo Foundation with that of the university is directly in line with the policy to retain the control of all medical education in Minnesota, both undergraduate and graduate, in the hands of the state university.

The facilities for research and graduate instruction of the university and of the Mayo Foundation in a large measure supplement each other. Such instruction has been best established at the university in connection with the laboratory branches, whereas at Rochester more work has naturally been done in connection with the clinical departments. This being the case, the rotation of graduate students between the university and Rochester will result in a more thorough and all-round training in both the laboratory and clinical aspects of any chosen specialty. Under the plan proposed, the research work at the two places will be unified and harmonized under the control of the University of Minnesota.

1. Mayos Give Million for Research, Medical News, THE JOURNAL A. M. A., Feb. 20, 1915, p. 672.

2. THE JOURNAL A. M. A., June 12, 1915, p. 2009.

The taking over by the University of Minnesota of this excellent research organization now known as the Mayo Foundation will aid greatly in the development in that state of the highest type of graduate medical instruction and research, such as will compare favorably with, or even surpass, the opportunities to be found elsewhere in this country, or abroad.

THE ACTIVE CONSTITUENT OF THE THYROID

It is nineteen years since Baumann announced his discovery that iodine is a normal constituent of the thyroid gland, and began the series of studies which inaugurated a new era of work on the physiology and chemistry of this organ. Since that time many attempts have been made to determine in what sort of compound the iodine is held in the thyroid, and the relation this iodine compound has to the physiologic and pathologic functions of the gland. While the hypothesis was advanced that the iodine is taken up by the thyroid simply as an adventitious and undesirable chemical impurity, and held where it can do no harm, much as arsenic and other heavy metals are held in the liver, this was not generally accepted; there was too much evidence that the activity of thyroid preparations varies according to the amount of iodine they contain, and some of the crude iodine-containing preparations made from the gland were shown to exhibit many of the physiologic effects that are characteristic of the thyroid itself. The nature of the essential iodine compound, however, was not disclosed easily, and much unsuccessful work has been done in the attempt to repeat with the thyroid the brilliant chemical studies of the active principle of the suprarenal.

Because the aromatic radicals are capable of taking up iodine atoms, the aromatic compounds of the protein molecules (tyrosine and phenylalanine) were strongly suspected of being the nucleus to which the thyroid iodine is bound; but attempts to prove this by analysis, or to construct artificially aromatic iodine compounds with the physiologic effects of the thyroid, were all fruitless. On another page E. C. Kendall,¹ working in the Mayo Clinic, reports the isolation from thyroid glands of a crystalline iodine compound. This substance is believed to be an aromatic compound of iodine, but the aromatic nucleus is not one of the amino-acids existing in proteins, being instead the indole ring. It has exhibited remarkable physiologic activity, and the effects it produces supports the view that it is the chief active constituent of the thyroid gland, so long sought in vain. Of particular interest is the fact that much of the evidence of its activity, as shown by animal experimentation, has been supplemented by observation of its effects on patients with diseases of the thyroid, an important addition to the usual tests on laboratory animals.

While it must be recognized that this work is quite new, and has not yet been corroborated by other investigators, nevertheless the evidence presented seems entirely satisfactory and convincing. Kendall has not yet determined the exact spatial arrangement of the iodine atoms in the indole ring. When this is done, there will be every possibility that the active principle of the thyroid can be prepared synthetically and made available at relatively small cost. In the meantime, the preparation of the active principle in pure form will, if it can be carried out on a commercial scale, make possible much more accurate dosage and better pharmacologic study than can be expected from the crude thyroid tissue with its varying composition and adventitious substances.

Current Comment

PSYCHIC HYPERGLYCEMIA

Much has been written recently about emotional glycosuria and, as might be expected in view of the prominence of blood analysis, about hyperglycemia of nervous origin. Numerous investigators who have employed the highly refined modern technic for the estimation of sugar in the blood have pointed out that various acts incident to experiments on animals are in themselves sufficient to lead to a rise in the sugar content of the circulating medium. Even the manipulations attending the fixation of the subject and the withdrawal of the blood sample have been shown to lead in some cases to an appreciable change in the sugar level of the blood, to which our German colleagues have given the names "Fesselungshyperglykämie" and "Fesselungsglykosurie." The excitation stage preliminary to narcosis with ether, mild operative procedures in the absence of local anesthesia, and similar supposedly insignificant factors, in the belief of a number of investigators, have been demonstrated to leave such evidence of their effect. Loewy and Rosenberg,¹ for example, invariably have found the blood sugar content noticeably higher in animals in which the withdrawal of blood involved some pain. The differences may amount to 100 per cent. At first consideration, these facts strongly suggest the participation of truly psychic influences in the production of the mild hyperglycemia. A prominent rôle has been assigned by some writers to the psychic factor in the "mobilization" of sugar in the organism. Fear, pain and psychic shock enter into this problem. In the pharmacologic institute of the University at Vienna, Morita² has tested some of the procedures, such as hemorrhage, mechanical restraint, ether narcosis, diuretics and irritation of sensory nervous elements, which are known to induce a noticeable

1. Loewy, A., and Rosenberg, S.: Ueber die normale Höhe des Blutzuckergehalts bei Kaninchen und Hunden, *Biochem. Ztschr.*, 1913, lvi, 114. Hirsch, E., and Reinbach, H.: Die Fesselungshyperglykämie und Fesselungsglykosurie des Kaninchens, *Ztschr. f. physiol. Chem.*, 1913, lxxxvii, 122.

2. Morita, S.: Untersuchungen an grosshirnlosen Kaninchen, I. Das Verhalten der Blutzuckerkonzentration, *Arch. f. exper. Path. u. Pharmacol.*, 1915, lxxviii, 183.

1. Kendall, E. C.: The Isolation in Crystalline Form of the Compound Containing Iodine, Which Occurs in the Thyroid, this issue, p. 2042.

hyperglycemia on decerebrated animals. The typical response was still observed in the subjects deprived of their cerebral hemispheres. These facts of experiment, for which the psychic explanation^B will obviously no longer suffice, may not be strictly comparable with the emotional forms of experiment already mentioned. Nevertheless they raise some new questions in the interpretation of something which has hitherto been supposed to be typically psychic in its origin.

THE MISLEADING NAMES OF NOSTRUMS

The deceptive character of much of the advertising which is attached to the "patent medicine" and nostrum business has become familiar to every thoughtful person, whether he be layman or physician. Frequently the claims made are so preposterous in point of unreasonable statement or exaggerated merit that they might well be classed with other types of submerged humor, were it not for the more serious possibility of the harm potentially hidden. A surprising instance of the penalty which the practitioner is liable to pay for his alliance with the nostrum traffic is furnished in the columns of one of our German contemporaries. The exigencies of the war have awakened a patriotic endeavor to supplant all foreign products as far as possible by materials of home manufacture. This is conspicuously true of proprietary drugs and chemicals. In a formidable list¹ including various products of American origin, such as Angier's Emulsion, Battle's Bromidia, Fellows' Syrup, Listerine, Stuart's Dyspepsia Tablets, Vin Mariani, and other familiar names, supposedly suitable substitutes from German sources are suggested. In the case of one of the foreign nostrums, however, the trade name has evidently been responsible for an amusing bit of advice to the readers of one of the leading medical weeklies. "Prescribe German specialties," the warning states. And forthwith the innocent practitioner is told to replace "Bromoseltzer Emmerson" by some effervescent salt of bromin—to which we may add, What's in a name? In this case 3 grains of acetanilid and 7 grains of potassium bromid to a teaspoonful.

DISPOSAL OF WASTE IN RURAL DISTRICTS

The sanitary disposal of human waste is recognized as one of the most important problems confronting the modern municipality, the successful solution of which has required the exercise of much engineering skill and ingenuity. But for the rural community, the isolated farmhouse, the small settlement, where sewers and unlimited water are as yet unattainable, what device is there that is practicable, that is at the same time cheap, simple, and easily constructed and operated, that is fly and germ proof, that is adapted to the conditions of rural life, and that farmers and dwellers in small towns can be urged to provide with some chance of success? These conditions are all essential, but they are by no means easily complied with. That existing methods or lack of methods of

waste disposal in rural districts constitute a real and serious danger has been demonstrated beyond question. Hookworm, typhoid, dysentery, tuberculosis, as well as many forms of intestinal parasites are all spread largely through defective methods of disposing of human waste. Any real or lasting improvement in rural sanitary conditions must be preceded by a radical and permanent reform on this subject. This problem, always urgent, is becoming and will continue to become more important as our rural districts become more densely populated. Bearing on the problem is the United States Public Health Service bulletin, recently issued, on "Safe Disposal of Human Excreta" by Lumsden, Stiles and Freeman. After a general discussion of the problem and its importance, the various types of sanitary privies so far devised are discussed, the manner of construction, advantages and disadvantages, cost, etc., being considered in each case, with illustrations and working plans for their construction. Directions are also given for converting an ordinary insanitary privy into a safe one, as well as directions for cleaning and for final disposition of the contents. This pamphlet should be widely circulated among rural homes. The problem is the same in all parts of the country. It can be solved only by the substitution of intelligent methods for the ones still too commonly in vogue. The question is a vital one to our rural population.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

FLORIDA

Dispensary Opened.—The Jacksonville city dispensary was opened for the first time, May 28. The institution will be opened daily from 10 a. m. to noon, and from 3 to 6 p. m., and on Sundays, from 10 a. m. to noon.

New City Hospital.—The proposed hospital for Miami is to consist of five units: an administration unit, a ward unit, a surgical unit, a maternity unit and a private ward unit. About \$30,000 is at present available for the construction of this hospital, but it is estimated that \$10,000 more will be required.

Bill for Inspection of Schoolchildren Passed.—The Florida Legislature has passed an act to protect and conserve the health and lives of schoolchildren and promote their efficiency by providing medical inspection and subsequent medical treatment. The act was signed by the governor and became a law June 4. This law was drawn up by Dr. Oliver J. Miller, health officer of Sanford, and its passage was due in great measure to his efforts. The bill provides for a thorough examination of all schoolchildren of the state, including rural schools, under the direction of the State Board of Health. An inspector is appointed for each county and no physician is to have more than 2,500 children under his care. The bill also provides for a sanitary survey of all school buildings and their environments. This action shows that Florida is keeping well abreast of the times on the subject of public health.

Bill for State Institution for Feeble-minded.—Both the senate and house have passed the house bill 249, introduced by Hon. Henry H. McKenzie. This act provides for the appointment of a commission to investigate the need of state institutions for the care of the feeble-minded and epileptics and directs the governor to appoint a commission of five persons, one of whom shall be a licensed physician of the

1. München. med. Wehnschr., 1914, No. 39, p. 2024.

state, to investigate this matter. The commission is authorized to call on the physicians of the state and on the authorities of city, county, state and private institutions for statistics to enable them intelligently to report to the next legislature. The act appropriates \$500, to be used for the payment of traveling expenses of the commissioners. The bill passed had the endorsement of the state medical association. Among those who have been most active in this propaganda are Dr. Daniel C. Main, Welaka, of the Sisco Fruit Company, a farm colony for epileptics, and Dr. William P. Spurling, Welaka, who has given lectures before various societies showing films of epileptic seizures.

IDAHO

Personal.—Capt. Hubert W. Wilson, Twin Falls, and Lieut. J. Elmer Crouch, Payette, M. C. Idaho N. G., have been detailed to attend the camp of instruction for medical officers at Fort D. A. Russell, Wyo.—Dr. James J. Herrington, Gifford, has been appointed a member of the state board of medical examiners to succeed Dr. Russell Truitt, Cottonwood.

South Idaho Physicians Organize.—The Southern Idaho Medical Association was organized at Twin Falls, June 5, and adopted the constitution and by-laws of the Idaho State Medical Association. The following officers were elected: president, Dr. Joseph N. Davis, Kimberly; vice president, Dr. John F. Schmershall, Jerome; secretary-treasurer, Dr. A. Henry Dunn, Twin Falls, and councilors, Drs. John F. Coughlin, Twin Falls; John M. Minter, Burley, and Edgar L. Simonton, Wendell. The first regular meeting of the association will be held July 13 at Shoshone.

ILLINOIS

Hospital Addition Opened.—In honor of the opening of the addition to St. Anthony's Hospital, Rockford, a dinner was given to the medical staff, June 3. Addresses were made by Bishop Muldoon and Drs. Clifford U. Collins, Peoria, and George P. Gill, Rockford, the first intern at the hospital, and others.

Personal.—Dr. Darwin Kirby, Champaign, was elected president and Dr. Horatio W. Miller, Urbana, secretary of the Twin City Clinical Society, at its meeting in Champaign, June 1.—Dr. Melvin L. Hole has been appointed local surgeon for the Illinois Traction System at Danville.—Dr. Herman P. Harder has been elected president, and Dr. Albert H. Roler, secretary of the Evanston Tuberculosis Institute.—Dr. William F. Bowman, Fishhook, had a narrow escape from drowning while attempting to ford a flooded creek in Brown County. His buggy was overturned and he was swept down stream, but managed to grasp some willow boughs and so remained until assistance arrived.—Dr. Horace B. Dunn, Rockford, has recovered from his recent illness and resumed practice.—Dr. David S. Ray, Cuba, has started on a trip to the Panama Canal and California.

Chicago

Institute of Medicine Started.—The Institute of Medicine of Chicago, a professional society with scientific purposes, was incorporated, June 9, by Drs. Frank Billings, Ludvig Hektoen and William Allen Pusey.

Personal.—Dr. Caroline Hedger returned to Chicago, June 11, after seven months spent in caring for war-stricken Belgians in Europe.—Dr. Joseph Zeisler was elected president, and Dr. Charles P. Caldwell, treasurer, of the Physicians Club of Chicago, at a meeting of the directors held June 10.—Dr. Willoughby Walling was run over by a wagon and seriously injured, June 8.

Local Red Cross Chapter Reinstalled.—The Chicago chapter of the American Red Cross, which was active in Chicago several years ago, was reinstalled June 18, after a reception given to Miss Mabel T. Boardman, Washington, D. C., chairman of the executive committee, and Major-General William C. Gorgas, Surgeon-General, U. S. Army, and chairman of the Red Cross relief board. The reception, which was held at the Blackstone Theater, was given under the auspices of the municipality, the Chicago Association of Commerce, the Chicago Woman's Club, Chicago Medical Society and other civic and commercial organizations.

INDIANA

National Guard Changes.—Major Edson K. Westhafer, Newcastle, has been placed on the retired list.—Major Larue D. Carter, Indianapolis, has been appointed chief

surgeon of the state.—Captain Frank W. Foxworthy, Indianapolis, has been placed in charge of Field Hospital No. 1, and ordered up for examination for his majority.—Dr. Edward G. Kyte, Seymour, has applied for examination to the Medical Corps and has been commissioned as first lieutenant. *agr*

Personal.—Dr. William F. Willien, Terre Haute, has been appointed secretary of the local board of health in place of Dr. Frank A. Thor.—Dr. Francis O. Dorsey, Indianapolis, who has been seriously ill at the Methodist Hospital in that city, is reported to be improving.—Dr. George F. Keiper, Lafayette, has been appointed a school trustee of Lafayette.—Dr. James P. Orr, Lebanon, is reported to be seriously ill.

Tribute to Old Physician.—A commemorative dinner was given at the Arlington Hotel, Richmond, June 4, by the medical profession of the Sixth District and other friends to Dr. T. Henry Davis, president and for twenty years a member of the State Board of Health, who for nearly half a century has been a practitioner of Richmond. Dr. Louis F. Ross officiated as toastmaster, Dr. John N. Hurty spoke on "Dr. Davis and the State Board of Health"; Mr. William Dudley Foulke on "The Past and Future of Medicine"; Mr. George H. Knollenberg on "Doctor and Patient"; Hon. D. W. Comstock on "Dr. Davis as a Friend and Citizen"; Dr. D. W. Stevenson on "Dr. Davis and the Profession," and Dr. D. H. Dougan on "The Old Days." Dr. Davis responded, taking for his subject, "Yesterday, To-day and To-morrow." Dr. Davis was presented with a sketch of himself by Henry Mosler and the suggestion was made that the sketch be hung in the high school art gallery or in the city building.

MARYLAND

Flint Club Meeting.—The Flint Club of Baltimore held its three hundred and forty-eighth meeting, June 3. The club was organized twenty-nine years ago and was named in honor of Dr. Austin Flint. The club is a close corporation with a membership of twenty-five and only one elective officer, the secretary and treasurer, who is now Dr. William Caspari. The presiding officer is selected at each meeting.

Alumni Election.—The annual meeting of the Alumni Association of the University of Maryland Medical School, was held May 31, Dr. G. Lane Taneyhill, presiding. The following officers were elected: president, Dr. Albert H. Carroll; vice presidents, Drs. William E. Wiegand, J. C. Clark and George C. Lockard; recording secretary, Dr. Henry O. Reik; assistant recording secretary, Dr. Howard W. Jones; and corresponding secretary, Dr. John I. Pennington.

State Aid for Maryland State University.—At a meeting of the regents of the Maryland State University, June 10, the merger of the Maryland University School of Medicine and the College of Physicians and Surgeons was discussed. The principal business of the meeting was to authorize the treasurer of the university to accept the appropriation made by the legislature for the advancement of medical education. This appropriation is for \$15,000 for 1914 and also 1915, together with \$5,000 for each year for administrative purposes. The bulk of the total appropriation of \$40,000 will be available in October. One half of it is available now.

Personal.—Dr. William S. Thayer, professor of clinical medicine at the Johns Hopkins Medical School, who was operated on recently for appendicitis, has left the hospital. Dr. Thayer has been nominated for one of the five vacancies of the board of overseers of Harvard University. He is one of the ten men nominated by a postcard ballot and stands fourth on the list.—Dr. William Lee Smith, Riderwood, who has been under treatment at the Johns Hopkins Hospital, is much improved and is expected to leave the hospital early in the week.—Dr. Joseph C. Bloodgood, Baltimore, has left for a ten-day trip to Minneapolis and other points in the West.—Dr. Thomas S. Cullen, who was operated on at Johns Hopkins Hospital, May 29, for the removal of gallstones, is reported to be making satisfactory progress toward recovery.

Psychopathic Building Opened.—The John Hubner Psychopathic Building of the Springfield State Hospital, Sykesville, was dedicated June 9. It is a three-story and basement brick structure in the form of a Maltese cross, equipped with laboratories, operating rooms, hydraulic department, continuous baths and many other necessary departments. One wing of the building will be devoted to administration offices. The building was erected at a cost of about \$125,000 and is

for the care of acute cases of mental disease. The speakers on this occasion were: Dr. Elmer E. Southard, Cambridge, director of the Boston Psychopathic Hospital; Dr. Hugh H. Young, Baltimore, president of the Maryland State Lunacy Commission; Dr. Henry M. Hurd, Baltimore; Dr. Lewellys F. Barker, Baltimore, and Dr. Edward N. Brush, Towson, president of the American Medico-Psychological Association. In appreciation of his twenty years continuous service as a member of the board of managers, Mr. John Hubner, for whom the building is named, was presented with a loving cup.

MASSACHUSETTS

Creel Declines Health Commissionership.—P. A. Surg. Richard H. Creel, U. S. P. H. S., has been obliged to decline the position offered him as health commissioner of Boston on account of his health which has been impaired by long and trying years of service in the tropics.

Amendment to Practice Act.—A letter from Dr. Walter P. Bowers, secretary of the Massachusetts Board of Registration in Medicine, states that the Massachusetts Legislature, in the session just closed, passed an amendment to the medical practice act, which requires that all applicants for registration as physicians in the state must furnish to the licensing board satisfactory proof that they have received the degree of doctor of medicine, or its equivalent, from a legally chartered medical school.

Changes in State Hospitals.—Drs. Willis W. Gleason and Mark Meisner have resigned from the Westboro State Hospital.—Dr. John M. Thompson, Boston, has resigned from the staff of the Foxboro State Hospital.—Dr. James F. McFadden, Foxboro, has resigned from the Psychopathic State Hospital to accept a position in the Foxboro State Hospital.—Dr. Geneva Tryon, Cambridge, Mass., has been appointed assistant physician at the Boston State Hospital for six months.—Dr. Egbert W. Fell, Boston, has been appointed first assistant physician in the psychopathic department of the Boston State Hospital for one month.

Testimonial to Dr. Theobald Smith.—A complimentary dinner was given at the Harvard Club June 2 by about 200 friends and associates to Dr. Theobald Smith, Boston, for twenty years Fabyan professor in Harvard Medical School, who is soon to take charge of the department of animal pathology in the Rockefeller Institute. President A. Lawrence Lowell of Harvard University presided and addresses were made by Drs. Frederick C. Shattuck, Boston; William S. Thayer, Baltimore; Simon Flexner, New York City; former president C. W. Eliot, Drs. William H. Welch, Baltimore; Edward H. Bradford, Boston and Dr. Theobald Smith, Boston.

Neurosyphilis Discussed.—Under the auspices of the trustees of the Boston State Hospital, a symposium on "Neurosyphilis, Medical and Social Progress," was held at the Psychopathic Hospital, Fenwood Road, May 27. The subject was divided into social service methods and results, including methods of investigation, the question of enlightenment of members of the family and patients, family pathographies in respect to syphilis and the economic aspect of the problem. Under the head of clinical diagnosis were considered the question of latent neurosyphilis and paresis sine paresi, types of neurosyphilis and cerebrospinal fluid studies. The third portion of the program devoted to post-mortem studies took up the convolutional type in paretics and histologic studies.

Boston Quarantine Transferred.—Surg. Samuel B. Grubbs, U. S. P. H. S., arrived in Boston May 28 and reported to the mayor on the following day. In accordance with an agreement between the city and the federal governments, Surgeon Grubbs assumed charge of the quarantine station at Gallup's Island, June 1. The agreement provides that the federal government shall hold the lease of the station for one year at an annual rental of \$1 pending the agreement as to the price for which the station shall be sold by the city; providing also that the federal government shall take over the city employees now in the quarantine service. This will result in Dr. Francis X. Crawford, the present port physician, continuing in service under the new quarantine officer. Dr. Grubbs will reside in Boston and will have his office at the Immigration Station, Long Wharf.

Alumni Meetings.—At the triennial meeting of the Harvard Alumni Association held May 20 Dr. Samuel B. Woodward, Worcester, presided and addresses were made by Gen. Leonard Wood, U. S. Army and others.—The annual meeting and banquet of Tufts Medical School Alumni Association,

Boston, was held May 20 under the presidency of Dr. Herbert A. Donnell, Medford. After the dinner President Herman C. Bumpus, Dr. Charles F. Painter, Boston, dean of the medical school and Prof. Charles D. Knowlton, Boston, delivered addresses and the following officers were elected: president, Dr. James F. Coupal; vice presidents, Drs. Isador H. Coriat, Emma J. Wagner, West Somerville, Sarah E. Coppinger and William H. Greene; secretary, Dr. Andrew P. Cornwall; assistant secretary, Dr. Edith M. Brooks; and treasurer, Dr. Russell B. Sprague, all of Boston.

Personal.—Dr. J. Herbert Young, Newton, has been appointed medical director of the Boston Milk and Baby Hygiene Association, succeeding Dr. Arthur A. Howard, Boston.—Dr. Ernest O. Weinert, Boston, has been recalled to Italy for war duty and sailed June 6.—Dr. William C. Hanson, Boston, has been removed from the position of director of records and publicity for the State Health Commission by Health Commissioner Allan J. McLaughlin and the division has been abolished.—Dr. Thomas F. Harrington, Boston, has been elected deputy state health commissioner by the State Board of Labor and Industry.—Dr. Richard Pierson Strong, Boston, has been elected professor of tropical medicine in the Harvard Medical School, a position for which he had previously received the nomination of the corporation.—Drs. David L. Edsall, Boston and Milton, and Joseph E. Lamoureux, Lowell, have been reappointed members of the Public Health Council of the state.—Dr. Franklin Dexter, Boston, has been appointed director of scholarships in the Harvard medical and dental schools.

MISSOURI

Personal.—Arthur M. Alden, instructor in bacteriology in the St. Louis University, has been appointed pathologist to the Santo Tomas Hospital, Panama City, Panama, and sails from New York, next week.—Dr. Fabian L. Pratt, Kansas City, sailed from New York May 29, to enter the French Medical Service.—Dr. Joseph M. Yater, Nevada, has been appointed a member of the board of regents of the State Normal School, Springfield.—Dr. James Stewart, St. Louis, is making a good recovery after an operation performed May 3, at the Jewish Hospital.

State Health Board Upheld.—The Supreme Court of Missouri rendered a decision June 1 upholding the right of the State Board of Health to revoke licenses of physicians who write prescriptions for liquor in "dry" counties. The case before the court was that of Dr. A. M. Conway, Columbus, who is reported to have written 778 prescriptions for liquor during February and March, 1910, and is said to have received twenty-five cents each for these prescriptions, which contain no ingredients except whisky. This case was tried in the Boone County Court and resulted in conviction and a short time later the State Board of Health revoked the license of Dr. Conway and an appeal was taken to the Supreme Court with the result as stated above.

Estate Goes to Hospital.—The late Mr. George D. Barnard, donor and beneficiary of the Barnard Free Skin and Cancer Hospital of St. Louis, left an estate of \$2,000,000 well invested in first-class business securities. After annuities to his widow and various institutions amounting to about \$50,000 are paid, the residue of the income goes to the Barnard Free Skin and Cancer Hospital. After the expiration of the annuities, through the death of the various legatees, this institution will receive the income from the whole estate. About \$16,000 a year, consisting of small sums to various local institutions, will be a perpetual charge against the estate. The Barnard Free Skin and Cancer Hospital has had up to this time an income of over \$30,000. This, together with that from the Barnard estate, will enable the institution to extend its investigations along much broader lines than it has been possible to pursue in the past.

Health Tests for Waiters and Cooks.—The Medical Society of the City Hospital Alumni of St. Louis, has adopted resolutions setting forth that on account of the prevalence of communicable diseases among employees in kitchen and dining room service in St. Louis, every employee found to be diseased should be excluded from service; that the Division of Health should ascertain the presence of any disease of any employee in eating places; that the director of the Department of Public Health should consider the public needs in this direction and secure the enactment of the appropriate legislation to give authority to the Division of Health to initiate inquiries and conduct examinations; that all kitchen and dining room help, before employment therein, shall be required to undergo a physical examination.

tion under the direction of the Department of Health and that no one failing to secure a clean bill of health, shall be eligible to employment. These resolutions were placed in the hands of the committee on municipal affairs and public health, with instructions to arrange for a conference with city officials touching the details of the proposed resolutions.

NEW YORK

Hospital Celebrates Anniversary.—St. John's Hospital, Long Island City, recently celebrated its twenty-fourth anniversary, on which occasion Dr. James J. Walsh, New York City, delivered the address.

Child Welfare Day.—The State Department of Health has designated Sunday, June 20, as Child Welfare Day. Pastors of all denominations have been asked to cooperate by preaching or giving short talks on child welfare and the prevention of infant mortality.

Personal.—Syracuse University conferred the degree of LL.D. on Dr. Henry L. Elsner, Syracuse, June 9.—Dr. C. Floyd Haviland, first assistant physician at the Kings Park State Hospital, Long Island, has been appointed superintendent of the Connecticut State Hospital, Middletown, vice Dr. Henry S. Noble, deceased.

Tuberculosis Camp Opened.—The eighth season of the open-air camp of the Buffalo Association for the Relief and Control of Tuberculosis opened June 1. Only ambulant cases are accepted at this camp. The camp will accommodate about sixty full-time patients and many additional day patients. Dr. Francis J. Lennon continues as medical director and is assisted by Dr. John G. Stowe.

Features of Alumni Meeting.—At the annual banquet of the Alumni Association of the medical department of the University of Buffalo, June 3, recognition was given to Dr. Peter W. Van Peyma, Buffalo, of the class of '72, teacher and clinical professor of obstetrics in the university for thirty years and the representative of the Medical Alumni on the University Council, who retires this year. The graduating class presented a portrait of Dr. Van Peyma to the university to be hung in the college library. At the meeting steps were taken for the establishment of an alumni fund to be used for the advancement of teaching and research work in the institution. Among the many interesting features of the meeting were the surgical diagnostic clinic held by Dr. George W. Crile, Cleveland, and the alumni oration on "Cerebral Localization with Especial Reference to the General Practitioner," by Dr. William House, Portland, Ore.

New York City

Health Department Investigating Wall Street.—Dr. Sigismund S. Goldwater, Commissioner of Health, has issued an order to the sanitary bureau and the division of occupational diseases to investigate sanitary conditions in the office buildings below Fulton Street. The inspection will be similar to that undertaken in factories and sweatshops throughout the city.

Drug Victims Fill City Prisons.—At a recent conference on crime and environment, Dr. Katherine B. Davis, Commissioner of Corrections, stated that on March 1, 1914, there were 4,647 persons in the correctional institutions of New York City, while on March 1, 1915, there were approximately 7,500, an increase of almost 50 per cent. Dr. Davis attributes this increase to the drug crusades of the past fifteen months which have increased the number of commitments of users of habit-forming drugs as well as of persons convicted of trafficking in narcotics.

Patients to Pay If Able.—The city has decided to operate the Municipal Tuberculosis Sanatorium at Otisville on Shawangunk Mountain, on a new plan. Heretofore, it has been the practice to receive all regularly admitted persons as free patients, but from this time on, patients admitted to the institution will be put on the same basis as those who seek to receive treatment in other city hospitals. Inquiry will be made as to their financial ability to make payment and those who are found to be able to pay, will be given the opportunity. Three uniform rates have been decided on, \$3.50, \$7.00 and \$10.50 a week. Patients unable to pay and otherwise suitable as cases for admittance, will be admitted and treated as before, free of charge.

To War Against Strong Drink.—Dr. Sigismund S. Goldwater has declared officially that he is about to initiate a campaign against the use of spirituous liquors in New York City. He has sent a mandatory letter to the Advisory Council of the Department of Health asking for the immediate organization of a committee to put such a campaign in force.

Dr. Goldwater acknowledges that he has undertaken a "big job" but contends that the regulation of the liquor traffic is a duty of the Health Department since such a large proportion of the poverty, crime and sickness of the city can be traced directly to the influence of alcohol. It is stated that the campaign will be one that will appeal to popular fancy and will have as its slogan "Get on the water wagon."

NORTH CAROLINA

Dinner to Chicago Physician.—Dr. Noble S. Heaney, Chicago, was given a complimentary dinner by the Buncombe County Medical Society at Asheville, May 21.

Correction.—Dr. John A. Williams, Greensboro, announces that the report in THE JOURNAL that he had a stroke of paralysis in New York City, is incorrect. Dr. Williams reports that he is in good health.

State Hospital Report.—The State Hospital for the Insane, Morgantown, reports a residence population of 1,404. The opening of the new colony building last month gave additional room and sixty-two patients have already been admitted to the building.

Institution for Sick Babies.—A donor who does not desire his name to be made public, has tendered \$20,000 to the city of Wilmington, to provide an institution for the care of infants whose home conditions are not sufficient for their care when ill. The donor announces that the fund will be available as soon as a sufficient amount to guarantee maintenance charges is secured.

Dean Confers Degrees in Virginia.—Dr. John C. Montgomery, dean of the North Carolina Medical College, Charlotte, attended the recent commencement of the Medical College of Virginia, Richmond, to confer the degrees on the students of the North Carolina Medical College who matriculated before the amalgamation of the institution with the Medical College of Virginia.

Canvass of Derelict Counties.—Dr. J. R. Gordon, chief of the Bureau of Vital Statistics of the State Board of Health, has made a special canvass of certain derelict counties of the state in order to secure more efficient and complete reports of births and deaths. The health department is not assured that all births are being reported while the death records are believed to be fairly correct.

Personal.—Dr. Lewis B. McBrayer, superintendent of the State Sanatorium for Tuberculosis, has been appointed postmaster of Sanitarium.—Dr. Claude O. Abernethy, Raleigh, has returned after a period of postgraduate study in New York City.—Dr. William K. Reid has been elected city physician of Charlotte, and Dr. Eugene P. Gray, city physician of Winston-Salem.—Dr. Carl V. Reynolds has been reelected health officer of Asheville.

PENNSYLVANIA

Optometry Bill Vetoed.—On June 3, Governor Brumbaugh vetoed the House bill to create a separate bureau for licensing optometrists, to practice in Pennsylvania. A similar bill was vetoed earlier in the session and with certain amendments it was again passed by the assembly.

State Health Bureau Wins Medal.—On June 10, recorder of deeds Ernest L. Tustin, a member of the Pennsylvania commission to the Panama-Pacific Exposition, announced that the grand prize for the best health department had been awarded to Pennsylvania with personal praise for Dr. Samuel D. Dixon, state commissioner of health.

Philadelphia

Resignation of Assistant Director.—Alexander M. Wilson, assistant director of the Department of Health and Charities, has resigned, as he has been appointed director of investigations of the department of charities in New York City, a position paying \$4,000 a year, the same salary he has been receiving here.

Donation of Surgical Instruments Requested.—The French Relief Committee of Philadelphia announces that surgical instruments are urgently needed in the smaller hospitals in France. An appeal is made to surgeons throughout the United States to donate for this purpose such instruments as they can spare, to be forwarded to France. Such instruments may be sent to the French Relief Committee, 708 Sansom Street, Philadelphia.

Personal.—Dr. Samuel McClary, III, has been elected assistant professor of surgery in the Medico-Chirurgical

College of Philadelphia.—Dr. R. Tait McKenzie, director of physical education at the University of Pennsylvania, sailed for London, May 29, where he will take charge of a new physical examination department, established by the British government.—The board of city trusts, on June 9, appointed Dr. Paul B. Cassidy and Dr. Oscar G. Flegley, respectively, as first and second clinical assistants and Dr. Harry Judge as resident to the Wills' Eye Hospital.—Dr. Ella B. Everitt has been elected president of Wilson College for Women at Chambersburg.

To Reduce Infant Mortality.—Greater efforts than ever are being made this summer to reduce infant mortality. June 5, Dr. Ziegler, director of public health and charities, announced the appointment of fifteen nurses to the division of child hygiene. The full number of nurses for the work among children will be increased to forty for the work during July. Last summer there were about eight nurses engaged in this work. The nurses are to be paid out of an appropriation of \$7,500. They will make a house to house visit which will bring home to patients by actual contact the teaching and necessity for scientifically safeguarding the health of the children.

Surgical Unit Sails.—Dr. J. William White and the University of Pennsylvania medical unit, which is to take charge of an entire floor of the American Ambulance Hospital at Neuilly-sur-Seine, during July, August and September, sailed from New York, June 12, on the American liner, *St. Louis*. Dr. James B. Hutchison will be the chief surgeon, and the party numbers fourteen, including four nurses. Dr. Thomas G. Aller is the dental surgeon and Dr. David M. Davis of Johns Hopkins University will have charge of the bacteriologic research. At least \$10,000 will be required to maintain the university unit, \$7,000 of which has already been collected. No member of the party will receive a salary and most of the physicians are paying their expenses. Six dental surgeons who were unable to secure passage on the *St. Louis* will sail for France on Saturday, June 19, and will join the contingent at the American Ambulance Hospital.

TENNESSEE

Appropriation for Tuberculosis Hospital.—The house of representatives on May 7 passed the bill appropriating \$50,000 for a state hospital for tuberculosis.

Free Dispensary for Chattanooga.—At a meeting held in Chattanooga, May 10, final plans for the establishment of a free clinic or dispensary were developed. The amount required for the establishment of the clinic will be about \$2,500. The work is expected to be affiliated with that of the Associated Charities and Erlanger Hospital.

Witherspoon Club Banquet.—The annual banquet of the Witherspoon Club Society composed of the leading members of the senior class of the medical department of Vanderbilt University, Nashville, was held May 8. Dr. John A. Witherspoon, Nashville, in whose honor the club was named, was present and delivered an address.

Board of Preliminary Examiners.—Legislation recently obtained provides for a board of preliminary examiners to examine all applicants for license to practice the healing art as to their literary qualifications. Unless candidates are found to be duly qualified, they will not be permitted to take the examination for license to practice. The board consists of three members, and those appointed, respectively, for six, four and two years, are Profs. I. S. Hudson, Nashville; C. C. English, Bristol, and J. W. S. Rhea, Memphis. All members thereafter will be appointed to serve for a term of six years.

Personal.—Dr. Leonard W. Edwards, Nashville, has been appointed physician to the Nashville Penitentiary.—Dr. J. A. B. Ward, Clarksville, was seriously injured by the overturning of his automobile, recently.—Dr. Isadore Lewinthal has been reelected president of the State Board of Charities.—As the result of a competitive examination, Dr. Lucius P. Brown, state food and drug commissioner of Tennessee, has been appointed director of the bureau of inspection of the Department of Health of New York.—Dr. James K. Goodloe has been appointed city prescriptionist of Nashville, succeeding the late Dr. Peter Hager.—Dr. T. P. Holman, Fayetteville, is reported to be critically ill as the result of a cerebral hemorrhage.—Dr. John D. Brewer, Newbern; Reese W. Patterson, Knoxville, and Young W. Haley, Nashville, have been appointed members of the State Board of Examiners for Nurses. There are also two nurses on the board.

TEXAS

Medical College Closed.—It is reported that the Southern Methodist University of Dallas will not reopen its medical department next fall owing to the lack of adequate finances.

Medical Building.—A building is to be erected in Dallas especially for the use of physicians by Drs. Raleigh W. Baird, Harold M. Doolittle, Alfred I. Folsom and Robert B. McBride, all of Dallas.

New Hospital.—The new hospital for the Masonic fraternity near Arlington is completed and will be ready for occupancy this month. The institution will accommodate about thirty patients and will cost, when completed, about \$20,000.

Personal.—Dr. Byron F. Kingsley, San Antonio, has been reelected president and Dr. George W. Sims, San Antonio, has been elected vice president of the Bexar County Humane Society.—Dr. Marvin P. Stone, Dallas, has been appointed surgeon-in-chief of the Masonic Hospital at the Home for Aged Masons, Arlington.

Quarantine Station Moved.—The office of Surg. Robert L. Wilson, surgeon in charge of the United States Quarantine Station at Galveston, has been moved from the old postoffice building to the new building on Pelican Spit. The new buildings are practically completed and will be formally opened about July 1.

Appropriation for State Board.—The House of Representatives has passed an appropriation for the State Board of Health carrying a total of \$141,840.00 for the biennium. An amendment was also adopted adding \$4,000 a year to this appropriation for the establishment of a course in hygiene, sanitation and improvement of public health in public schools of the state, under the direction of the State Board of Health.

Federal Control of Quarantine.—Colonel Walter Gresham of the Deep Water Committee of the Galveson Commercial Association laid before the governor and the finance committees of the legislature a proposition to vest the authority of port quarantine in the federal government instead of the state. This, it is alleged, will mean a saving to Galveston shipping of from \$15,000 to \$20,000 a year and a more thorough and efficient service in quarantine administration.

Addition to Teaching Hospital.—An official report states that a woman's addition to the John Sealy Hospital has been erected at a cost of \$125,000, the money being donated by Mrs. R. Waverly Smith and her brother, Mr. John Sealy of Galveston and that a new nurses' home, costing \$90,000 and accommodating fifty-five nurses has been erected by the University of Texas at Galveston, in close proximity to the John Sealy Hospital. This is the teaching hospital of the Department of Medicine of the University of Texas.

Embargo Lifted.—A proclamation was issued by the governor May 28 raising the embargo on cattle from all except the states of Connecticut, Delaware, Illinois, Indiana, Iowa, Kentucky, Maryland, Massachusetts, Michigan, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Virginia, West Virginia, Wisconsin and the counties of Butler, Cowley, Sedgwick and Sumner in Kansas. The proclamation also provides twenty-two points of entry at which cattle may be shipped from the border of Mexico into the United States, under stated restrictions.

WASHINGTON

New Hospital.—At Walla Walla and Waitsburg, April 21, \$12,702 was subscribed for the new St. Mary's Hospital, Walla Walla. The Sisters of Providence have already \$62,000 available and only a little more than \$10,000 is now required before the work on the buildings can be commenced.

CANADA

Ambulance Donated.—Messrs. A. Davis and Son, Kingston, Ont., have donated a motor ambulance to Queen's Stationary Hospital.

Nurses for Convalescent Homes.—The Convalescent Homes being established throughout Canada to attend to wounded and invalid soldiers are to have the services of the Victorian Order of Nurses.

For Overseas Service.—The following names are mentioned in connection with the Base Hospital for overseas service, donated by the Ontario government: Drs. Herbert J. Hamilton, Rowland B. Orr, Herbert A. Bruce and Harry B.

Anderson. These are all well-known practitioners in Toronto, and if finally appointed will be given the rank of lieutenant-colonel.

Reciprocity for Druggists.—The Ontario Pharmaceutical Association have almost completed negotiations for reciprocity with the Pharmaceutical Association of Australia. A deputation of druggists representing the whole Dominion is to wait on the government of Ottawa in recognition of the pharmacists who are at the front in the military training camps. The druggists want commissions for their members the same as for dentists and veterinary surgeons.

Medical Roster for Overseas Duty.—The Canadian Relief Committee in Toronto have endorsed the proposition to form a roster of medical men for overseas duty. The suggestion is to accept in turn, as required, a limited number of members of the medical profession for six months' duty. As hundreds are anxious to take part in this particular work, it is felt that some arrangement could be made whereby engagements for indefinite periods would be done away with.

Will Protect Practices of Physicians at Front.—At the thirty-fifth annual meeting of the Ontario Medical Association a resolution was adopted expressing the appreciation of the association that so many of its members have responded to the call of the Empire or have entered on active service, and expressing the intention of the association to look after the work of these physicians during their absence and to see that their practices are retained and restored to them on their return.

Personal.—Dr. Hibbert W. Hill, who has been on duty with the State Board of Health of Minnesota for some time, has been renamed as director of the Institute of Public Health of London, Ont.—Dr. David H. Dowsley, formerly of Ottawa, is believed to have been lost on the *Lusitania*.—Dr. Angus W. McPherson, Peterboro, who was recently elected president of the Ontario Association of Health Officers, is at present in England on overseas duty.—Dr. James D. MacDonald, Huntsville, Ont., has been chosen liberal candidate for the constituency of Muskoka, Ont.

GENERAL

Louisiana Health Car Goes to San Francisco.—The educational hygiene exhibit cars of the Louisiana State Board of Health will be taken to San Francisco. The cars leave New Orleans on the morning of June 16, and are scheduled to arrive at San Francisco some time on the 20th. An opportunity is, therefore, afforded to those who attend the meeting to see this widely known exhibit.

Army Medical School Graduation.—At the annual commencement of the United States Army Medical School, Washington, held in the auditorium of the school, May 31, thirteen graduates received their diplomas from Assistant Secretary of War Breckenridge. The Hoff memorial medal was awarded to Lieut. Harry D. Offut, M. R. C., U. S. A., Maryland, by Col. John Van R. Hoff, M. C., U. S. A., Washington (retired), and the Sternberg medal was awarded Lieut. Raymond E. Scott of Washington. The principal address was made by Lieut. Reynold Webb Wilcox, M. R. C., U. S. A., New York.

Bequests and Donations.—The following bequests and donations have recently been announced:

Sibley Memorial Hospital, Washington, Pa.; Benjamin A. Haywood Memorial Dispensary and Pathological Laboratories, donation by Mrs. Elizabeth E. Haywood, Sheran.

Jefferson Medical College, Philadelphia, for the endowment fund, \$100,000, subject to the raising of an equal amount by the alumni of the institution; Home of the Merciful Saviour for Crippled Children, Philadelphia, \$1,000, and a contingent bequest of one-third of the residue of the estate, the principal to revert in equal parts to the University and Episcopal hospitals, by the will of Josephine Lewis.

Episcopal and St. Timothy's hospitals, Philadelphia, each \$1,000, by the will of Dr. John L. Brumley.

Methodist Hospital, Philadelphia, \$1,000 by the will of Martha Moore.

St. Timothy's Hospital, Philadelphia, a contingent bequest by the will of Charlotte M. King.

Conference on Race Betterment.—The Second National Conference on Race Betterment will be held at San Francisco from August 5 to 8. During the first week in August the American Genetic Association, American Association for the Advancement of Science, American Anthropological Association, American Association for the Study of Feeble Minded and the American Social Hygiene Association will hold congress in and near San Francisco. It is the intention of the Conference on Race Betterment to cooperate as far as possible with the above-named organizations. The headquarters of this conference will be on the exposition grounds,

and the sessions for the greater part will be held at the exposition.

Aid for Belgian Physicians.—The report of the treasurer of the committee of American physicians for the aid of the Belgian profession, for the week ending June 12, 1915, lists the following contributions:

New England Hospital Medical Society, Boston, Mass.....	\$ 30.00
Aux Plaines Branch of Chicago Medical Society, Maywood Ill.....	44.00
Vigo County Medical Society, Terre Haute, Ind.....	25.00
Dr. Jacob Schwinn, Wheeling, W. Va.....	10.00
Dr. John Bryant, Boston, Mass.....	10.00
Drs. Robert J. and John L. Sagerson, Johnstown, Pa.....	10.00
Dr. Catherine H. Travis, New Britain, Conn.....	2.00
Dr. George B. Lake, Manila, P. I.....	2.00
Dr. M. J. Kenefick, Algona, Ia.....	10.00
Dr. E. W. Link, Palestine, Tex. (Second contribution).....	10.00

Receipts for the week ending June 12.....\$ 153.00
Previously reported receipts.....7,159.00

Total receipts\$7,312.00

Disbursements for the week ending June 12:

140 standard boxes of food at \$2.28.....\$ 319.20

Previously reported disbursements:

1,625 standard boxes of food at \$2.20.....\$3,575.00

1,274 standard boxes of food at 2.30.....2,930.20

213 standard boxes of food at 2.28.....485.64

Total disbursements7,310.04

Balance\$ 1.96

F. F. SIMPSON, M.D., Treasurer,
5 Jenkins Arcade Bldg., Pittsburgh, Pa.

Subscription Faker Arrested.—The Periodical Publishers' Association has succeeded in arresting one Floyd Maxwell, who, it is said, has for some time been soliciting from physicians subscriptions to such magazines as the Literary Digest, and the Current Opinion, offering medical books as premiums. THE JOURNAL has on several occasions published warnings against a scheme of this nature, especially as several physicians have notified THE JOURNAL that they had been victimized. Those who have been caught by this man should send the evidence to the Chief of Police, Oshkosh, Wis., in which city Maxwell was arrested, to aid in prosecuting the case. The fact that this particular individual has been arrested should not, however, encourage physicians to relax their watchfulness. Such schemes are continually being foisted on physicians by various subscription fakers, and it is well to be very cautious of too bountiful offers.

Recent Regulations Under the Harrison Narcotic Law.—The following are recent regulations under the Harrison Narcotic Law considered editorially in this issue of THE JOURNAL, page 2070.

MEANING OF SECTION 6

The question arises whether or not "prescriptions" come within the definition of "preparations" or "remedies," as given in the act. The word "preparations," as generally used and understood, means ready-made or prepared medicines and the word "remedies" means that which cures or is efficacious in a specific disease or diseases under all conditions, while the term "prescription" is the written directions or recipe of a physician for the compounding or preparing of a medicine and directions for its use to meet the existing conditions in the case of a particular patient.

It is, therefore, apparent that the exemptions in Section 6 of the Act as interpreted in Treasury Decision No. 2172, relating to "preparations and remedies" containing not more than the specified quantities of the drugs enumerated, do not apply to "prescriptions" written by registered physicians calling for any quantity of the narcotic drug, unless such "prescription" is written for a "preparation or remedy" prepared in accordance with the U. S. Pharmacopeia, National Formulary, or other formula, or for a "remedy or preparation" prepared under private or proprietary formula, carried in stock by a dealer, which may be dispensed without a "prescription."

Every "prescription" therefore, containing a narcotic drug in any quantity, with the exemptions noted, must have indicated thereon the name and address of the patient, the date, the name and address of the physician, and his registry number. Such "prescriptions" cannot be refilled and must be filed for a period of two years.

MAIL ORDERS

The fact that registration is limited to certain named persons indicates that there must be a power of discrimination vested in collectors of internal revenue as to who shall be registered and from whom special tax may be received. Therefore, persons not legitimately engaged in the exercise of their trade or profession cannot legally register under the terms of this Act. For example, a party must be a legitimate producer, importer, manufacturer, seller, or distributor of the aforesaid drugs, and likewise a physician, dentist, or veterinary surgeon can register under this act and dispense these drugs "in the course of his professional practice only." It also follows from the express language of the act that such physician, dentist, or veterinary surgeon can prescribe such drugs when he "has been employed to prescribe for the particular patient receiving such drugs," and on whom he "shall personally attend in the course of his professional practice only," and such prescriptions must be made "in the legitimate practice of his profession," and then only when "employed to prescribe for the particular person receiving such drugs."

The above quotations from the law indicate the correct limitation on the professional prescription or distribution of said drugs by persons whether registered or not.

It is apparent from the foregoing that the duties of collectors and other internal revenue officers do not end, under the provisions of

this act, with simple registration. If parties secure registration through misrepresentation or fraud, such registration is null and void and does not protect them from prosecution for the illegal use of these drugs, and it is the duty of collectors and other internal revenue officers when such cases are discovered to investigate the same, and where the law has been violated in line with the foregoing, to seize and proceed to forfeit the prohibited drugs illegally in possession of such parties, and recommend such persons to the district attorney for indictment and prosecution.

The foregoing has special application to those persons who, registering as physicians, prescribe or distribute narcotic drugs or preparations on receipt of mail orders received from so-called patients, or who, under the laws of the state or under municipal regulations, are not permitted to practice medicine.

ISSUING NUMBERS

. . . In issuing registry numbers and special tax stamps under . . . Harrison Narcotic Law, collectors of internal revenue will require persons making applications to state, under oath, in the blank space on Form 678, or if not sufficient space on the line for that purpose it should be in the form of an affidavit attached to the application on this form, that they will engage in administering, dispensing, or prescribing narcotic drugs only in the legitimate practice of medicine, dentistry, or veterinary surgery; or will engage in the business of producing, importing, manufacturing, compounding, dealing in, dispensing, selling, or distributing, as the case may be, only those narcotic drugs for which they are duly qualified by law, that is, "The undersigned is now engaged or on and after _____ will engage in the legitimate practice of medicine (dentistry, or veterinary surgery), and is, or are, duly authorized by law to administer, dispense, or prescribe narcotic drugs," or "The undersigned is now engaged, or on and after _____ will engage in the lawful business of producing (importing, manufacturing, compounding, dealing in, dispensing, selling, or distributing) narcotic drugs."

FOREIGN

Plague Declining in Dutch East Indies.—According to the *Nederlandsch Tijdschrift*, the number of recorded cases of plague in Java during a recent eleven-day period was 119, with 103 deaths. During the corresponding period last year there were 694 cases, with 624 deaths.

Lectures on Medicolegal Aspects of Industrial Accidents.—The *Policlinico* mentions that Professor Bernacchi, consultant to the Cassa Nazionale infortuni sul lavoro, has been appointed lecturer at the University of Rome on industrial accidents. The official title of the course is "Unfortunistica medicolegale."

Antifly Campaign in Holland.—The Amsterdam Board of Health is busily distributing small illustrated pamphlets to educate the public in the dangers from the presence of flies and in means to exterminate them. The motto for the antifly campaign is repeated again and again; "No filth, no flies," *Waar geen vuil is, zijn geen vliegen*.

Italian Society for Experimental Phonetics.—An organization has recently been founded for this purpose, and one meeting has already been held at Rome. The membership includes physicians and scientists especially interested in the throat, and teachers of singing. Ferreri and Bilancioni reported the results of much research on fatigue of the larynx, and Gradenigo the results of study of phonation and respiration in a young woman with an entirely healthy throat who had been tracheotomized by mistake. Ponzo of Turin exhibited a modification of the Marey drum which records the tempo as well.

Metchnikoff's Seventieth Birthday.—Our foreign exchanges now contain an occasional article with the subheading, "Dedicated to Elias Metchnikoff on the Occasion of his Seventieth Birthday, May 16, 1915." These articles had been prepared for an international *Festschrift*, which was to have been presented to him on that date, but the war broke up the plans for the volume and the contributions are being published separately in various neutral journals. He is a native of southern Russia but has had a laboratory at the Paris Pasteur Institute since its erection, over twenty-seven years ago. His discoveries in phagocytosis were made previously in Italy. Although he studied under German physicians, he never took a degree in medicine.

Deaths in the Profession Abroad.—J. Englisch, professor emeritus of surgery, especially surgery of the urinary apparatus, at the University of Vienna, aged 80. The list of his works on urologic subjects is a long one.—M. Landau, assistant at the Freiburg Institute of Pathology, but lately in charge of a military hospital at Vienna, aged 29.—J. De Bary, of Frankfort-on-the-Main, aged 75.—Among those who have fallen on the battle field are A. Zahn, assistant at the university medical clinic at Greifswald, aged 29, son of the Geneva pathologist, F. W. Zahn; H. Deetjen, co-worker in the Institute for Cancer Research at Heidelberg since 1908, aged 48. It is to him we owe most of our knowledge of the blood platelets, as he worked out methods for isolating and keeping alive the platelets and studying their connection with coagulation.

WAR NOTES

Insane Among Crews of Interned Vessels.—Among the 5,000 sailors on the interned German vessels in New York harbor twelve cases of insanity have been reported to the county medical authorities in Hoboken. Health Officer Dr. Joseph Stack says that 90 per cent. of the interned crews suffer from anemia and are undernourished.

From Vienna.—A letter from Vienna in the *Medizinische Klinik* states that the limelight of public attention is now focused on the louse. The lay press teems with articles and advertisements on extermination of vermin. The newly organized society for prophylaxis of epidemic diseases is conducting a vigorous campaign for compulsory vaccination, which the medical profession has been urging for years. The authorities are now being besieged on all hands to order that the populace must be vaccinated. The medical faculty of the university bases its urgent plea mainly on the analogy between conditions in Austria now and those in Prussia after the war of 1870. In the army in both countries vaccination was compulsory, but the populace in general was not vaccinated, and Prussia then had an epidemic of smallpox, with over 240,000 cases. Compulsory vaccination was then enforced and by 1874 smallpox had been banished from the land. Recent Vienna statistics show that 98 per cent. of the mortality from smallpox is among the unvaccinated or never revaccinated.

LONDON LETTER

LONDON, May 28, 1915.

The War

THE CONDITION OF SERBIA

From Valievo, in Serbia, typhus spread, being carried by soldiers returning to their homes and by travelers on the railway. In a few weeks the country had become a seething mass of misery and pestilence. The number of patients far exceeded the hospital accommodation. In the Nish hospital they lay three and four in a bed, while others lay on the floor and even under the beds. No medical service adequate to the conditions existed. Physicians and nurses and others bravely volunteered from Britain, France and America, and many of them succumbed to typhus. The work done by these devoted helpers is beyond all praise. One English woman, Mrs. Hardy, who came alone, took charge single-handed of a surgical hospital of about 500 patients, and with the help of one woman, a Serbian physician, turned it into a marvel of order and cleanliness. In February the British Army Medical Service sent out a sanitary department under Colonel Hunter. When they arrived they found that apart from the wounded there were 37,000 sick in the army, including 15,000 cases of fever, of which more than 8,000 were typhus and nearly 1,500 typhoid. It was difficult to ascertain precisely the condition of the civil population, but in Kragujevatz alone, a town of 20,000 inhabitants, there were 1,400 cases of typhus, and the number of deaths in three months had been 3,400, or thirty-four times the normal. By all indications, typhus and relapsing fever were increasing rapidly; there were rumors of plague, and an obvious danger of cholera, unless effective measures could be taken before the warm weather set in. To bring order and cleanliness into this chaos seemed beyond human powers. Colonel Hunter quickly grasped the fact that the first need was to break the lines of infection between the troops and the rest of the country. To effect this, three principal steps were taken. First, quarantine stations were established behind the lines; second, notice was given that all railway communication would be suspended for fifteen days; and third, all leave from the army was stopped, and all soldiers on leave were immediately recalled, so that there might be no danger of re-infecting the railway after the disinfection, which was to be carried out during the stoppage. The problem of typhus was comparatively simple, as that disease is spread by lice. Wholesale disinfection and cleansing were carried out. Wine barrels were fitted up as disinfectors and sent broadcast through the towns and villages. All the hospitals were thoroughly disinfected, and more beds and accommodation were provided as soon as possible. Notification of disease was enforced, and infectious patients were removed from their homes to hospitals, their houses being thoroughly cleansed, and their other inhabitants kept in isolation for fourteen days. Finally, it was laid down that no infectious patients should be discharged from hospital in less than four weeks. The sanitary staff went from place to place in a train specially fitted up with all necessary appliances, and containing sleeping accommodation for all on board. Inoculation

was largely resorted to, especially against cholera, which always loomed ahead as the last and worst possibility when the other plagues were exhausted. As the British mission foresaw, the conditions became worse before they began to improve, but when they did, the change was rapid beyond expectation. April 5 there were 8,198 cases of typhus in hospital; April 18, only 948. In the same period relapsing fever had declined from 7,693 to 4,861, and typhoid from 1,443 to 1,126.

A Physician's Fear of Premature Cremation

The fear of premature burial, though not widespread, is well known, and a society for the prevention of this contingency exists. The will of a physician, Dr. A. W. Orwin, at one time physician to the Central London Throat, Nose and Ear Hospital, displays a similar fear with regard to cremation, and the precautions which he directed to be taken are most elaborate: that "until it was ascertained that he was in fact dead, his nose and mouth were not to be covered nor his body confined in any shell or coffin; that on his apparent death his body should be kept in a well-warmed bed for thirty-six hours and then placed in a warm room, with the windows partially opened, and watched for twelve days and nights or until definite signs of decomposition have set in. During this period, the tests given in a pamphlet by Sir Benjamin Ward Richardson, 'The Signs and Proof of Death,' were to be applied, and a bell was to be attached to his wrist. When decomposition should have set in, a surgeon was to sever completely the spinal cord high up in the body, which was then to be cremated."

BERLIN LETTER

BERLIN, May 18, 1915.

Personal

Prof. Heinrich Fritsch died, May 14, at Hamburg, aged 71. He studied under Olshausen, took his medical degree at Halle, was called to Breslau in 1882 as director of the maternity, and in 1893 became professor of obstetrics at the University of Bonn and director of the university clinic for women. Among his various important contributions to obstetrics and gynecology are his studies of the displacements of the uterus and of the pathology of puerperal fever. His larger works include "Diseases of Women," "Obstetric Operations" and "Obstetrics from the Forensic Standpoint," some of which have passed through many editions. His last work was on "Therapeutic Technic in Gynecology" in the "Manual of Therapeutic Technic" published by Professor Schwalbe.

The medical faculty of the University of Heidelberg has awarded this year the Kussmaul medal and the money prize from the Kussmaul endowment to the surgeon, Professor Braun of Zwickau.

The War

VENEREAL DISEASES

As history has shown, there has always been a great increase in venereal diseases along with all wars, and it was evident to all that in the present war, also, the combating of venereal diseases would be one of the most important hygienic problems presented. Soon after the opening of the war, there was a lively discussion on the subject in medical literature. The national preventive organizations—in Germany the Deutsche Gesellschaft zur Bekämpfung der Geschlechtskrankheiten—were among the first to call attention to the immense import of the whole matter and to insist on enlightenment and warning and to urge energetic measures for protection and prophylaxis. When nine months of the war had passed, April 18, the board of the German Prophylactic Society held a meeting in which was discussed what has been accomplished to date and what is still to be done in the future. It was the general conclusion that the measures for enlightenment now in vogue on different sides must be vigorously continued. The distribution of enlightening circulars must be continued, especially the one issued by this society in an edition of two millions, and its other warning publications must be widely distributed. In addition to these, the short warning circular which has been published in an edition of 5,000,000 copies by the organized trade unions and other organizations of working men should be distributed. The latter circular was prepared at the instigation of the national insurance societies, and warns against the dangers of venereal diseases.

Of all measures, however, emphatic warning by word of mouth of the dangers of illicit intercourse was extolled as

the most effectual. Particularly valuable for this is an outline prepared by Professor Uhlenhuth, consulting hygienist for the seventh army corps, to be used with a small atlas, for instructing the men when they are undergoing medical inspection. In the home zone, every new body of recruits should be instructed in the same way. In the barracks and hospitals, warning placards should be hung up; placards of this kind are supplied free of charge by the society. It was further emphasized as urgently necessary to enlighten the women in the home zone who would be exposed to danger, and to impress on them the necessity for seeking medical care at the first suspicion of infection. The proposal was also made to publish suitable articles from time to time in the trade and insurance journals, and that the Krankenkassen themselves should arrange for enlightening lectures and gatherings for talks on this subject for their insured members. It was further urged that the treatment of soldiers with venereal disease should be carried on in special wards. Each army corps should have a consulting venereologist—at least as an expert adviser for the consulting hygienist.

The most difficult phase of the problem is, of course, prostitution. As it is impossible to realize anything like complete sanitation of prostitution, an attempt should be made to detain under lock and key (*festhalten*), until peace is declared, the numerous Belgian and French prostitutes, if they cannot all be deported (*wenn man sie nicht abschieben kann*). Where this is not practicable, every measure for supervision should be applied under the control of German specialist physicians. The most important protecting means in the fight against prostitution are undoubtedly personal prophylactics. No prudery should be allowed to prevail here. Provision must be made to facilitate in every way the furnishing to the troops of prevention means; under all circumstances it must be required that after illicit intercourse a prophylactic protecting treatment must be applied. No soldier should be given a furlough without a previous medical examination, and furloughs should be refused to those with venereal disease. All these measures—so far as military conditions permit—must apply to the younger officers as well as to the men.

Of course these prophylactic and therapeutic measures should not be regarded as sufficient in themselves. Everything should be eliminated that increases the lure to extra-matrimonial sexual intercourse. The German society proposes the following additional measures: (a) economic and social provision for the unemployed girls and women in the home zone and in the regions where the army is stationed; (b) the closest supervision of private quarters and their restriction to the utmost; (c) restriction of evening leave of absence; (d) restriction of alcohol, and an ample supply of nonalcoholic beverages; (e) exclusion of women from employment as waitresses in saloons or from admittance to them and similar places; (f) shortening of the hours saloons are allowed to be open; (g) provision of reading rooms, writing rooms and gathering places for the soldiers, and finally, (h) the prevention of quacks treating venereal diseases or advertising their services in any way.

A long discussion was devoted to ways and means to avert extensive spread of venereal diseases through the families after peace is declared. As experience has shown, toward the end of a war, when truce is declared, the venereal diseases become much more prevalent. All the authorities are convinced that when this time arrives all the prophylactic measures will have to be enforced with especial strictness. When peace is declared, all who have been treated for venereal disease during the war must be examined anew, and those still capable of infecting others should be retained in the region occupied by the army, in the reserve garrison, or at work otherwise, until they are cured. These measures should apply not only to the active soldiers but also to all other men connected with the army, railroad employes, postmen, bands of workmen, etc.

A number of the officials of the society declared it practically impossible to carry out still another measure suggested—although in itself extremely desirable—namely, that all those who have taken part in the war should be examined for gonorrhea and syphilis (including an examination of the blood) before they are dismissed to return home. Those who are not quite cured but no longer capable of infecting others should have opportunity for treatment offered them at once after their return home. The officials of the state insurance organizations have announced that they will provide means for the latter purpose on a large scale. The plan is to have dispensaries like those which have been doing

good service at Hamburg since January, 1914, also organized by insurance officials.

The question was raised by the legal members of the board whether it would not conflict with professional secrecy to have the names of those still requiring treatment handed over to the insurance companies. This objection was met, however, by the provision in the German law on the subject, that it does not conflict with professional secrecy to pass the name from one official organization to another.

PARIS LETTER

PARIS, May 27, 1915.

The War

FROZEN MEATS FOR THE ARMY

The provisioning of the army has considerably increased the consumption of butchers' meat. This increase amounts to about 400,000 tons per year or about 1,200,000 head of cattle. Our supplies of animals for slaughter are consequently being rapidly reduced and there is reason to fear that there will be insufficient production of meat animals for four or five years after the hostilities. As it is easy to see that the purchase of frozen meats is going to be continually more and more difficult, the Chamber of Deputies has just voted to authorize the minister of war to obtain for the use of the army annually 120,000 tons of refrigerated meat from our colonies or from foreign countries. The minister of war will be able to apply to the uses of the civil population all the meat which is not used for the troops. It is intended to buy frozen meats, which can better stand the delays and other hazards of transportation without risk of deterioration and which are better suited for the use of the army than meats which are simply refrigerated. There are facilities for cold storage in certain of our ports, amounting to 5,000 tons at Marseilles, 1,500 tons at Bordeaux, 4,000 at Havre; such facilities also exist in some of our other cities, as 5,000 tons at Paris, 2,000 at Dijon, 300 at Lyons and 250 at Nice. There are 800 refrigerating cars for use in transportation into the interior.

During the discussion of the bill, a deputy, M. Laurent Bougère, drew attention to the fact that, in the opinion of many physicians who have been at the front, the daily ration of 500 gm. of meat per man is excessive during the summer and ought to be partially replaced by vegetables. The ministers of agriculture replied that the meat ration has been reduced to 400 gm. for the troops of the second line but maintained at 500 gm. for those of the first line so that the average ration of the army is about 450 gm. Endeavors are being made to supply as large a quantity as possible of fresh vegetables at the front.

So far as refrigerated meats are concerned, it has sometimes happened that the cold storage houses have offered for consumption meats which were not all they should be. It is therefore of interest to know the precautions which the government has taken against this contingency. The director of the commissary at the war department has informed the budget commission that there are already and will be more facilities for the inspection of the sanitary condition of these meats, not only at the ports where they are landed and where they may be rejected if they are not altogether satisfactory, but also in the factories, where veterinarians are to have the right of examining the animals at the slaughter houses and also of inspecting the processes of manufacturing.

PREVENTION OF DECUBITUS IN TRAUMATISMS OF THE SPINAL CORD CAUSED BY WOUNDS OF WAR

At a recent session of the Académie de médecine, Dr. Pierre Marie, professor of pathologic anatomy at the Faculté de médecine de Paris, and Dr. Gustav Roussy, agrégé in the same subject at the same school, read an interesting paper on this topic. They believe that the long admitted theory that bedsores are the result of a trophic cutaneous trouble directly produced by the lesion of the nervous center is false. In reality the causes of decubitus consist of the following: (1) compression, indefinitely prolonged, of the projecting parts of the body, as the sacrum, heels or elbows, against the surfaces of the bed; (2) infection produced in the skin thus altered by prolonged and repeated contact with urine and feces. To prevent these lesions, these two causes must be eliminated. The position of these patients should therefore be changed every hour during the day and every two hours during the night. Also as soon as such wounded patients are soiled by their dejecta they should be immediately washed, powdered and placed on dry linen.

INDIRECT INTRA-OCULAR LESIONS BY FIREARMS

At the last session of the Académie de médecine, Dr. Lagrange, professor of clinical ophthalmology at the Faculté de médecine de Bordeaux, called attention to the fact that firearms may cause serious ocular lesions without touching the eyes. Bullets traversing the face or fragments of shell injuring the skull sometimes cause serious conditions in an eye apparently intact. Similar results may follow the displacement of the air caused by the explosion of a large projectile. In such cases there is a more or less accentuated laceration of the uveal tract. Such intra-ocular lesions resulting from concussion of the tissues or from simple displacement of the air make it possible to understand the existence of lesions of the nervous centers (spinal cord or brain) and of the peripheral nerves by projectiles which do not come into immediate contact with them or by the vibration of the air caused by the explosion of a large shell. The ophthalmoscope makes it possible to see in the ocular membranes lesions which are invisible in the nervous centers and trunks.

TREATMENT FOR TUBERCULOUS SOLDIERS

The Conseil général du département de la Seine-Inférieure has decided to found a departmental sanatorium for the treatment of soldiers who have contracted tuberculosis while serving under the flag.

Measures Against Alcoholism

The minister of justice has just addressed to the public prosecutors a circular with regard to the recent law forbidding the manufacture, the sale and the circulation of absinthe and similar liquors. He requests them to aid by all measures in their power in the campaign undertaken by the government against alcoholism by prosecuting all infractions of the law of Jan. 23, 1873, against drunkenness. This law provides punishment, not only for individuals found drunken in public places, but also for those who sell drinks to manifestly drunken customers or who serve alcoholic liquors to children under 16. The penalties are moderate for the first offense, but increase proportionately with repetition, reaching imprisonment for two months, prohibition of the consumption of drinks on the premises or even closing up the establishment. These penalties are so rarely applied that they have almost been forgotten. It is necessary that repeated offenders should be carefully distinguished and that all penalties called for by the nature of the case should be rigorously applied.

Jubilee of Professor Metchnikoff

A celebration which, owing to present circumstances, has taken on a personal character, was recently held at the Pasteur Institute; the occasion was the seventieth birthday anniversary of Prof. Elie Metchnikoff. Prof. Gaston Darboux and Dr. Roux reviewed the career and the works of the Russian scientist, the first on behalf of the Académie des sciences and the second on behalf of the Pasteur Institute. Professor Metchnikoff gave the audience an interesting talk on the prolongation of life.

Marriages

FAIRFAX HALL, M.D., New Rochelle, N. Y., to Miss Eleanor Reyburn Remy of Evanston, Ill., at Port Chester, N. Y., May 29.

HARVEY WARD VAN ALLEN, M.D., Springfield, Mass., to Miss Anna Marion Dostal, at Schenectady, N. Y., June 7.

MAX J. COLTON, health officer of Cumberland, Md., to Miss Florence E. Gibbs of East Orange, N. J., June 7.

KARL MILLER WILSON, M.D., Baltimore, to Miss Mildred Hallowell Bentley of Sandy Springs, Md., June 1.

JOHN A. ASCHER, M.D., Sparks, Nev., to Miss Agnes C. McKinnon of Spokane, Wash., at Reno, June 2.

CRANFORD HAYWOOD DOUTHIRT, M.D., Roaring River, N. C., to Miss Lydia I. Reid of Towson, Md., June 2.

WALTER M. DROLL, M.D., Alta Vista, Kan., to Miss Hannah Amelia Netzig of Manhattan, Kan., May 26.

TODD J. WILSON, M.D., Negaunee, Mich., to Miss Lorena May Lockhart of Barrington, Ill., May 31.

ROBERT MARSHALL WHITE, M.D., to Miss Mary Tivnan, both of Dorchester, Boston, June 1.

MAURICE R. PERLSTEIN, M.D., to Miss Rose Tratner, both of Chicago, June 2.

Deaths

Samuel Baldwin Ward, M.D. Georgetown University, Washington, D. C., 1864; assistant surgeon, United States Volunteers, during the Civil War; a Fellow of the American Medical Association; formerly president of the Medical Society of the State of New York and Albany County Medical Society; a member of the Association of American Physicians; once professor of anatomy and surgery in the Woman's Medical College of the New York Infirmary; for many years dean and professor of the theory and practice of medicine in Albany Medical College; attending physician to the Albany Hospital and consulting physician to the South End Dispensary; secretary and treasurer of the executive committee of the state normal college, Albany, and president of the board of trustees of the Dudley Observatory; died at his home in Albany, June 3, aged 73.

Frank Neall Robinson, M.D. University of Pennsylvania, Philadelphia, 1895; a Fellow of the American Medical Association; a member of the American Climatological Association and the National Association for the Study and Prevention of Tuberculosis; formerly of Camden, N. J., and a member of the city council for two terms; who went to California ten years ago on account of ill health and was for two years assistant superintendent of the Pottenger Sanatorium for Tuberculosis in Monrovia; died at his home in that place, May 25, aged 40.

John S. Mack, M.D. University of Pennsylvania, Philadelphia, 1892; a practitioner and druggist of Slatington, Pa.; assistant surgeon of the Fourth Pennsylvania Infantry, United States Volunteers, during the Spanish-American War, with service in Cuba; half owner of the Crescent Slate Company and its secretary and treasurer; committeeman, school director and treasurer of the school board for two years; a member of the borough council and in 1909, burgess; died in the Hotel McClodes, Buffalo, May 30, from heart disease, aged 45.

Spiro F. Sargentich, M.D. College of Physicians and Surgeons, San Francisco, 1902; formerly a Fellow of the American Medical Association, and a practitioner of Portland, Ore., and Tacoma, Wash.; but more recently a resident of Seattle; who went to Serbia a few months ago to assist in the fight against typhus fever in his native country; died recently from that disease, aged 41.

Gustavus Freedom Walker, M.D. Vermont Medical College, Rutland, 1888; of Boston; a veteran of the Civil War and surgeon-lieutenant of the Ancient and Honorable Artillery Company of Boston and medical director for the Massachusetts Department of the Grand Army of the Republic; died at his home in Boston, June 1, from cerebral hemorrhage, aged 71.

Walter J. Mitchell, M.D. Medical College of Ohio, Cincinnati, 1884; a member of the Indiana State Medical Association; formerly of North Vernon, Ind., and clerk of the Jennings County Circuit Court; died in Indianapolis, May 31, from the effects of poison self-administered, it is believed, with suicidal intent, while of unsound mind, aged 52.

Daniel R. McCormick, M.D. Jefferson Medical College, 1882; a Fellow of the American Medical Association; medical director of the Lancaster (Pa.) General Hospital; a member of the Lancaster school board and of the Board of Health of Lancaster County; died at his home in Lancaster, May 31, from cerebral hemorrhage, aged 58.

James Fulton McCutchan, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1868; a member of the Illinois State Medical Society and president of the Warren County Medical Society; a veteran of the Civil War, and one of the oldest practitioners of Warren County; died suddenly at his home in Alexis, Ill., May 28, aged 81.

Robert Clement French, M.D. Tulane University, New Orleans, 1906; of Natchez, Miss.; aged 35; a Fellow of the American Medical Association; a specialist on diseases of the eye, ear, nose and throat; oculist and aurist to the Natchez Hospital; died in the Touro Infirmary, New Orleans, May 30, after a surgical operation.

Harry H. Sherck, M.D. Jefferson Medical College, 1886; a Fellow of the American Medical Association; a member of the Camden (N. J.) Board of Health, and a practitioner and ophthalmologist of Camden for thirty-five years; died June 1, in a private hospital at Chestnut Hill, Pa., from cerebral hemorrhage, aged 55.

Herbert Lucian Grant, M.D. Tulane University, New Orleans, 1901; of El Campo, Texas; a member of the State Medical Association of Texas; died in the De George Hotel, Houston, Texas, June 2, from the effects of a gunshot wound of the head, self-inflicted, it is believed, with suicidal intent, aged 38.

James William Washington Culpepper, M.D. Chattanooga (Tenn.) Medical College, 1904; of Cullman, Ala.; a member of the Medical Association of the State of Alabama; aged 38; died in a hospital in Birmingham, Ala., May 27, from injuries sustained in an automobile accident two days before.

Morris Kush, M.D. Cornell University, New York City, 1913; an intern in Mount Sinai Hospital, New York City; aged 27; a member of the medical scholarship society of Alpha Omega Alpha; was accidentally drowned during a heavy windstorm, May 26, while canoeing on Lake George.

John Milton Shields, M.D. Albany (N. Y.) Medical College, 1868; formerly a Fellow of the American Medical Association; for many years a medical missionary of the Presbyterian Church in New Mexico; died at his home in Jemez Springs, N. M., May 23, aged 73.

Frank Eugene Baker, M.D. Long Island College Hospital, Brooklyn, 1891; formerly a practitioner of Florida, but more recently a resident of Woodford, Vt.; died at the home of his mother in North Adams, Mass., May 8, from acute prostatitis, aged 45.

Gustav Hahn, M.D. John A. Creighton Medical College, Omaha, 1903; a Fellow of the American Medical Association; a well-known practitioner of Omaha; died at his home in that city five weeks after an operation for cholelithiasis, aged 52.

Samuel Miner Glenn, M.D. Western Reserve University, Cleveland, 1910; formerly a Fellow of the American Medical Association; a member of the Ohio State Medical Association; died at his home in Warren, Ohio, May 30, aged 36.

Walter Carl Smiley, M.D. University of Southern California, Los Angeles, 1906; of Banning, Calif.; a Fellow of the American Medical Association; died at the home of his parents in Pasadena, Calif., May 30, from nephritis, aged 35.

T. Edwin Martin, M.D. Northwestern University Medical School, Chicago, 1904; a practitioner and druggist of Homedale, Ida.; formerly editor of the *Homedale Press*; died May 29, it is believed from an overdose of morphin, aged 32.

James M. Guess, M.D. Medical College of Georgia, Augusta, 1878; formerly of Centerville, Ga., but for several years a resident of Stone Mountain, Ga.; died in a hospital near Atlanta, May 26, from cerebral hemorrhage, aged 61.

Frederick Arthur Ruickoldt, M.D. University of Jena, Germany, 1865; a Fellow of the American Medical Association and founder of the New Haven Medical Association; died at his home in New Haven, Conn., June 2, aged 75.

John D. Miller, M.D. Louisville (Ky.) Medical College, 1903; of Batesville, Miss.; a member of the Mississippi State Medical Society; was instantly killed on Belmont levee by the overturning of his automobile, June 1, aged 36.

John A. Gale, M.D. Medical College of Indiana, Indianapolis, 1875; formerly of Denver, and local surgeon to the Colorado and Southern Railway; a resident of Los Angeles; died in Whittier, Calif., May 1.

William Wakeham, M.D. McGill University, Montreal, 1866; for thirty-six years fishery inspector for the lower St. Lawrence and gulf, and local justice of the peace; died at his home in Gaspé, Que., May 20, aged 70.

Samuel Cole, M.D. Rush Medical College, 1865; New York University, New York City, 1866; a Fellow of the American Medical Association; died at his home in Chicago, June 5, from heart disease, aged 70.

William Carey Allen, M.D. Hahnemann Medical College, Philadelphia, 1883; for twenty-seven years a practitioner of Colorado Springs, Colo.; died at his home in that city, June 2, from heart disease, aged 61.

Clayton M. Stewart, M.D. Missouri Medical College, St. Louis, 1857; Jefferson Medical College, 1860; for many years a practitioner of Scott County, Ill.; died at his home in Jacksonville, Ill., April 30, aged 83.

Edward Richard Johnstone, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1892; for several years a practitioner of San Luis Obispo County, Calif.; died at his home in Morro, Calif., May 20, aged 51.

Eliza J. Zimmerman Burnside, M.D. Woman's Medical College of Pennsylvania, Philadelphia, 1860; for many years a practitioner of Philadelphia; died at the home of her sister in Tiffin, Ohio, May 28, aged 83.

Theodore F. Meisenheimer, M.D. New York University, New York City, 1880; a member of the Medical Society of the State of North Carolina; died at his home in Morven, May 27, aged about 63.

William Himmelsbach, M.D. Cooper Medical College, San Francisco, 1898; a member of the Medical Society of the State of California; of Watsonville, Calif.; died at Oakland, Calif., May 23, aged 52.

James Francis Hackett, M.D. State University of Iowa, College of Homeopathic Medicine, Iowa City, 1889; of Kellogg, Iowa; died at the home of his daughter in Maxwell, Iowa, May 9, aged 56.

Benjamin Frank Zerbe, M.D. Jefferson Medical College, 1878; formerly prothonotary of Lebanon County, Pa.; died at his home in Schaefferstown, Pa., about May 31, from acute meningitis, aged 61.

Addison Henry Dey, M.D. University of Pennsylvania, Philadelphia, 1881; for many years a practitioner of Trenton, N. J.; died at his home in that city, May 16, from cerebral hemorrhage, aged 58.

William Thomas Bogie, M.D. Bellevue Hospital Medical College, 1878; formerly a member of the Oklahoma State Medical Association; died at his home in Ardmore, Okla., May 29, aged 59.

George V. Hale, M.D. Jefferson Medical College, 1883; also a druggist; formerly local surgeon of the Southern Pacific System at Burbank, Calif.; died in Los Angeles, April 24, aged 61.

Louis Frederick Bischof, M.D. New York University, New York City, 1885; also a graduate of the New York College of Pharmacy; died at his home in New York City, May 23, aged 51.

Joseph S. Stanley (license, Mississippi), a Confederate veteran and a practitioner of Macon, Miss., for forty years; died suddenly in Valdosta, Ga., May 20, from heart disease, aged 68.

Robert Newton Fryer, M.D. University of Nashville, Tenn., 1870; for about sixty years a practitioner; died at his home in Newbern, Tenn., April 7, from senile debility, aged 85.

Charles Hiram Colegrove, M.D. Detroit Homeopathic Medical College, 1873; a veteran of the Civil War; died at his home in Willimantic, Conn., May 29, aged 73.

Daniel Joseph Mehegan, M.D. Harvard Medical School, 1894; a member of the Massachusetts Medical Society; died at his home in Taunton, Mass., April 21, aged 46.

J. Elizabeth Tompkins, M.D. Harvey Medical College, Chicago, 1896; for twenty-five years a practitioner; died at her home in Chicago, May 26, aged 70.

Francis Joseph Bicker, M.D. Jefferson Medical College, 1890; a practitioner and druggist of South Camden, N. J.; died at his home, May 24, aged 58.

William Ernest De La Perriere, M.D. Atlanta, Ga., College of Physicians and Surgeons, 1907; died at his home in Hoschton, Ga., May 22, aged 30.

John Franklin Marshall, M.D. New York University, New York City, 1890; died at his home in Brooklyn, May 31, from pneumonia, aged 50.

Henry Howard Townes, M.D. Medical College of Georgia, Augusta, 1896; of Poverty Hill, S. C.; died in Highlands, N. C., May 24, aged 45.

William Johnston DeWitt Sproule, M.D. University of Toronto, Ont., 1906; died at his home in Harlem, Mont., about May 20, aged 32.

Directus DeForest Cole, M.D. Hahnemann Medical College, Chicago, 1881; died at his home in Newark, N. Y., May 24, aged 60.

Eddie Wise Jenkins, M.D. Bellevue Hospital Medical College, 1883; of Farmdale, Fla.; died in Columbus, Ga., about May 21.

James A. Clementson, M.D. Hahnemann Medical College, Chicago, 1895; died at his home in Lancaster, Wis., May 19, aged 42.

Rufus N. Younger, M.D. University of Louisville, Ky., 1888; died at his home in Whitesboro, Tex., May 19, aged 61.

William A. T. Keeler, M.D. Jefferson Medical College, 1873; died at his home in Stroudsburg, Pa., May 24, aged 81.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

LOUISIANA GOES ON RECORD

What One Southern State Thinks of Fraudulent "Patent Medicines"

Readers of THE JOURNAL will remember that Dr. Oscar Dowling, president of the State Board of Health of Louisiana, and one of the Trustees of the American Medical Association, has been sued by the Chattanooga Medicine Company. The suit was based on the fact that Dr. Dowling, in his official capacity as State Health Officer, exhibited in the Louisiana "State Health Train," among other educational placards, one exposing Wine of Cardui. After the suit was brought, the State Board of Health of Louisiana officially upheld Dr. Dowling and also declared Wine of Cardui a fraud.

On June 14, the Louisiana General Assembly, in special session at Baton Rouge, passed the following, known as Senate Concurrent Resolution Number Six:

"WHEREAS, Dr. Oscar Dowling, President of the Louisiana State Board of Health and, ex-officio, Commissioner of Food and Drugs, in his administration of these departments, has demonstrated the highest regard for his oath of office and courage in the case of public health against mercenary interests which have attacked the work of the Louisiana State Board of Health and discredited its efforts to protect the public; therefore be it

"Resolved, By the Senate of the State of Louisiana, the House concurring, we approve the campaign of the Louisiana State Board of Health as conducted by Dr. Oscar Dowling, President, to rid the State of Louisiana of the pernicious patent nostrums so widely advertised and sold under misleading and fraudulent pretences as to curative properties.

"Resolved, further, That we commend the action of the 'Louisiana Press Association' for its endorsement of the Louisiana State Board of Health in its effort to control the patent medicine evil, and Dr. Oscar Dowling, President, for his defense of the medical profession, the American Medical Association and the Louisiana State Board of Health at the Twenty-Sixth Annual Session of the Louisiana Press Association in Monroe, June 10, 1915, against the attack made by one of the speakers from a neighboring state who appeared on the program.

"THOMAS C. BARRET, Lieutenant-Governor and President of the Senate;

"L. E. THOMAS, Speaker of the House of Representatives;

"L. E. HALL, Governor of the State of Louisiana."

It should be said that the Louisiana Press Association, which was recently in session at Monroe, La., had already gone on record against questionable advertising, especially as it refers to "patent medicines" and quackery. At its annual convention held last week this association reaffirmed its position on the question of fraudulent advertising and requested the president of the State Board of Health to furnish its members with a list of concerns that had been placed under ban by the board.

At the Louisiana Press Association's convention at Monroe a paper was read by one James A. Metcalf. This individual championed the cause of "patent medicines," by the usual method: vilifying the medical profession in general and the American Medical Association and the Editor of THE JOURNAL in particular.

This attempt on the part of the "patent medicine" interests to influence the press of Louisiana acted as a boomerang which was thus described by the Monroe (La.) *News-Star* in reporting the incident:

". . . the speaker failed utterly to help the cause of the patent medicine manufacturer with the Louisiana newspaper men who showed their feelings later by unanimously and loudly adopting a resolution endorsing the fight of the State Board on patent medicine frauds and requesting Dr. Dowling to furnish the press of the state a list of these nostrums so they may be banished from the advertising columns."

ARTICLE REFUSED RECOGNITION

Report of the Council on Pharmacy and Chemistry

Below appears an abstract of the Council's action on an article refused recognition which was not deemed of sufficient importance to require a lengthy report.

Iodex

Iodex is manufactured by Menley and James, Ltd., New York. It is advertised as

"... an embodiment of vaporized iodine in an organic base, reduced and standardized at 5 per cent. by incorporation with a refined petroleum product."

The advertising conveys the impression that the effects of free iodine are to be obtained from the preparation; it is said to contain "5 per cent. Therapeutically Free Iodine," and to do

"... everything the doctor expects of FREE iodine employed by inunction, without one physical or therapeutic drawback."

The statements are also made that the preparation "neither stains, irritates, blisters or cracks the skin," and that "thirty minutes after inunction iodine can be found in the urine."

The following report of an examination made by the Chemical Laboratory of the American Medical Association has been submitted to the Council:

"Iodex is dark green, practically black. The green color is apparent when the ointment is rubbed on the skin, but disappears on continued rubbing. This nonstaining property is explained by the results of a test for free iodine, made on five specimens, four of which yielded only minute traces of free iodine, while the fifth yielded none. Of course, the statements that Iodex is an 'Effective Free Iodine Application Without Drawbacks' and also a means of 'Really Efficient External Iodine Therapy Without Stain or Irritation' contradict each other. Free iodine cannot be present in a sufficient quantity to be therapeutically efficient in any application which does not stain or irritate the skin.

"The total iodine content of the five specimens was found to be 2.63 per cent.—a little over one-half of the content claimed.

"Absorption and excretion experiments were performed to test the claim that 'thirty minutes after inunction iodine can be found in the urine.' In several subjects, from 1 to 2 gm. of Iodex was rubbed on the skin of the forearms, and the urine, for periods varying from seven to seventy-two hours, was collected and tested for iodine. In all of the tests the results were negative."

Iodex is advertised as beneficial in muscular soreness, sprains, sciatica, neuritis, chronic rheumatism, enlarged glands, orchitis, epididymitis, gout, burns and dermatomycoses. It is also said to be "Indicated in Glandular Enlargements, Inflammatory Conditions, Various Joint Diseases, Rheumatism, Skin Diseases, Chilblains, etc., etc."

To sum up:

1. As shown in the foregoing laboratory report, the composition is incorrectly stated, for the actual iodine content is only about half of that claimed.

2. It is not true that the action of Iodex is essentially that of free iodine, which is the impression conveyed by the advertising.

3. The assertion made in the advertising, that iodine may be found in the urine shortly after Iodex has been rubbed on the skin, has been experimentally disproved.

In view of these findings, the Council voted that Iodex be refused recognition for conflict with Rules 1, 4 and 6.

Modes of Infection in Tuberculosis.—Infection in tuberculosis results from close and perhaps prolonged association with some individual suffering from the disease. The nearness to the individual is not important, although droplet infection from forceful coughing is more apt to occur if contact is close; but the mere occupancy of a room previously used by a consumptive who has been careless in the disposal of his sputum is sufficient. Heat, poor ventilation and lack of sunlight increase the liability of infection, dust also acting deleteriously. Under ordinary conditions dishes are probably not responsible for the spread of the disease, but blankets and soiled or imperfectly cleaned linen may be an important source of infection.—Ernest A. Sweet, *Public Health Reports*, April 9, 1915.

Correspondence

Ben Franklin's Views

To the Editor:—The extract from the "Autobiography of Benjamin Franklin" (Miscellany, *THE JOURNAL*, June 5, 1915, p. 1933) gives a mistaken idea of the habits of our first American philosopher as regards his use of alcohol. Early in life as an impecunious printer's devil he may have been as abstemious as is asserted, but with the access of fortune and fame he certainly indulged more freely in "that muddling liquor" which he condemns. This is only an example of the not uncommon failing which he shared with less famous mortals in not always squaring his practice with his preaching.

Sir George Trevelyan, in his "American Revolution," says:

"But Franklin was not long left without a colleague worthy of himself, and of the nation which he represented. The French treaty had been signed in February, 1778; and by the second week of April, John Adams was already supping with him 'on cheese and beer' in his suburban residence at Passy."

Fortunately the growing habit of abstinence from alcohol in the teachings of pathology and modern physiology rests on a surer foundation than is afforded in the precepts or practice of Poor Richard, whose homely and parsimonious maxims are today as archaic as the author's lightning rods or his old fur cap. Franklin's early objection to alcoholic beverages was chiefly on the ground of their expensiveness, and in an age of high cost of living and reckless expenditure this is a poor argument, which would apply with equal or greater force to the use of bottled spring water.

We are sufficiently grown up as a nation to hear with composure the truth about our early history, and it cannot harm the secure fame of Franklin to know that he was fond of both wine and women, a fact which he himself took no pains to conceal during his long and industrious lifetime. It is not recorded that his convivial habits or mulierosity ever impaired to the slightest degree his popularity or efficiency as a special ambassador to the gay court of Louis XVI during a dark and critical period of our country's history. In these stirring days of history in the making it is well to remember that not all of our Revolutionary heroes and patriots were impecceable saints, our school histories to the contrary notwithstanding. One of Franklin's bastard sons bore his name and was appointed a royal governor of New Jersey when that state was a crown colony. He was knighted by George III and remained a Tory partisan all his life.

Benjamin Franklin was a notorious sufferer from gout, and in his humorous dialogue under date of midnight, Oct. 22, 1780, occurs the following frank admission that he was far from being a total abstainer:

"*Franklin.* Eh! oh! eh! What have I done to merit these cruel sufferings?"

"*Gout.* Many things: you have ate and drunk too freely and too much indulged those legs of yours in their indolence."

For physicians interested in the treatment of tuberculosis, it is of interest to recall that Franklin had knowledge of the value of fresh air methods equal to the most advanced views current today. He says:

"It is recorded of Methuselah, who, being the longest liver, may be supposed to have best preserved his health, that he slept always in the open air; for when he had lived five hundred years an angel said to him: 'Arise, Methuselah, and build thee an house, for thou shalt live yet five hundred years longer.' But Methuselah answered and said: 'If I am to live but five hundred years longer, it is not worth while to build me an house; I will sleep in the air, as I have been used to do.' Physicians, after having for ages contended that the sick should not be indulged with fresh air, have at length discovered that it may do them good. It is therefore to be hoped that they may in time discover likewise that it is not harmful to those who are in health, and that we may then be cured of the aerophobia that at present distresses weak minds, and makes them choose to be stifled and

poisoned rather than leave open the window of a bedchamber or put down the glass of a coach."

John Adams, who attained the venerable age of 91, was never converted by the doctrine of his eminent colleague whom he long survived, and he was always convinced that Franklin, who died at the age of 84, was prematurely cut off by his foolish habit of exposing himself to drafts of air.

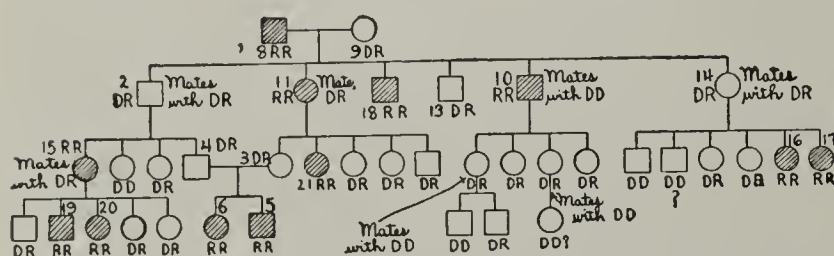
HENRY L. SHIVELY, M.D., New York.

Polydactylism as a Hereditary Character

To the Editor:—I have been vastly amused but not convinced by the easy grace with which Dr. W. R. Tymms (*THE JOURNAL*, June 5, 1915, p. 1931) surmounts the difficulties which I imagined I encountered in proving polydactylism a recessive hereditary character.

In the first place, as regards the question of an imperfect dominance of either the normal or the polydactyl condition, allow me to point out that such a conclusion was reached some time since by Bateson and Castle, whose names are most intimately connected with experimentation to determine the facts of mendelian heredity, although they seem to feel that the *polydactyl* condition is the imperfect dominant.

It will be recalled that as an instance which might tend to prove polydactylism a recessive character, I suggested that 4 and 3, being offspring of polydactylous progenitors, could each very well be considered DR in composition and they, each contributing an R to 5 and 6, cause this pair to be RR and thus to present the recessive polydactyl character (referring to my chart as edited by Dr. Tymms), all other polydactylous members of the tree exhibiting the character



Squares indicate males, circles, females. Shaded areas indicate affected persons (polydactyls).

because of the imperfect dominance of the normal five-fingered state. Now Dr. Tymms labels 8 as RR, which means that *both* of his parents must have borne this factor. Then 8 marries a woman 9 labeled, by him, as DR, meaning that she too bears the same polydactylous factor. And, as if there were some controlling destiny operative, 2, 11, 14 and 15 all meet and mate with a DR each.

If polydactylism is carried as a potential factor so generally, I submit that we must soon become a polydactylous race. Otherwise, it would appear that when a hurdle is encountered, the easiest way of getting by is simply to remove it.

JULIAN W. BRANDEIS, M.D., New York.

The Country Doctor

To the Editor:—It seems to me that both Dr. Flancher and Dr. Ames (*THE JOURNAL*, March 27, 1915, p. 1095; June 5, 1915, p. 1931) have missed the mark. The first requisite of either a country or a city physician is character; then comes ability. I will take off my hat to the physician who says he does not know, but who at the same time will work to find out. There is no question that the city physician who realizes his responsibilities can do better work with less effort than the country physician. Every man should realize his limitations. We all have them. Then he should not hesitate to call a better man, even if he is a city man. Thwarted ambitions act like poison in human nature, and a normal and temperate satisfaction of ambition is what keeps it sweet and sane. The clinics and hospitals in the city give an opportunity which we country fellows hunger for. We cannot all live in the city. Patients in the country are entitled

to as good treatment as can be obtained anywhere. If we cannot give it, we should call in the man who can, no matter where he lives.

HENRY C. CALDWELL, M.D., St. Croix Falls, Wis.

The Tendency to Write Long Sentences

To the Editor:—I desire to call attention to what seems to be a growing evil in the matter of literary productions by physicians and others, although not a new one. It is a tendency to make long sentences which often require to be read two or three times before the meaning can be ascertained, consuming needlessly the time of the reader. In the last number of one American medical journal, for example, is an otherwise admirable paper in which this is the case. I experienced this in reading the paper, so that it took me twice as long to read it as it should have done.

An editorial reference to this tendency I think would be helpful to the reader, and do the author no harm. As I have said, this practice is not limited to the medical writer, but it is with him that we doctors are for the most part concerned.

JAMES TYSON, M.D., Philadelphia.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

THE KRISTELLER TECHNIC

To the Editor:—In Dr. Baer's article on "Scopolamin-Morphin Treatment in Labor" (*THE JOURNAL*, May 22, 1915, p. 1723), under Case 9, he says: "Patient was delivered by Kristeller." What is Kristeller? I have searched all my obstetric literature and can find nothing.

J. M. HEYDE, M.D., Loudonville, Ohio.

ANSWER.—The Kristeller technic is a method of expression of the fetus suitable for those cases in which labor is not progressing satisfactorily and in which an outlet forceps or more recently a dose of pituitary extract is usually employed.

The head should be in the vulva, and the abdomen must be thin and relaxed enough to permit the obstetrician's assistant to grasp the fundus efficiently. A light anesthesia may be used to facilitate this hold. The grip is on the fundus, the fingers of the two hands parallel behind and the thumbs in front. The expression should be carried out in one or two sustained efforts, preferably during a uterine contraction. The line of force should be exerted in the direction of the axis of the inlet, if necessary shifting the uterus to meet this requirement.

This method should not be undertaken unless the obstetrician feels assured of success. Such force, if applied at the placental site and unsuccessful, might result in premature detachment and death of the fetus. The uterus might likewise be seriously injured. If there is reason to suspect inflammatory involvement of the adnexa, the procedure should not be considered. The following is a reference to the original article of Kristeller: "Die Expressio Foetus; Neues Entbindungsverfahren unter Anwendung äusserer Handgriffe," *Monatschr. f. Geburtsh. u. Frauenkr.*, 1867, xxix, 337.

OUR NEUTRALITY QUESTIONED

To the Editor:—I was much amused at your neutrality being questioned because the letter "G" follows "F," when Dr. Heisen queried why the letter from your correspondent in Germany is placed to follow the letter from your correspondent in France, and he accused you of favoritism. (*THE JOURNAL* published Dr. Heisen's letter May 29, in Knocks and Boosts Department, page 22.)

I have noticed the tendency in *THE JOURNAL* to arrange all sequences alphabetically. In the Current Literature Department, in particular, I can always find, in their respective alphabetical positions, the domestic journals and the journals from England, from France, from Germany and Italy, with the Scandinavian journals always last. The alphabetical arrangement saves much time and labor in looking up things, but one discrepancy I have always wondered at, namely, that the Brazil and Argentine journals follow Italy.

A. M. J.

ANSWER.—In case of the journals in foreign tongues, it has been found more convenient for both readers and translators

to arrange them by the languages—grouping the allied ones—rather than by the names of the countries. This makes no difference in the sequence English, French, German and Italian, but Brazil journals are in Portuguese and the Argentine in Spanish. With the Swedish are grouped the Danish and Norwegian. Persons who can read one of the languages in these groups usually can read all the others in the group.

THE HARRISON NARCOTIC LAW

To the Editor:—A habitué uses, on an average, 3 ounces of laudanum a week. I write a prescription for this amount each week for him. Is it illegal for me to write "Sig.: Laudanum—Poison" as directions for the druggist to write on bottle, or should the directions be for a reduction of the dose on each prescription written for a habitué, regardless of the quantity the prescription calls for to comply with the Harrison law?

J. S. G.

ANSWER.—Treasury decision 2200, issued May 11, directs that where a physician, dentist or veterinarian prescribes any of the drugs covered by the law, in a quantity more than is apparently necessary to meet the immediate needs of a patient in the ordinary case, or where it is for the treatment of an addict or habitué to effect a cure, or for a patient suffering from an incurable or chronic disease, such physician, dentist or veterinary surgeon should indicate on the prescription the purpose for which the unusual quantity of drugs so prescribed is to be used. In cases of treatment of addicts, these prescriptions should show the good faith of the physician in the legitimate practice of his profession by a decreasing dosage or reduction of the quantity prescribed from time to time, while, on the other hand, in cases of chronic or incurable diseases, such prescriptions might show an increasing dosage or increasing quantity. In accordance with this ruling, prescriptions given to addicts should show a definite dosage decreasing from time to time.

LITERATURE ON PROSTATITIS

To the Editor:—Please publish a list of literature on acute and chronic prostatitis.

C. W. DAVIDSON, M.D., Madisonville, La.

ANSWER.—The following is a list of articles on this subject:

- Smith, E. O.: Pathology of the Prostate, *THE JOURNAL*, Dec. 6, 1913, p. 2035.
Young, H. H.: Role of Prostate and Seminal Vesicles in General Toxemias, *THE JOURNAL*, Sept. 13, 1913, p. 822.
McCrae, Thomas: Remote Effects of Lesions of Prostate and Deep Urethra, *THE JOURNAL*, Aug. 16, 1913, p. 477.
Hitchens, A. P., and Brown, C. P.: Bacteriology of Chronic Prostatitis, *Am. Jour. Pub. Health*, September, 1913.
Kremble, A.: Chronic Prostatitis, *Med. Rec.*, New York, May 16, 1914.
McKenna, C. M.: Device for Treatment of Prostatitis, *Illinois Med. Jour.*, April, 1914; abstr., *THE JOURNAL*, May 2, 1914, p. 1434.
Smith, Lucian, W.: Suprapubic Prostatectomy, with Special Reference to Drainage, *THE JOURNAL*, Nov. 7, 1914, p. 1667.
Potter, C.: New Perineal Board for Use in Perineal Prostatectomies and Genito-Urinary and Rectal Surgery, *THE JOURNAL*, Oct. 24, 1914, p. 1476.
Thomas: Role of Functional Kidney Tests and Preoperative and Postoperative Prostatectomy Mortality, *THE JOURNAL*, Nov. 28, 1914, p. 1909.
Barnett, C. E.: Suprapubic Prostatectomy, *THE JOURNAL*, Nov. 26, 1914, p. 2273.

USE OF LIGHT IN THERAPY

To the Editor:—Where may I find some recent articles on the use of light in therapy, especially in reference to tuberculosis?

H. COHN, M.D., Oak Forest, Ill.

ANSWER.—The following is a list of references to articles on this subject:

- Kime, J. W.: Heliotherapy in Treatment of Tuberculosis, *Iowa State Med. Soc. Jour.*, April, 1915.
Hinsdale, G.: Surgical Tuberculosis and Its Treatment by Heliotherapy, *Brit. Jour. Tuberc.*, April, 1915.
Johansson, S.: Heliotherapy of Surgical Tuberculosis, *Hygiea*, 1915, lxxvi, No. 24; abstr., *THE JOURNAL*, March 6, 1915, p. 868.
Twitchell, D. C.: Effect of Direct Rays of Sun on Experimental Tuberculosis, *New Mexico Med. Jour.*, January, 1915.
Kisch, E., and Grätz, H.: Tuberculous Fistula Cured by Exposure to Direct Sunlight, *Arch. f. klin. Chir.*, 1914, civ, No. 2; abstr., *THE JOURNAL*, June 6, 1914, p. 1850.
Hüssy, A.: Sunlight Plus Mountain Climate in Treatment of Tuberculosis of Hand, *Beitr. z. klin. Chir.*, May, 1914; abstr., *THE JOURNAL*, Sept. 12, 1914, p. 977.
Von Schrötter, H.: Heliotherapy of Tuberculosis, *Med. Klin.*, Dec. 21, 1913.
Brinch, T.: Treatment of Internal Tuberculosis with Stored Light Rays, *Ugesk. f. Læger*, Nov. 27, 1913; abstr., *THE JOURNAL*, Jan. 10, 1914, p. 174.
Rollier, A.: La Cure de Solcil, Lausanne, Constant Tarin, 1914, cloth, pp. 217, with 147 illustrations, price, 20 francs.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

- ALABAMA: Montgomery, July 6. Chairman, Dr. W. H. Sanders, Montgomery.
ALASKA: Juneau, July 6. Sec., Dr. Harry C. DeVighne, Juneau.
ARIZONA: Phoenix, July 6-7. Sec., Dr. John Wix Thomas, Phoenix.
COLORADO: Denver, July 6. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.
CONNECTICUT: New Haven, July 13. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven; Eclectic: New Haven, July 13. Sec., Dr. T. S. Hodge, 19 Main St., Torrington; Homeopathic: New Haven, July 13. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.
DISTRICT OF COLUMBIA: Washington, July 13. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.
ILLINOIS: Chicago, June 24-26. Sec., Dr. C. St. Clair Drake, Springfield.
INDIANA: Indianapolis, July 13-15. Sec., Dr. W. T. Gott, 120 State House, Indianapolis.
MAINE: Augusta, July 6-7. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.
MARYLAND: Baltimore, June 21. Sec., Dr. J. McP. Scott, Hagerstown.
MASSACHUSETTS: Boston, July 13-15. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.
MISSOURI: St. Louis, June 21-23. Sec., Dr. J. A. B. Adcock, State House, Jefferson City.
NEW HAMPSHIRE: Concord, July 6-7. Regent, Mr. H. C. Morrison, Concord.
NEW JERSEY: Trenton, June 22-23. Sec., Dr. H. G. Norton, 429 E. State St., Trenton.
NEW MEXICO: Santa Fe, July 12. Sec., Dr. W. E. Kaser, East Las Vegas.
NEW YORK: Albany, Buffalo, New York and Syracuse, June 29-July 2. Mr. Harlan H. Horner, Chief, Examination Division, State Education Bldg., Albany.
NORTH DAKOTA: Grand Forks, July 6-9. Sec., Dr. G. M. Williamson, Grand Forks.
OKLAHOMA: Oklahoma City, July 13. Sec., Dr. Ralph B. Smith, 502 Daniel Bldg., Tulsa.
OREGON: Portland, July 5. Sec., Dr. L. H. Hamilton, Medical Bldg., Portland.
RHODE ISLAND: Providence, July 1. Sec., Dr. Gardner T. Swarts, State House, Providence.
SOUTH DAKOTA: Pierre, July 12. Sec., Dr. Park B. Jenkins, Waubay.
TENNESSEE: Memphis and Nashville, June 25, 26. Sec., Dr. A. B. De Loach, 426 Scimitar Bldg., Memphis.
TEXAS: Austin, June 22-24. Sec., Dr. M. P. McElhannon, Belton.
UTAH: Salt Lake City, July 5. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.
VERMONT: Burlington, July 1-3. Sec., Dr. W. Scott Nay, Underhill.
VIRGINIA: Richmond, June 22-25. Sec., Dr. J. N. Barney, Fredericksburg.
WASHINGTON: Seattle, July 6. Sec., Dr. G. N. Suttner, Baker Bldg., Walla Walla.
WISCONSIN: Milwaukee, June 29-30—July 1. Sec., Dr. J. M. Beffel, 3200 Clybourn St., Milwaukee.
WYOMING: Laramie, June 28-30. Sec., Dr. H. E. McCollum, Laramie.

Important Changes in the New Jersey Medical Practice Act

The following abstract from the New Jersey state medical law, as recently amended, has been received from Dr. H. G. Norton, secretary of the New Jersey State Board of Medical Examiners:

A. From and after the first day of July, 1919, no person shall be admitted to examination for license to practice medicine or surgery, unless he shall present to said board a certificate from the Commissioner of Education of this state, showing that in addition to, and subsequent to, obtaining the preliminary and academic education above mentioned, i. e., an academic education consisting of a four year's course of study in an approved public or private high school, or the equivalent thereof, and prior to commencing his or her study in a medical college, he or she has completed a satisfactory course of one year in a college or school of art and science approved by the Commissioner of Education of this state, during which year he or she has studied either French or German, and also chemistry, physics and biology.

B. From and after the first day of July, 1920, no person shall be admitted to examination for license to practice medicine or surgery, unless he shall present to said board a certificate from the Commissioner of Education of this state, showing that in addition to, and subsequent to, obtaining the preliminary and academic education mentioned in the first paragraph of this section and prior to commencing his or her study in a medical college he or she has completed a satisfactory course of two years in a college or school of art and science approved by the Commissioner of Education of this state, during which two years he or she has studied either French or German; and also chemistry, physics and biology.

C. Every applicant for admission to examination for a license to practice medicine or surgery shall, in addition to

the above requirements, prove to said board that he has received a diploma conferring the degree of doctor of medicine from some legally incorporated medical college of the United States, which college, in the opinion of said board, was in good standing at the time of the issuance of said diploma.

After the first day of July, 1916, such applicant shall, in addition to the above requirements, further prove to said board that after receiving such degree, diploma or license; he has served as an intern for at least one year in a hospital approved by said board.

This board will not consider a course of lectures in which the applicant has been conditioned in more than one subject satisfactory, unless these conditions shall have been passed off before entering a subsequent course. If the student be conditioned in a number of subjects sufficient to prevent him advancing to a higher grade in the same college, that year will not be considered as one of the four courses required by this board, even though at another college he be allowed to enter an advanced class; but he must take that entire year over, whether at the college where he failed or at another one.

Connecticut March Report

Dr. Charles A. Tuttle, secretary of the Connecticut Medical Examining Board, reports the practical and written examination held at New Haven, March 8-9, 1915. The total number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 12, of whom 8 passed and 4 failed. The following colleges were represented:

College	PASSED	Year	Per
		Grad.	Cent.
Rush Medical College.....		(1906)	82.4
Harvard University		(1903)	75.3
Dartmouth Medical School.....		(1911)	80.1
Albany Medical College.....		(1914)	77.3
Coll. Phys. and Surgs. in City of N. Y....	(1887) 76.4; (1903)		81.6
Columbia University	(1912) 85.5; (1914)		79.4
FAILED			
College of Phys. and Surgs., Boston.....		(1908)	61.3
College of Phys. and Surgs., in the City of N. Y....		(1907)	66.7
Medico-Chirurgical College of Philadelphia.....		(1914)	71.2
Royal University of Naples.....		(1912)	45.2

Utah April Report

Dr. G. F. Harding, secretary of the Utah State Board of Medical Examiners, reports the written examination held at Salt Lake City, April 5-6, 1915. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 7, of whom 6 passed and 1 failed. The following colleges were represented:

College	PASSED	Year	Per
		Grad.	Cent.
Pacific Medical College*.....		(1914)	78.3, 79
John A. Creighton Medical College.....		(1914)	81.5, 82.1
Western Reserve University.....		(1912) 84.7; (1913)	80.4
FAILED			
Michigan College of Med. and Surg.		(1904)†	

* This institution is located at Los Angeles, and grants as much as three years of advanced standing for work done in osteopathic colleges, and is, therefore, classified among such institutions.
† No grade given.

Iowa May Report

Dr. Guilford H. Sumner, secretary of the Iowa State Board of Medical Examiners, reports that 2 candidates were licensed on examination and 8 through reciprocity, May 6, 1915. The following colleges were represented:

College	PASSED	Year	Per
		Grad.	Cent.
Hahnemann Medical College and Hospital, Chicago....		(1909)	83
Rush Medical College.....		(1885)	75.9
LICENSED THROUGH RECIPROCITY			
College		Year	Reciprocity
		Grad.	with
Northwestern University.....		(1911)	Missouri
Rush Medical College.....		(1906)	Missouri
Barnes Medical College.....		(1902)	Missouri
St. Louis College of Physicians and Surgeons.....		(1895)	Missouri
Washington University.....		(1912)	Missouri
John A. Creighton Medical College.....		(1913)	Nebraska
University of Nebraska.....		(1909)	Nebraska
Wisconsin College of Physicians and Surgeons.....		(1912)	Missouri

Book Notices

DIE CHIRURGISCHEN INDIKATIONEN IN DER NERVENHEILKUNDE. Ein Kurzer Wegweiser für Nervenärzte und Chirurgen. Von Dr. Siegmund Auerbach, Vorstand der Poliklinik für Nervenkrankte in Frankfurt a.M. Paper. 6.40 marks. Pp. 204, with 20 illustrations. Berlin: Julius Springer, 1914.

The author believes that every neurologist should be able to determine and should determine the cases involving the nervous system in which operation should be performed by the surgeon, but he does not approve of the neurologist as a rule being at the same time the operator. The two fields he holds to be quite separate and distinct. The subjects first discussed are exophthalmic goiter and tetany. Three forms of exophthalmic goiter are described, one in which the thyroid is chiefly at fault, one in which both the thyroid and thymus are involved, and a third in which the thymus is the chief organ at fault. In the latter variety the thyroid is only quantitatively involved, but as it is at times difficult to recognize these different forms, he considers it one's duty to remove the thymus as well as to operate on the thyroid in all severe cases of exophthalmic goiter. In severe cases of tetany, transplantation of parathyroids should be tried after the method of von Eiselsberg. The question of the operative treatment of epilepsy is discussed pro and con at considerable length without much headway being made, although the author is inclined to believe that operations should be done more frequently to relieve the slight leptomeningitis with serous effusion, which he thinks is often the cause of epilepsy. In hydrocephalus, lumbar puncture repeated at regular intervals is strongly recommended when the canals are not closed above, and tapping the ventricles and puncturing through the corpus callosum in other cases. The operative treatment of head injuries, tumors of the brain, and the various forms of neuralgia is thoroughly covered. The work closes with quite an extensive bibliography.

A NURSING MANUAL FOR NURSES AND NURSING ORDERLIES. By Duncan C. L. Fitzwilliams, M.D., Ch.M., F.R.C.S., Surgeon in Charge of Outpatients, St. Mary's Hospital. Cloth. Price, \$2. Pp. 466, with illustrations. New York: Oxford University Press, 1914.

This book, the author hopes, will "increase medical knowledge among nurses, orderlies and Red Cross workers." As much of the first aid work falls to the share of the male nurses and orderlies, first aid in the field has been very fully dealt with, especially the various form of bandages, moving and lifting the injured singlehanded and with help, carrying by stretcher, improvising stretchers, loading and unloading the wounded, and artificial respiration. Except for these special subjects, the work differs little from other books on nursing.

CARE AND FEEDING OF THE INFANT. Practical Advice for Mothers and Nurses. By George D. Lyman, A.B., M.D., with an Introduction by Ray Lyman Wilbur, M.D., Dean of College of Medicine, Leland Stanford Jr. University. Cloth. Price, \$1 net. Pp. 132. San Francisco: Paul Elder & Co., 1915.

This book is sound in principle, and the suggestions and advice are sensible and practical. The subjects concern rules for mothers during the prenatal period, the examination of the new-born infant, physical and mental development, the care of the new-born infant, infant feeding, the most frequent diseases of infancy, the training of the child, special directions for enemas, poultices, packs, etc., and a final chapter of modern formulas for the infant. The book is one which may be recommended to prospective mothers.

MOTHERCRAFT. By Sarah Comstock. Cloth. Price, \$1. Pp. 214. New York: Hearst's International Library Company, 1915.

The articles making up this book appeared as a serial in *Good Housekeeping Magazine*. The author prefaces her work with an acknowledgment to numerous authorities whose names are listed. The book is one which can be recommended to a prospective mother. It is entertainingly written and well illustrated, and the scientific statements are shouldered by the authorities from whom the author has so casually borrowed.

Medicolegal

Liability of Carrier Wrongfully Taking Away Injured Passenger

(*Easler vs. Columbia Railway, Gas & Electric Co. (S. C.), 84 S. E. R. 417*)

The Supreme Court of South Carolina affirms a judgment for \$1,000 damages in favor of the plaintiff, a boy who, while a passenger on one of the defendant's cars and preparing to alight, was thrown to the ground and had his shoulder bones injured. The court says that the boy's mother, living hard by, came out to the scene, and, it was alleged, desired to take the boy into her house, but the conductor carried the boy to the end of the line and back into the city to the company's surgeon for treatment, as he was bound to do by the company's rules. He was treated by the surgeon and discharged for well. The defendant asked that the jury be instructed that there was no evidence in the case that would warrant them in giving any verdict on account of alleged negligent treatment on the part of the physicians employed by the defendant. It is true that if a carrier shall (1) employ a surgeon to treat a patient, (2) and if the surgeon be reasonably competent, (3) and if the service to the patient be gratuitous, and (4) if the surgeon neglect the patient, then the master is not liable for the ill consequences to the patient. In that case, if the carrier owed any duty, he performed it when he selected a reasonably competent surgeon. In that case the carrier, as the alleged master of the surgeon, is not held liable for maltreatment, and on the theory that he has no power to direct the surgeon about his work. But in this case there was testimony—denied by the defendant, it was true—that the boy was taken away from the mother against her consent. If that was true, and of it the jury judged, then there was evidence which warranted the jury in giving a verdict on account of the treatment of the physicians, using the language of the requested instruction. It may be the duty of the carrier to call a surgeon to serve an injured passenger in a sudden emergency; but it is not the duty of the carrier to do so when the natural guardian of the injured passenger is present and dissents. It is manifest that the defendant had no right to the custody of the boy against the mother's consent; the forcible taking of custody was in itself a wrong; the relation of carrier and passenger was not immediately terminated; and, if the boy was injured while thus in the defendant's custody, no matter if by a surgeon, then the company was liable for such injury. The carrier would not be allowed to deny that it inflicted the injury.

Insured Having Tumor of the Pituitary Body

(*Van Woert et al. vs. Modern Woodmen of America (N. D.), 151 N. W. R. 224*)

The Supreme Court of North Dakota affirms a judgment for the defendant, which was sued on a benefit certificate or policy of fraternal life insurance issued to the plaintiff's husband on an application made May 8, 1909. The court says that the undisputed testimony showed that in the year 1907 the insured's left eye became inflamed, presumably from flax chaff. On bandaging the eye, he discovered that he could not see well with his right eye. His condition growing no better, in the spring of 1908 he consulted a physician relative to his eyes, and the physician found that there existed a partial atrophy of the optic nerve, slight as to the left eye, and more pronounced as to the right eye. Later, the insured consulted specialists, and in the early summer of 1910 he was operated on for tumor of the pituitary body. He died about Aug. 31, 1911, the direct cause of his death being the tumor of the pituitary body. The expert on neural surgery who performed the operation mentioned testified that in his opinion the insured had been suffering from the tumor of the pituitary body for many years, and that it was in existence as early as 1907. The principal defense was that the policy was void because the answers made by the insured in his application, to the effect that he never had a tumor, and that

he had not within the last seven years been treated by or consulted any person, physician or physicians in regard to his personal ailments were untrue, and that his untrue answers to such questions were breaches of the warranties contained in the application and beneficiary certificate. The court is of the opinion that, even though the applicant believed that the trouble with his eyes was only local, still the defendant had a right to a complete, truthful answer in order that it might make such further investigation as it deemed necessary. The applicant warranted that he had not consulted a physician within the last seven years, and that he was not suffering with a tumor. The undisputed evidence showed that both of these warranties were untrue. They were both material facts which increased the risk. The truth of the conditions warranted was a condition precedent to a recovery on the policy. Whether or not the applicant acted in good faith was immaterial.

Liability for Wrongful Detention of Patient in Hospital

(*Cook vs. Highland Hospital et al. (N. C.), 84 S. E. R. 352*)

The Supreme Court of North Carolina affirms a judgment, amount not stated, in favor of the plaintiff, who sued the hospital and its medical director for damages for alleged unlawful detention, etc. The court says that the defendants denied that any wrongful acts were committed by them, and contended that they had a right to do what was done because the plaintiff signed an agreement on her entrance that she would be subject to the rules and regulations of the institution, and that she could not be set at liberty without danger to herself. But the trial judge properly told the jury that the plaintiff could not thus surrender control of herself to another by signing a paper at her entrance into the institution. "Good faith" is not a defense to the recovery of compensatory damages when the jury finds that there was illegal restraint of liberty and compulsory massage and hypodermic injections and other physical treatment on a defenseless woman, who was in the absolute power of the defendants and kept immured under lock and key and with barred windows, without information given by them to her family of her condition, and she denied all communication with them.

The plaintiff was not committed as insane, and, if she had been, the defendants did not account for the fact that they accepted her as sane by signing the agreement with her on her entrance into the institution. If she subsequently became insane, it was the duty of the institution to have at once notified her mother and sister. The testimony of the defendants, however, was that she was not insane. Evidently the medical director believed that he had absolute control of the plaintiff and the right to imprison her if she opposed his orders or will, and the right to impose on her whatever treatment he thought best, and that the family need not be consulted any more than the plaintiff herself. The effect of being at the head of such an institution is very often—too often—to render the person in charge callous and autocratic, and in his own opinion irresponsible to any one.

In this land, the law guarantees liberty to every one, subject to restraint only in the modes provided by the law; and even then there is the right to review the conduct of those in charge of those deprived of their liberty. The plaintiff was not committed to the care of the defendants by any legal proceedings adjudging her insane, and her signing the paper agreeing to the rules and regulations of the institution was not irrevocable. It did not subject her to the irresponsible power and control of the defendants. If the plaintiff did not abide by her agreement to obey the rules and regulations of the institution, the remedy of the defendants was to discharge her or, if her condition forbade this, to notify her relatives, and not to imprison her and force her to do their will.

Instructions are approved, which told the jury, among other things, that, even though she went in under the paper above referred to, if she was found perfectly rational, and knew what she was doing—what she wanted and did not want—and she wanted to leave the institution, and expressed it to the hospital authorities, and they knew of that fact, and then

after that restrained her of her liberty, then it would be in law a wrongful detention, unless they were justified in restraining her under those rules of humanity and regard for her welfare which would permit her to be detained and restrained until reasonable apprehension of doing herself bodily harm had passed, if she was so nervous from any ailment or disease and so irrational that there was reasonable probability that, if released at the time, she would do herself some bodily harm.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, SAN FRANCISCO, JUNE 21-25.

American Assn. of Med. Milk Commissions, San Francisco, June 17-19.
American Academy of Medicine, San Francisco, June 25-28.
American Association of Anesthetists, San Francisco, June 21.
American Climatological and Clin. Association, San Francisco, June 18-19.
American Ophthalmological Society, New London, Conn., July 6-7.
Montana State Medical Association, Bozeman, July 14-15.
Nevada State Medical Association, Reno, June 17-19.
New Jersey Medical Society, Spring Lake, June 22-24.
Washington State Medical Association, Tacoma, July 20-22.

ASSOCIATION OF AMERICAN PHYSICIANS

Thirtieth Annual Meeting, held at Washington, D. C., May 11-13, 1915

(Continued from page 1939)

Chronic Duodenal Ulcer

DR. WILLIAM J. MAYO, Rochester, Minn.: Published in THE JOURNAL, this issue, p. 2036.

Medical Cure of Gastric and Duodenal Ulcer by Means of Efficient Removal of Gastric Juice Corrosion

DR. B. W. SIPPY, Chicago: Published in THE JOURNAL, May 15, 1915, p. 1625.

DISCUSSION

DR. L. F. BARKER, Baltimore: Differences still remain between physicians and surgeons both as to diagnosis and to therapy. The diagnosis of duodenal ulcer is easy in typical cases and no one need mistake them. But medical men see so many cases of so-called hyperchlorhydria of a different type, that although Moynihan says these cases are all cases of ulcer, medical men are and will continue to be skeptical about it. In the doubtful cases we do find a real help in roentgenography and particularly in serial roentgenography. From chronic cholecystitis, chronic pancreatitis and chronic appendicitis the differentiation of duodenal ulcer is very difficult at times, and the findings at operation are often very disappointing. As to therapy, the question still is open. When there is hemorrhage, obstruction or perforation, surgery is, of course, our only proper recourse. But in milder cases we are in doubt; the gastrologists tell us that they see many recoveries under medical management. There may be some significance in the fact that more recent graduates in medicine suffering with this condition tend to be operated on, while the older men tend to prefer the medical treatment. Medical men and surgeons must continue to work together on this problem until the interchange of opinion and experience shall bring us at length to a conclusion.

DR. WILLIAM H. WELCH, Baltimore: As to the preponderance of duodenal over gastric ulcer, Dr. Mayo has made out his case—at least for those cases coming under observation. But these observations do not determine the percentage of incidence in all classes of cases. This is not the last word on this question of comparative incidence.

DR. FRANK BILLINGS, Chicago: Rosenow's work on the relation between infectious foci and ulcer, both of stomach and duodenum, will certainly receive more consideration in the etiology of these conditions than heretofore, and will be found to have a bearing on the nonhealing of ulcers. Moreover, it will be accepted that failure to treat infectious

foci will invite recurrences of ulcer. Spasm and hypertrophy of muscle, together with infiltration of tissues as a contributing cause, may produce obstruction; this must be admitted; because from ulcers so situated that these factors cannot cause obstruction no such severe symptoms arise and thus no diagnosis is made except of hyperacidity. In watching Dr. Sippy's work, I have too often seen obstructive symptoms disappear to doubt that they can both originate in the way indicated and that they can be dissipated with the healing of the ulcer under medical management.

DR. A. MCPHEDRAN, Toronto: I would like to ask Dr. Mayo if it is not true that after gastro-enterostomy the gastric peristalsis is still toward the pylorus, and are not the duodenal tissues still bathed with gastric juice? I have observed on the fluoroscopic screen in several cases that this does take place: the bismuth stream could be observed to flow through the pylorus with an immediate reflux into the stomach and through the gastro-enterostomy opening. I believe the greatest benefit of the surgical short-circuiting is due to the prompt discharge of the stomach contents; and if this prompt discharge can be established by medical means in a given case, then surgery has no place for that case.

DR. E. LIBMAN, New York: Our experience at Mount Sinai Hospital with respect to the relative frequency of duodenal and gastric ulcer coincides with Dr. Mayo's. In the cases of chronic gallbladder and appendix disease with symptoms simulating duodenal ulcer, we find that remissions often occur; in true ulcer the symptoms are a continuous performance as a rule. Moreover, in the appendix cases, there may be pain in the left lower quadrant, which never occurs in ulcer.

DR. JULIUS FRIEDENWALD, Baltimore: We have found the relative percentage of duodenal and gastric ulcer to be from 52 to 48 per cent. in cases in which Dr. Finney operated. In duodenal ulcer, by roentgenography we find a hypermotility and a filling defect not present in gastric ulcer. Dr. Finney prefers pyloroplasty for the surgical treatment of this condition.

DR. C. F. HOOVER, Cleveland: There may be a difference between the ease of locating ulcers on the distal side of the pylorus and the proximal side. Dr. Mayo's results were arrived at by the direct evidence of inspection of the serosa, inferentially concluding that the appearance of the serosa is a dependable index of the condition on the inside of the intestine. I recently saw a case of suspected duodenal ulcer in which no ulcer was found at operation, but in which afterward an enormous ulcer was found on the proximal side of the pylorus not indicated by any appearance on the serous surface. Thus gastric ulcers may be missed even after surgical inspection of the organ.

DR. S. SOLIS-COHEN, Philadelphia: I wish to protest against laying too much stress on hyperchlorhydria as a positive sign of ulcer either of the stomach or of the duodenum. Also, against accepting hypochlorhydria as conclusive evidence against ulcer. The work of Dreyfuss and Hawk shows that our methods of diagnosis must undergo revision, especially as regards our conceptions of the time of maximal secretion. Their study of the curve of secretion shows very great variations in the time of maximal secretion. The demonstration of hypermotility is a great aid in the diagnosis of duodenal ulcer, and I would strongly urge the personal observation by the physician of the gastric and duodenal movements on the fluoroscopic screen.

DR. LOUIS B. WILSON, Rochester, Minn.: I beg to call attention to two types of lesions of the gastroduodenal tract which evidently present unusual diagnostic difficulties. They may be illustrated by two cases: 1. A patient was operated on by a competent surgeon who explored the gastric and duodenal regions without finding ulcer. Later the patient was examined with negative findings by an eminent clinician. He came into the hospital at Rochester moribund. An ulcer of the duodenum was found 3 inches below the pylorus and almost occluding the lumen. 2. A second patient came to the hospital almost moribund and with practically the same history as in the first case. This patient died, and necropsy

revealed cancer of the cardia. Thus it would seem that lesions involving the extreme limits of the ulcer-bearing area may readily escape observation even at operation.

DR. H. G. WELLS, Chicago: Dr. Mayo spoke of the recurrence of ulcer at the site of operation, especially after occlusion of the pylorus. Rosenow has studied experimental ulcer formation in Pawlow dogs, and has found that they tend to form at the point of operation. May it not be that the surgeon makes such a favorable site for ulcer formation if infectious foci are not attended to as part of the treatment?

DR. M. G. FUSSELL, Philadelphia: As has been said, physicians are constantly treating cases of so-called hyperchlorhydria. When such cases are thoroughly studied under careful dietetic management and with the aid of roentgenoscopy, they separate themselves into their proper classes: those that do not improve under medical treatment are regarded as surgical cases and by the competent physician are referred to the surgeon.

DR. WILLIAM J. MAYO, Rochester, Minn.: I wish to emphasize one settled conviction: If the surgeon cannot demonstrate the presence of an ulcer to the satisfaction of the clinician standing 10 feet away, such a stomach or duodenum should not be operated on. My practice is to excise gastric ulcers whenever possible; duodenal ulcers do not lend themselves so readily to excision. I have never known scar tissue in the duodenal or gastric mucosa to stretch any more than such tissue does elsewhere, but it is perfectly true that if obstructive symptoms are due to edema and muscle spasm alone, relief of the obstruction will follow any measure which will abate the edema and spasm. I have found, as have others, that in cases of acute perforation, when the opening is clean-cut and recent, the patients recover with simple repair of the perforation, and some get well spontaneously; these ulcers have definite acute appearances and are probably of the type produced by Rosenow. They are unlike chronic ulcers. Those patients who recover under medical treatment should be given a chance to do so.

(To be continued)

AMERICAN GYNECOLOGICAL SOCIETY

Fortieth Annual Meeting, held at White Sulphur Springs, W. Va.,
May 18-20, 1915

(Concluded from page 2016)

A Precise Method of Choosing a Time for Operation in Pelvic Inflammation of Tubal Origin

DR. FRANK F. SIMPSON, Pittsburgh: The questions of mortality, or postoperative morbidity, and the smoothness of convalescence depend almost entirely on a strict adherence to the following postulates: 1. The patient shall have recovered from her acute illness and shall have regained a satisfactory margin of reserve strength. 2. The temperature shall not have risen above normal a single time for a minimum period of three weeks. 3. There shall have been no marked or persistent rise of temperature following a careful bimanual examination. 4. The inflammatory exudate surrounding the focus of infection shall have been completely absorbed.

DISCUSSION

DR. JOSEPH BRETTAUER, New York: Not only do we minimize the death rate by conservative measures, but we decrease the number of patients for whom we find an operation necessary. Many of these patients do not need an operation in the case of purulent collection in the tubes or in abscess formation. The pathologic and anatomic end-results are a tubo-ovarian cyst, a closure of the tube with adherence of the ovary, and breaking through of the follicle into the tube with a resulting tubo-ovarian cyst, which, in many instances, never requires an operation as there are no symptoms, and it is detected often by mere accident.

DR. JOHN O. POLAK, Brooklyn: I applied the plan that has been outlined by the essayist eight or nine years ago and followed it to the degree of overconservatism, but I

think I have saved hundreds of organs. I have been surprised to find later how perfectly the pelvis has regenerated, not only as regards functional ability, but also as to the actual possibilities. For instance, I have seen cases after three or four years absolutely clear up, and pregnancy has occurred after mixed infection.

DR. THOMAS J. WATKINS, Chicago: Sometimes it seems of value to operate very soon after these patients have acquired a complete immunity to the infection, taking the temperature and the white count with the idea that there will be some advantage in operating before the adhesions become thoroughly organized. The increased amount of raw surface resulting from operating as soon as immunity has occurred is much greater than the raw surface which remains after operating, if the adhesions have become somewhat organized so as to make the advantage in favor of the later operation. The number of adhesions encountered in operating at an earlier period are undoubtedly greater, many of them being absorbed more readily than they are during a later period.

DR. J. WESLEY BOVÉE, Washington, D. C.: As soon as Dr. Simpson told me of his method of treatment, I adopted it, and in conjunction with the leukocyte count, I have followed it very thoroughly except in two classes of cases. In the tubercular cases I would operate at once. In the other class I have markedly gone afield, and that is in the acute gonorrheal cases. I am not yet ready to report on my work in this regard. I have not seen the abdominal conditions after this procedure, but I have sterilized the vagina and vulva with iodine and the interior of the uterus by injecting it, the vagina and fallopian tubes, opening the abdomen, separating adhesions, painting all raw surfaces, except normal peritoneum, thoroughly with iodine, putting in drains down to the culdesac before I opened the abdomen, and then draining through the culdesac of Douglas, and I have been pleased with the results. I have done this in the acute cases with a temperature of 103.6 F. For the cases that are more subacute and with lower temperature, I do not think the plan is feasible.

DR. H. S. CROSSEN, St. Louis: One has more or less difficulty to determine when to operate on a mass that has passed the acute stage and is in the subacute or chronic stage. It may be two months or two years since the acute infection took place, and it is a question whether or not to do an abdominal operation. We can often determine a gonorrheal infection, and it is safe to operate within three months afterward or two months after sterilization. If it is a streptococcus infection, it is never safe. Streptococci masses are in many instances found self-sterilized. On the other hand, there have been other cases reported in which the infection has lasted as long as six or even twelve years.

Diagnosis of Ectopic Gestation

DR. GEORGE TUCKER HARRISON, Charlottesville, Va.: One error of diagnosis must be guarded against carefully, and that is to assume that the case is one of hematocele. Such a case I reported some years ago. The deep situation of the fetal sac in Douglas' culdesac and the rough, uneven surface above simulated the characteristic phenomena of an accumulation of blood in the posterior pelvic cavity. Before I saw the woman she had suffered from a chill, followed by fever. When she came under my observation the temperature was 105 F. My diagnosis was infected hematocele. A posterior colpotomy was performed, and on the finger entering the cavity, a 4-months fetus was discovered. Through fear of a fatal hemorrhage, the placenta was not removed, but treated by continuous irrigation. The patient ultimately made a good recovery.

DISCUSSION

DR. ARTHUR H. CURTIS, Chicago: In the diagnosis of tubal pregnancy, I want to mention enlargement of one ovary due to the presence of a corpus luteum. This enlargement in the case of tubal pregnancy is often no greater than is that in association with normal menstruation, but the ovary is noticeably enlarged and feels about double the normal size.

DR. PHILANDER A. HARRIS, Paterson, N. J.: One should not place too much reliance on the physical examination of the pelvis in any stage of pelvic congestion. Ectopic gestation is likely to present varied conditions and symptoms in different patients. The important thing in order to make a diagnosis of the condition, is to get the primary history as well as the initial symptoms of ectopic gestation.

DR. HERMAN J. BOLDT, New York: A condition which makes the diagnosis difficult is a virulent inflammation of the adnexa. No condition, so far as the history and the objective symptoms go, is so likely to lead to error in diagnosis as that.

Types of Carcinoma of the Uterus

DR. LAWRENCE W. STRONG, New York: It is customary to call a carcinoma which adheres to the glandular form an adenoma destruens and to speak of the secondarily solid one as adenocarcinoma. This leads to the idea that an adenoma destruens is not a carcinoma in the true sense, while in reality it is a carcinoma from the start. Adenocarcinoma is a rather poor term because it suggests a combination of adenoma and carcinoma. Carcinoma glandulare is the best designation for this type. Benign adenomas of the uterus do not exist, except in the form of adenoma polyposum. Glandular tumors not on the surface are carcinomas from the start. A wedge-shaped excision including normal tissue is to be preferred for a diagnostic specimen in suspicious cases of carcinoma colli. A frozen section is not desirable in collum carcinoma, since a suitable piece may be removed without anesthesia a few days prior to the operation, allowing careful embedding. No likelihood of implantation metastasis will result in the few days intervening. The objections to frozen sections at operation in suspected collum carcinoma are those of frozen sections in general. In the case of curetings from the corpus, a frozen section should never be attempted. The tissue is too frail for manipulation, and gross inspection is a reliable factor in interpretation.

DISCUSSION

DR. JOHN G. CLARK, Philadelphia: As one realizes the enormous changes which the endometrium undergoes during the twenty-eight cyclic days, the variations are so extreme and so closely simulate in many instances pathologic processes, that the mere question of a hasty diagnosis by frozen section while the patient is on the table is a hazardous one, and will do as much harm as good.

DR. FREDERICK J. TAUSSIG, St. Louis: At the Barnard Cancer Hospital we have had 150 cases of cancers of the female genital tract in ten years. Fully three fourths or four fifths of the cases were invariably late cancers. We did not find more than two or three cases in which the tumor lay primarily in the corpus or body of the uterus. We have had cancers of the cervix which have gradually extended up into the fundus, but of cases that started in the fundus and made a large tumor and broke into the peritoneal cavity, we have not had more than two or three cases.

DR. HERMAN J. BOLDT, New York: The unreliability of frozen sections was brought home to me three or four years ago in a case in which I suspected the presence of carcinoma. I sent a piece of the tissue to the laboratory and waited for the report. This was to the effect that we had a benign condition and I did not do anything, except the plastic work which was necessary. A week or ten days later the laboratory sent a report with an apology for having made an error in diagnosis, based on the frozen section. The condition was malignant, and I had to do a more difficult operation than I would have done at the start.

Bladder Function After Confinement After Gynecologic Operations

DR. FREDERICK J. TAUSSIG, St. Louis: While there are gradations of deficiency in bladder function after confinement and operation, we can for practical purposes divide patients into four groups: 1. Those who show at such

times no appreciable difference from normal micturition. 2. Those who, while able to void urine spontaneously, do not for a day or two empty their bladder completely. 3. Those who require catheterization one or more times in the first few days, but are then able to void urine without further trouble. 4. Those with prolonged interference of bladder function, who, even when finally able to void urine after several days of catheterization, are able to expel only a part of the bladder contents. The character of the operation, the form and amount of the anesthetic, the age of the patient, the nervousness of the individual, and the degree of sensitiveness of her bladder mucosa are all factors that to a greater or less extent come into play in producing urine retention, and the object of the gynecologist should be to regulate his therapy as far as possible in accordance with the probable factors in his case.

Laboratory Diagnosis of Chronic Infections of the Urinary Tract in Women

DR. ARTHUR H. CURTIS, Chicago: Chronic infections of the urinary tract can best be diagnosed by one who is actively engaged both in clinical work, including cystoscopy, and in laboratory study. Careful correlation of clinical findings and laboratory methods, with extensive modifications in cultural technic to meet individual cases, is essential. The source of even small amounts of pus in the urine should be investigated; the place of its formation should be definitely localized through the assistance of ureteral catheterization. Persistent pyuria in the absence of a gross bladder lesion is almost invariably due to kidney disease. In those frequent cases of bladder irritability which yield clear, bacteria-free urine, cultures from the traumatized ureteral canal, or from the introduction of a probe into Skene's ducts, may demonstrate the cause of infection. When bacteria are widely scattered or grow with difficulty, a mixture of the urinary sediment with blood followed by making a large number of ascites-blood agar tubes, of high dilution, result in conditions favorable for the development and isolation of the bacteria present. Experience teaches that the chief lesions in urinary tuberculosis are usually renal. In obscure cases, laboratory diagnosis is facilitated by the use of potassium iodid, tuberculin, kidney massage, limitation of liquids, repeated examinations of fresh specimens after high power centrifugation, Petroff's cultures, and the injection of a series of medium-sized guinea-pigs. There is seemingly a tendency to put undue stress on functional urinary tests at the expense of careful routine examination.

Use of the Galvanocautery Knife for Excision of Mammary Tumors for Microscopic Diagnosis

DR. J. WESLEY BOVÉE, Washington, D. C.: Shortly after installing the Downes electrothermic angiotribe in 1903, I began experimenting with it in the treatment of the uterus and of the breast. For galvanocauterization of the advancing cervical cancer, I devised a cooling vaginal speculum that has proved very efficient, and in breast tumors localized and only suspicious of malignancy, I apply the galvanocautery for excision of the growths, or removal of portions of doubtful tumors for microscopic examination.

In this work, carried out in many cases, I have found but one objection when properly used. This consists of the slowness of the cautery knife when the breasts have been large. This led me to change the technic somewhat. To economize in time I adopted the plan of cutting the tissues for a short distance with a sharp knife, and with the flat sides of the cautery knife, immediately sealing to a considerable depth the sides and bottom of the wound. The use of the knife is again resumed, to be followed by the cautery as before. This process has been continued until the tissue desired is entirely removed, leaving behind a crater with charred boundaries. The hot oil that is fried from the tissues during this procedure is taken up promptly with small pledgets of cotton or gauze in the grasp of forceps and at once discarded. The wound is now covered carefully and the report of the microscopic investigation awaited. If the tissue is reported to be malignant, a radical operation

is at once performed. If it is reported to be benign, the surgeon may yet decide, from a consideration of the clinical evidence, to perform a radical operation. If the operation is not to be extended, the wound margins are trimmed of all cooked tissue and the proximal portions of severed milk ducts, and the wound closed completely with sutures. The J. Collins Warren operation I have performed entirely with the knife and cautery with satisfactory results.

The Treatment of Pyelonephritis in Pregnancy

DR. RALEIGH R. HUGGINS, Pittsburgh: Experiments lead to the conclusion that ascending infection reaches the kidney through the lymphatics more frequently than was formerly supposed. If this is correct, much may be learned from a careful search for the primary focus. This may be found in the bladder itself. Owing to the intimate relationship between the lymph system of all abdominal viscera, and that of the kidney, the primary infection may lie in the fallopian tubes, appendix or the gallbladder. In severe cases, the diagnosis is usually made without difficulty. The evidence of toxemia, high leukocytosis, and pus in an acid urine, with the presence of colon bacilli in pure culture, are symptoms which are most suggestive. When pain is a prominent feature, pleurisy, infection of the gallbladder, salpingitis, or stone in the ureter or kidney must be excluded. There is usually a pronounced rise in the temperature, and chills. If not contraindicated, cystoscopy with catheterization of the ureters has the same field of usefulness here as a diagnostic measure that it has in the nonpregnant. The important factor in the recognition of this complication of pregnancy is to remember that in the presence of the foregoing symptoms it is the condition most likely to be found. The treatment in some instances requires careful judgment. The mild cases are usually self-limited and respond to rest, proper diet and urinary antiseptics. Irrigation of the pelvis of the kidney should be done if the infection does not yield to simple measures. Severe pyelitis is always a danger for both mother and child, and if the clinical manifestations do not subside promptly under this treatment, then one must consider nephrotomy or the interruption of pregnancy. When surgical measures are not employed in some manner, death not infrequently occurs.

Postoperative Renal Infection

DR. GEORGE GRAY WARD, New York: Many instances of obscure and apparently unaccountable elevation of temperature, with concomitant symptoms of septic absorption occurring later in the course of a postoperative convalescence, are cases of renal infection, and they are much more frequent than was formerly believed. In the majority of cases, these renal infections are of hematogenous origin and are due to the colon bacillus. In studying the reports of cases of this disease, one is struck with the frequency with which they follow some operative procedures. The evidence and research tend to prove that the large majority of such renal infections are hematogenous in origin, although some cases may be caused by an ascending infection, either by way of the periureteral lymphatics or by extension up the lumen of the ureter. There are three types of infection, depending on the degree of virulence. They are: 1. Cases which are mild in character. The patient is not severely ill and yields to the thorough flushing of the kidneys by the ingestion of water, formaldehyd, proper diet and rest. The virulence naturally varies according to the particular organism, the condition of the kidney, and the general bodily resistance of the patient. 2. Cases in which the kidneys contain numerous septic infarcts, and minute or microscopic foci which are superficially situated in the cortex of the organ. Decapsulation or incision with drainage usually results in recovery. 3. The fulminating type which is characterized by a profound toxemia, and which is rapidly fatal unless a nephrectomy is done. Fortunately this type of the disease is usually unilateral. If operation is necessary, nephrectomy should not be done unless there are indications for it, as shown by the appearance of the kidney. A decapsulation or nephrectomy with drainage is sufficient in many cases, especially in the colon bacillus infections.

AMERICAN PEDIATRIC SOCIETY

Twenty-Seventh Annual Meeting, held at Lakewood, N. J., May 24-26, 1915

The President, DR. GEORGE N. ACKER, Washington, D. C.,
in the Chair

Cubic Air Space for Institutional Bottle-Fed Infants

DR. THOMAS S. SOUTHWORTH, New York: The majority of hospital and institutional wards for infants provide 1,000 cubic feet and upward of air space for each infant, and only a few report 600 or less. Ventilation is deemed as important as air space. No allowance of air space is made for the attendants. Separation of the beds plays as large a rôle in limiting the spread of infections as does air space. Bottle-fed babies require more air than nursing babies, and as much as sick babies. Infants, especially bottle-fed infants, should have as much air space as adults, or more. Bottle-fed infants, when retained in institutions for a considerable length of time, cannot be considered as well. Limited air space, involving limited floor space, is an important contributing factor in the morality of artificially fed infants. Free ventilation is also of great importance to the well-being of infants. The mere presence of windows does not constitute ventilation. The example of the more progressive institutions is nullified by state and local regulations licensing those with a minimum air space, in which there is a high mortality.

DISCUSSION

DR. L. EMMETT HOLT, New York: Is it preferable to have large hospitals especially for the care of children, particularly young children, or to have children cared for in special wards of large general hospitals? It is hard to get the authorities in general hospitals to realize that children need about twice as many nurses as adults.

DR. ROWLAND G. FREEMAN, New York: Children cannot get well, no matter how much air space there is, if they do not have plenty of freely moving air. The advantages of a general hospital are that there are better facilities for doing good work, and that contact with the men working in other departments often leads to the adoption of methods for treating children that have been found successful with adults.

DR. L. E. LAFETRA, New York: At Bellevue Hospital, it has been found that the babies in the ward do better, the fewer there are, and I think that this is because each nurse, having fewer cases to attend to, can give more individual attention to each. There is often inadequate nursing at night in children's wards connected with general hospitals.

DR. S. MCHAMILL, Philadelphia: If the managers of general hospitals could be induced to provide the proper conditions, I see no reason why children could not be as well cared for in the wards; but I know of no general hospital that has a sufficient number of wards to provide for all classes of cases in children.

DR. HENRY L. COIT, Newark, N. J.: The reason that an artificially fed infant needs more cubic air space than one that is breast-fed is that the former, often with a subnormal temperature, with no capacity to generate heat, radiates heat from its body more freely.

DR. FRITZ B. TALBOT, Boston: Artificially fed infants require a higher temperature because they are not making enough fuel to keep warm.

DR. SAMUEL S. ADAMS, Washington, D. C.: At our institution, we have the mothers come each afternoon and take their children out for an airing. If you cannot get what you want for the babies from the men in charge of a hospital, explain their needs to the ladies' board, and you will usually get what is required.

Parapharyngeal Abscess as Distinguished from Peritonsillar and Retropharyngeal Abscesses

DR. HENRY HEIMAN, New York: There occurs, especially in children, a form of abscess occasionally mistaken for retropharyngeal abscess, which is really a parapharyngeal abscess, as its site is in the lateral column. It originates in the superior chain of the deep cervical glands, as distin-

guished from the retropharyngeal glands. These abscesses, as a rule, are cured only by external operation.

DISCUSSION

DR. WILDER TILESTON, New Haven, Conn.: Last winter I saw a case of parapharyngeal abscess in which the abscess perforated internally and was cured without external incision.

DR. THOMAS S. SOUTHWORTH, New York: There is a peculiar feeling that characterizes peritonsillar abscess. The impression of a vague swelling, without any particular outline, always suggests abscess in the throat.

DR. L. E. LA FETRA, New York: I have seen many abscesses that are not peritonsillar abscesses in the ordinary sense, accompanied by a swelling on the outside. These could be opened from within. They frequently subside, if given time and treated with hot irrigations of the pharynx.

Ductless Gland Therapy

DR. ROYAL S. HAYNES, New York: In cases of cretinism it is wise to investigate the condition of the pituitary gland. The striking thing in the therapy is the fact that symptoms that might have been due to hypothyroidism clear up under the administration of pituitary gland. In a case of mine there was a striking change in the contour of the hands, ankles, hips, buttocks, thighs and shoulders that could be made to appear or recede by giving or taking away pituitary gland. The effect produced on the child's disposition was also striking. Pars intermedia therapy likewise seems to have done something. We have come only part of the way in this individual case, and these conclusions are merely preliminary.

DISCUSSION

DR. CHARLES HERRMAN, New York: Very frequently more than one gland is attacked. I have been using a tablet containing extracts of three glands, the thyroid, suprarenal and pituitary. I have secured better results in these cases than when thyroid alone was used.

Energy Metabolism of a Two Months' Old Child Fed on a Prolonged Protein-Rich Diet

DR. S. RAYMOND HOOBLER, Detroit: Protein retained for growth causes no increase in metabolism. Oxidized protein does cause an increase in metabolism, varying with the amount oxidized. The cause of this increased metabolism of protein is the stimulation produced by the amino-acids and their products derived from protein decomposition. When large amounts of protein are fed, with insufficient carbohydrate and fat, even though ample calories to cover the caloric need may have been given, there is a drain on the fat and carbohydrate stored in the body. Protein food, though greatly in excess, cannot be substituted for needed fat and carbohydrate. The proportion fed, as advised and taught, is much in excess of the need.

DISCUSSION

DR. JOHN HOWLAND, Baltimore: In some work which I did, I was able to show that protein not only produced an excess of heat by being itself consumed, but that, it being impossible to store more than a certain amount of it in the body, it also acted as a stimulus to general metabolism.

DR. FRITZ B. TALBOT, Boston: When the protein is increased in raw cow's milk, the visible symptoms of protein indigestion come on much sooner than when other forms of protein are added.

Total Nonprotein Nitrogen and Urea of Blood, and the Phenolsulphonephthalein Excretion in Infancy and Childhood

DRS. WILDER TILESTON and CHARLES W. COMFORT, New Haven, Conn.: The phenolsulphonephthalein excretion is somewhat higher in children than it is in adults, and the nonprotein nitrogen and the urea both show less tendency to increase in disease. The practical importance of this lies in the direction of prognosis and treatment. It is an important guide to the diet in nephritis, such as is found in scarlet fever.

If the nitrogen is high, it is necessary to restrict the diet; but if one finds normal nitrogen, it is possible to allow more latitude in the diet. From analogy to adults, it seems probable that rising nitrogen will indicate some danger of uremia.

DISCUSSION

DR. JOHN LOVETT MORSE, Boston: We have found the phenolsulphonephthalein excretion higher in health in children than in adults. We have also found it little interfered with in a number of cases of nephritis.

DR. ROWLAND G. FREEMAN, New York: One child with severe nephritis passed only 3 per cent. of phenolsulphonephthalein in two hours, but he has practically recovered. That could scarcely occur in an adult.

DR. HENRY KOPLIK, New York: A low phenolsulphonephthalein excretion is not inconsistent with complete recovery. There may be severe nephritis in children with quite a good phenolsulphonephthalein excretion—65 per cent. in two hours. On the other hand, we had an exception as low as 30 per cent. in a severe case of pyelitis with complete recovery. The test should be made before subjecting a child with nephritis to a surgical operation.

DR. WILDER TILESTON, New Haven, Conn.: I saw a case of nephritis in an adult last year. The phenolsulphonephthalein excretion was zero, yet the woman recovered. The test shows the function of the kidney only at the time it is made.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Archives of Internal Medicine, Chicago

May, XV, No. 5, pp. 793-944. Part II.

- 1 *Respiration Calorimeter for Study of Disease. G. Lusk, New York.
- 2 *Respiration Calorimeter of Russell Sage Institute of Pathology in Bellevue Hospital. J. A. Riche and G. F. Soderstrom, New York.
- 3 *Organization of Small Metabolism Ward. F. C. Gephart and E. F. DuBois, New York.
- 4 *Determination of Basal Metabolism of Normal Men and Effect of Food. F. C. Gephart and E. F. DuBois, New York.
- 5 *Measurement of Surface Area of Man. D. DuBois and E. F. DuBois, New York.
- 6 *Absorption of Fat and Protein in Typhoid. W. Coleman and F. C. Gephart, New York.
- 7 *Calorimetric Observations on Metabolism of Typhoid Patients With and Without Food. W. Coleman and E. F. DuBois, New York.
- 8 Diabetic Respiratory Quotient. G. Lusk, New York.

1. **Respiration Calorimeter for Study of Disease.**—The story of the Atwater-Rosa-Benedict calorimeter is told by Lusk in brief, comprehensive, perhaps one might say semi-popular language. The calorimeter has been successfully used in many experiments on dogs and babies. For the first time direct and indirect calorimetry were found to agree during hourly periods of experimentation.

2. **Respiration Calorimeter of Russell Sage Institute of Pathology.**—The original Atwater-Rosa respiration calorimeter with the improvements added by Benedict, Williams and others has been adapted for clinical study in Bellevue Hospital. The form of the apparatus makes it perfectly comfortable for patients. The accuracy is such that in observations lasting three or four hours the heat production, carbon dioxid elimination and oxygen consumption as determined by alcohol and electric tests can be measured with an average error of 0.9 per cent., 0.6 per cent. and 1.6 per cent., respectively. In periods one hour long the average error for heat measurement was 1.2 per cent., for carbon dioxid 1.6 per cent. and for oxygen 3.2 per cent. The calorimeter never needs more than three men for its operation, and two men have repeatedly made all the readings and all the calculations in hourly periods.

3. **Organization of Small Metabolism Ward.**—The method of collecting twenty-four-hour specimens of urine, described

by Gephart and Du Bois, is a new one. A large number of 20-ounce, round, wide-mouthed bottles with cork stoppers are kept in the ward. These have been etched on the side so that one can write on them with a pencil. At 5 a. m., the time at which the twenty-four-hour period ends, each patient is given a bottle and made to empty his bladder. The bottle is then marked with his name, the date, the hour and minute. The volume is estimated for clinical purposes by comparison with a calibrated bottle of the same capacity. The data are then recorded on a special slip of paper to go to the laboratory and also on the diet chart. A little toluene is added to the urine bottle, which is corked and stored in the ice-box along with the previous voidings of that twenty-four-hour period, each voiding being in a separate bottle. At about 9 o'clock in the morning the laboratory man checks up the bottles with the records on the laboratory slip, and with the nurse's notes takes all the bottles to the laboratory, measures the volume accurately, makes up to volume and analyzes a sample.

The collection of feces is somewhat more difficult. Patients who can get out of bed defecate into a weighed bucket in the commode. This bucket is then weighed again. A little formalin is added and the whole sent to the laboratory where the specimen is thoroughly mixed and one-tenth removed to be dried and added to the other aliquot portions of that period and analyzed. Bedridden patients use a weighed bed pan from which the feces are transferred to a covered bucket for transportation. Most of the patients with acute diseases are given every morning an enema of hypertonic salt solution. To divide the periods, powdered carmin (0.3 gm., 5 grains) is given with the first meal of the period and with the first meal after the period is ended. Experience has shown that it is much easier to determine the exact point of appearance of the carmin in the feces than to find the point of disappearance. When patients are being given enemas it is easier to discover traces of carmin than traces of charcoal. Periods are made as long as possible to minimize the errors of division.

4. Determination of Basal Metabolism of Normal Men and Effect of Food.—Seven normal men were studied by Gephart and Du Bois with and without food, as controls for the observations on patients in the metabolism ward. Their average basal metabolism (at perfect rest, fourteen to eighteen hours after their last meal) was 34.8 calories per hour per square meter of body surface. The average basal metabolism of eighty-nine normal men studied by Benedict, Emmes, Roth and Smith was 34.7 calories. The average of the seven men studied in the Sage bed calorimeter in Bellevue and of the five men studied in Benedict's bed calorimeter in Boston was 34.2 calories. As a result the authors have adopted the figure of 34.7 calories per square meter of the body surface as the average heat production of normal men between the ages of 20 and 50 years.

All of the subjects studied in the bed calorimeter were within 11 per cent. of this average. Of the seventy-nine men of normal figure between the ages of 20 and 50 studied by Benedict and collaborators, 86 per cent. were within 10 per cent. of the average and the remainder between 11 and 15 per cent. If therefore, the heat production of a given subject suffering from some pathologic condition is more than 10 per cent. above or below the average it may be regarded as abnormal, but cannot be proved abnormal unless the departure from the average is at least 15 per cent.

Groups of men of weights between 45 and 85 kilograms show a mean heat production within 2 per cent. of the average according to surface area. According to calories per kilogram of body weight the group weighing between 75 and 85 kg. produces 7 per cent. less than the average figure and the group between 45 and 55 kg. produces 9 per cent. more than the average. The conclusion is therefore drawn that among groups of men of varying weights metabolism is proportional to surface area according to Rubner's law and is not proportional to body weight. By using the surface area as a basis one can refer all individuals to a single average normal figure, 34.7. If one uses the body

weight as a basis a different normal figure is required for each weight.

5. Measurement of Surface Area of Man.—This discussion of the relationship of metabolism to surface area has been based almost entirely on Meeh's formula as determined in 1879. Subsequent observers have found a consistent plus error in this formula amounting to as much as 36 per cent. in the case of very fat individuals. The surface area of the various parts of the body can be determined as follows: A mold of the surface is made by pasting paper over tight-fitting underwear. The area of the mold is then determined by cutting it in pieces, printing a pattern on photographic paper, cutting out the pieces of the pattern and weighing them. To determine the area of each part of the body by linear measurements alone a formula has been devised by the authors on the principle of length times the average breadth times a constant. The sum of these parts gives the total surface area of the body. Five individuals of widely varying shapes have been measured by the Du Boises and the surface area as calculated from the formulas compared with the surface area as actually measured. In the five cases the average error was 1.7 per cent.

6. Absorption of Fat and Protein in Typhoid.—The feces of seven typhoid patients on the high calory diet were analyzed by Coleman and Gephart for fat and protein in seventeen periods of from three to twelve days each in length. The average total fat loss for all the periods was 6.25 gm., corresponding to a percentage loss of 4.3 per cent. No differences were observed in the percentage absorption of fat in the early and later stages of the fever or up to the end of the first week of convalescence, when the intake was relatively large. The average total nitrogen loss for all the periods amounted to 1.57 gm., corresponding to a percentage loss of 11.2 per cent. The constant presence of fat and nitrogen in the feces, even in fasting, vitiates to some extent the validity of the results when expressed in percentages.

7. Calorimetric Observations on Metabolism of Typhoid Patients.—The heat production of typhoid patients was measured by Coleman and Du Bois by the methods of direct and indirect calorimetry in a series of sixty-one experiments. The two methods agreed closely, the total divergence being 2.2 per cent. and the average divergence in the individual experiments being 5 per cent. This and the entire absence of abnormal respiratory quotients indicate that in typhoid protein, fat and carbohydrate are oxidized to the same or approximately the same end products as in health, and in their oxidation give off the standard amounts of heat. Therefore the law of the conservation of energy applies to fever patients. The rectal temperature does not always give an accurate indication of the average change in body temperature, and better results are often obtained by well covered surface thermometers. The basal heat production rises and falls in a curve roughly parallel with the temperature. At the height of the fever it averages about 40 per cent. above the normal but in some cases rises to more than 50 per cent. above the normal. The specific dynamic action of protein and carbohydrate is much smaller in the febrile period of typhoid than in health and in some cases seems to be absent. In convalescence it may be greater than normal. In a majority of cases a rise in temperature is accompanied by an increasing heat production and an increasing heat elimination. Typhoid patients can store body fat on an abundant diet while losing body weight and body protein. Loss in weight and loss of protein are usually though not necessarily parallel. There is a toxic destruction of protein in typhoid. This is shown by the fact that patients have a distinctly negative nitrogen balance on a diet which contains more than enough calories to cover the heat production.

Journal of Biological Chemistry, Baltimore

May, XXI, No. 1, pp. 1-390

- 9 *Studies on Theory of Diabetes. Study of Narcotic Drugs in Phlorhizin Diabetes. W. D. Sansum and R. T. Woodyatt, Chicago.
- 10 Cholesterol Metabolism of Hen's Egg During Incubation. J. H. Mueller, New York.

- 11 Estimation of Lipoid and Acid-Soluble Phosphorus in Small Amounts of Serum. I. Greenwald, New York.
- 12 Several Factors of Acid Excretion in Nephritis. L. J. Henderson and W. W. Palmer, Boston.
- 13 Retention of Alkali in Nephritis. W. W. Palmer and L. J. Henderson, Boston.
- 14 Estimation of Non-Protein Nitrogen in Blood. I. Greenwald, New York.
- 15 Determination of Nitrogen by Kjeldahl-Folin-Farmer Method. V. J. Harding and F. H. S. Warneford, Montreal, Canada.
- 16 Determination of Sulfofying Power of Soils. P. E. Brown and E. H. Kellogg, Ames, Ia.
- 17 Does Butter-Fat Contain Nitrogen and Phosphorus? T. B. Osborne and A. J. Wakeman, New Haven, Conn.
- 18 *Studies on Physiology of Reproduction in Domestic Fowl. On Failure of Pituitary Extract Body (Anterior Lobe) to Activate Resting Ovary. R. Pearl and F. M. Surface, Orono, Me.
- 19 Quaternary Salts of Hexamethylene-Tetramine. Monohalogenacylated Aromatic Amines and Their Hexamethylene-Tetraminium Salts. W. A. Jacobs and M. Heidelberger, New York.
- 20 Id. Monohalogenacylated Simple Amines, Ureas and Urethanes and Hexamethylene-Tetraminium Salts Derived Therefrom. W. A. Jacobs and M. Heidelberger, New York.
- 21 Further Experiments on Relative Effect of Weak and Strong Bases on Rate of Oxidations in Egg of Sea Urchin. J. Loeb and H. Wasteneys, New York.
- 22 Development of Alkalinity in Glomerella Cultures. H. S. Reed and J. T. Grissom, Blacksburg, Va.
- 23 Gastro-Intestinal Studies. Method for Quantitative Estimation of Trypsin in Gastric Contents. W. H. Spencer, Philadelphia.
- 24 Effect of Acid Administration on Parathyroid Tetany. D. W. Wilson, T. Stearns and J. H. Janney, Jr., Baltimore.
- 25 Influence of Certain Vegetable Fats on Growth. E. V. McCollum and M. Davis, Madison, Wis.
- 26 *Starvation and Obesity, with Special Reference to Acidosis. O. Folin and W. Denis, Boston.
- 27 Perca Globulin. O. Folin and W. Denis, Boston.
- 28 Defense of Folin-Farmer Method for Determination of Nitrogen. O. Folin, Boston.
- 29 Creatinin and Creatin Determinations. J. L. Morris, St. Louis.
- 30 Studies of Autolysis. Accelerating Effect of Manganous Chlorid on Liver Autolysis. H. C. Bradley and M. Morse, Madison, Wis.
- 31 *Influence of Natural Fats on Growth. T. B. Osborne and L. B. Mendel, New Haven, Conn.

9. Narcotic Drugs in Phlorhizin Diabetes.—It is concluded by Sansum and Woodyatt that their experiments offer no evidence that acetaldehyd is itself convertible into glucose or capable of promoting any new formation of sugar, which is in harmony with the observations of Friedmann that in liver perfusion experiments acetaldehyd is an acetone former, and not a sugar former. It is also concluded that the hypothesis that acetaldehyd promotes a new formation of sugar from fat has no more support than that which assigns to epinephrin a similar power. The hypotheses of anti-ketogenesis and diabetes which are based on the assumption that acetaldehyd promotes a new formation of sugar from fat are wholly untenable.

18. Physiology of Reproduction in Domestic Fowl.—From the evidence presented by Pearl and Surface it appears that the substance of the anterior lobe of the pituitary extract body of the cow, when injected into the abdominal cavity of hens in which the ovary is in a completely resting condition, does not cause an activation of the ovary, in the sense of inducing ovulation at an earlier date than that at which it would normally occur.

26. Starvation and Obesity.—Folin and Denis report on the fasting metabolism of two extraordinarily fat women, both essentially normal except with reference to their obesity. The analyses included practically all the determinable urinary constituents (except the metals), but chief interest concerned the acetone bodies. The results obtained suggest, however, that one perfectly safe, rapid and effective method of reducing the weight of very obese persons is by a series of repeated fasts of increasing duration, using the ammonia or *B*-oxybutyric acid elimination as a guide to the length of each fast. Two conclusions with reference to the nitrogen elimination suggested themselves: First, that the obese destroy less body protein during moderate periods of starvation than others; and, secondly, that with repeated fastings their adaptation to the complete utilization of body fat, which was indicated by a retarded and diminished excretion of acetone bodies, is also accompanied by a sparing of the body protein.

It is concluded that obesity is not a predisposing or contributing factor in the onset or intensity of the acidosis of starvation. The total acetone excretion with the breath in starvation is quantitatively insignificant (at most 1 gm. per day), and the notion, current among clinicians that they can smell acetone "all over the room" when a case of acidosis is present, is erroneous. By repeated fasts of moderate duration the obese acquire an increased ability to starve without the production of acetone bodies. The obese lose less body protein than others in the course of moderate periods of starvation (four to six days) and on repeating the fasts the losses of body protein become still smaller. Successive moderate periods of starvation constitute a perfectly safe, harmless and effective method for reducing the weight of those suffering from obesity.

31. Influence of Natural Fats on Growth.—The new features of this communication are summarized as follows: The failure of lard to promote growth in the same manner as other natural fats (namely, butter-fat, egg-yolk fat, cod liver oil) do, is not attributable to deteriorating changes arising from heat or chemical agents in the commercial manufacture of the product. Heating butter-fat with steam does not destroy its growth-promoting efficiency. Beef-fat also renders the inefficient diets used by us more suitable for producing growth in rats than does lard. When butter fat and beef fat are subjected to fractional crystallization from alcohol, the growth-promoting factor remains in the mother liquor "oil" fractions. The fractions containing the fats with high melting points are ineffective. Some quantitative aspects of the growth-promoting efficiency of the natural fats are discussed.

Journal of Infectious Diseases, Chicago

May, XVI, No. 3, pp. 349-504

- 32 *Influence of Oxidizing Substance (Sodium Iodoxybenzoate) on Immune Reactions. A. Arkin, Chicago.
- 33 *Simultaneous Infection in Child with Tubercle Bacilli of Human and of Bovine Type. A. de Besche, Christiania, Norway.
- 34 *Etiology and Experimental Production of Erythema Nodosum. E. C. Rosenow, Chicago.
- 35 *Starch Agar Useful Culture Medium. E. B. Vedder, U. S. Army.
- 36 *Complement-Fixation in Whooping Cough. W. Winholt, Chicago.
- 37 Various Sporotricha Differentiated by Fermentation of Carbohydrates. K. F. Meyer and J. A. Aird, Berkeley, Calif.
- 38 Individual and Group Variation in Guinea-Pigs in American Method of Testing Tetanus Antitoxin. L. B. Taber, Berkeley, Calif.
- 39 Studies on Gonococcus (Autolysis). C. C. Warden, Ann Arbor, Mich.
- 40 *Natural Hemolysins in Human Serum. J. A. Kolmer and A. J. Casselman, Philadelphia.
- 41 *Epidemic, Simulating Typhoid, Caused by Paragaertner Organism. G. H. Robinson, Providence, R. I.
- 42 *Complement-Fixation in Acute Rhinitis. K. Howell, Chicago.
- 43 Conglutination in Diagnosis of Dourine (Trypanosomiasis of Horse). H. Wehrbein, Ames, Ia.
- 44 *Ferment Activity of Blood Serum in Infectious Diseases. F. H. Falls, Chicago.
- 45 Germicidal Effect of Lactic Acid in Milk. P. G. Heinemann, Chicago.
- 46 Vacuum Method of Drawing Antihog Cholera Serum. T. P. Haslam, A. E. Hagan and R. V. Christian, Manhattan, Kan.
- 47 *Bacteriology of Rhinitis with Special Reference to Anaerobic Organism (Bacillus Rhinitis). R. Tunnicliff, Chicago.

32. Influence of Oxidizing Substance on Immune Reactions.—In order to study the influence of increased oxidation on other immune reactions, Arkin has used sodium iodoxybenzoate, an organic peroxid, which has a marked effect on oxidative processes in the body. He found that sodium iodoxybenzoate stimulates the production of hemolysin and agglutinin in rabbits when injected intravenously shortly after immunization. The results show that there is a close relationship between the production of antibodies and the oxidative processes. The substance probably acts by accelerating oxidations in the tissues which are the site of antibody formation. This acceleration is produced probably by some catalytic effect of the sodium iodoxybenzoate, for the small amount of oxygen injected into the circulation could not have this effect. That the action of this compound is exerted on the tissues is shown by the fact that the substance diminishes the intensity of the local allergic reaction

in sensitized animals. It has a marked inhibitory action on the local tuberculin reaction in tuberculous animals. This action is due to a more active oxidation by the tissues of the toxic substances which cause the inflammatory reaction. Whether these toxic substances acted on are the ones present in the tuberculin or are produced at the site of the inflammatory reaction in the tuberculous animal has not been determined. However, sodium iodoxybenzoate has the power of oxidizing tuberculin in vitro, and this oxidation is accompanied by a decrease in the toxicity when injected into normal animals.

All these results suggest that there is a close relationship between oxidation and immune processes, for a substance which is an organic peroxid stimulates the production of antibodies. It probably sets up in the tissues, which are the site of antibody formation, a more active oxidation, not the result of the amount of oxygen which it contains but because of some catalytic effect. That the compound can influence tissue oxidation is shown by its inhibitory action on the local allergic reaction, a reaction due, in part at least, to interference with oxidation at the site of the reaction.

33. Human and Bovine Tubercle Infection.—The strain of tubercle bacilli isolated by de Besche from the mesenteric gland of a tuberculous child which on first examination had to be classified as "atypical," on closer study proved to be a "mixed virus," since both types of tubercle bacilli were isolated from the cultures. The individual from whom the cultures were isolated had been infected with tubercle bacilli both of the human and of the bovine type.

34. Etiology and Production of Erythema Nodosum.—A series of cases are recorded by Rosenow in which a bacteriologic study of the blood, of the probable infection atrium, and of excised nodes was made with almost uniformly positive results, lesions quite like those of erythema nodosum developing in animals on intravenous injection of the organisms isolated. A diphtheroid, gram-staining, polymorphic, nonmotile, nonspore-forming bacillus producing small, round colonies in dextrose agar, and small, gray, or yellowish, nonhemolysing colonies on blood agar, and having a wide range of fermentative power, was isolated from erythematous nodes removed in each of eight cases. The same organism was isolated at the same time in pure culture from the blood in two cases, and in conjunction with *B. welchii* in one case. The infection atrium would appear to have been the tonsils so far as the clinical history in two cases indicates; in three others the tonsils contained an organism which produced hemorrhages in the skin in animals; in another case the organism was found in a superficial ulcer in the throat, and in still another in an abscess of a tooth. In three cases the infection atrium was not apparent nor could it be determined. In four of the cases there was a definite but mild arthritis; in three, myositis or fibrositis; in two endocarditis; in four lymphadenitis; in two pericarditis; and in three, mild nephritis. All of the typical cases ended in recovery.

35. Starch Agar.—The medium on which Vedder has had the best success in cultivating the gonococcus consists of beef infusion agar to which 1 per cent. of starch has been added.

36. Complement Fixation in Whooping Cough.—Fifty-one cases were studied by Winholt, twenty-two cases with a history of pertussis, and twenty-nine cases without any symptoms or recent history of pertussis. Except for a few minor changes the test for complement fixation has been made as described by Bordet and Gengou. His results indicate that complement fixation in pertussis is obtainable about two weeks after the onset of the disease. The fixation is not as strong at this time as it is eight to ten weeks after the onset. At eight months after the beginning of the whoop, the reaction may still be present but not marked. When the influenza bacillus is used as antigen with serum of pertussis patients, no complement fixation occurs. The serum of patients with pertussis, or convalescing from pertussis, agglutinates the bacillus pertussis, but the concentration of the agglutinin varies greatly. The influenza bacillus is not

agglutinated by the serum of pertussis patients in dilutions above 1-20. These results, as well as the results of the tests for complement fixation and agglutination with the serum of immunized rabbits, indicate no relationship between the bacillus of pertussis and the bacillus of influenza; the results with the serum of patients indicate that the bacillus pertussis has a specific relationship to whooping cough, but that the influenza bacillus has not.

40. Natural Hemolysins in Human Serum.—Sheep and dog according to Kolmer and Casselman are not the ideal hemolytic systems for performing complement fixation work with human serum, but hog, rat, chicken, horse, rabbit, or guinea-pig systems are preferable, depending from the practical side on the ease with which the authors can obtain these corpuscles and their specific amboceptors.

41. Typhoid Epidemic Caused by Paragaertner Organism.—An epidemic resembling in many ways a water-borne typhoid epidemic was investigated by Robinson. A careful bacteriologic examination of feces of patients was negative for typhoid, but an organism was found which seemed to have the cultural characteristics of the paragaertner group.

42. Complement Fixation in Acute Rhinitis.—With the use of the bacillus rhinitis as antigen, fixation of complement was obtained by Howell with the serums of persons with rhinitis and of persons injected with the bacillus after it is killed by heat. The fixation is most marked a few days after the onset of the infection and lasts only a short time. Serums of normal persons and of patients with various infectious diseases do not give complement fixation with the bacillus rhinitis. The serums of patients with acute rhinitis do not give fixation of complement, except occasionally when suspensions of various bacteria (pneumococci, staphylococci, streptococci, influenza bacillus, fusiform, pseudodiphtheric bacilli, etc.) ordinarily regarded as closely associated with rhinitis, if not the actual cause thereof, are used as antigens. These results indicate that the bacillus rhinitis bears a specific relationship to acute rhinitis as ordinarily observed in this region.

44. Ferments in Blood in Infectious Diseases.—Falls claims that in the infectious diseases the ferment content of the blood is increased above the normal in most cases. Acute infections in which the reaction between the infecting organisms and the body defenses takes place outside the blood stream, cause relatively little increase in the ferment content of the blood serum, as measured by this method.

47. Bacteriology of Rhinitis.—The bacillus rhinitis, in Tunnick's opinion, has some etiologic relation to acute and chronic rhinitis on account of its almost constant presence in the nose in such cases, its general absence from the normal nose, its ability to produce rhinitis experimentally with recovery in pure culture, and on account of the production, in cases of acute and chronic rhinitis and in persons injected with the bacillus, of specific antibodies (opsonins and complement-binding bodies).

Journal of Medical Research, Boston

May, XXXII, No. 2, pp. 201-308

48 *Importance of Inflammation in Immunity of Mice to Implanted Tumor. E. E. Tyzzer, Boston.

49 *Atypical Hemorrhagic Malignant Hepatoma. E. S. L'Esperance, Ithaca, N. Y.

50 Enlarged Thyroid Occurring in Elasmobranch Fish (*Squalus sucklii*). A. T. Cameron and S. Vincent, Winnipeg, Canada.

51 *Promitosis in Tumor Cells. O. T. Schultz, Omaha.

52 *Local Action of Lead. F. A. McJunkin, Boston.

53 Effect of Phosphorus Poisoning on Peroxidase Reaction of Rabbit's Liver. C. H. Bunting and P. K. Rand, Madison, Wis.

54 *Influence of Removal of Suprarenals and One-Sided Thyroidectomy on Gastric and Duodenal Mucosa; Experimental Production of Lesions, Erosions and Acute Ulcers. G. A. Friedman, New York.

48. Immunity of Mice to Implanted Tumor.—Tyzzer found that repeated inoculations of various tumors do not produce sufficient immunity to overcome an established tumor resulting from the first implant. It has been thus far impossible to immunize the Japanese waltzing mouse against tumor J. w. A, not only by repeated injections of large doses

of dried tumor in suspension but also by defibrinated blood or living tumor. The individuals of this variety of mice show such uniform susceptibility that the transference of the tumor from one individual to another appears not to involve any appreciable modification of the environment. The lack of immunity reaction is seen in the frequency of metastases and in the absence of instances of retrogression. This tumor as propagated in the waltzing mouse reproduces very closely, therefore, the conditions under which spontaneous tumors develop.

Implants of the Japanese waltzing mouse tumor J. w. A grow for a time as vigorously in nonsusceptible as in susceptible mice. In the former at the end of a fairly constant period of six or seven days inflammation together with degenerative changes become evident in the host tissue surrounding the tumor implant, while the latter is then secondarily affected through thus having its support of healthy growing tissue destroyed. In nonsusceptible mice which have been previously inoculated with tumor tissue, tumor implants are destroyed by a process in every respect similar to that just outlined, except that it follows soon after the introduction of the tumor tissue. Since this is accomplished more promptly, the reaction is found to be subsiding in immunized series at the time that it is just appearing in control series of nonsusceptible mice. Only living tumor is capable of exciting this reaction and as the tumor becomes necrotic the cellular infiltration quickly disappears. A similar inflammatory reaction occurs also around second implants of the Ehrlich Strain II in common mice, although these are known to be partially immunized by the first implant. This reaction is evidently based on the production in the immune animal of material which in combination with material elaborated by the tumor produces local injury to the tissues surrounding the implant and thus indirectly destroys the latter.

49. Atypical Hemorrhagic Malignant Hepatoma.—True hemangiosarcomas primary in the liver according to L'Esperance undoubtedly have been observed, but occur usually in early life; they are extremely rare and should not be confused with the atypical malignant tumors occurring in adult life. Endothelioma and perithelioma derived from the capillary structures of the liver are reported but without sufficient evidence, in the author's opinion, to support the view that they are true endotheliomas. True chorioma primary in the liver has not been proved to exist. The resemblance to chorioma observed in certain cases proves on analysis to be very superficial, since these tumors do not show the typical Langhans cells and syncytium as do true choriomas even when heterotopic. Primary atypical carcinomas of the liver parenchyma show wide variations in histologic structure, but usually exhibit in certain portions the definite arrangement of rows of cells simulating liver cords, with obvious transformation of hyperplastic liver cells into tumor cells.

The consideration of cirrhosis as an etiological factor in these cases does not appear to have sufficient justification. In the three cases which L'Esperance has had opportunity to study there was no cirrhosis, which rather favors the view that cirrhosis is not necessary in the development of this class of neoplasms and when present probably is of secondary importance. Reviewing these conclusions: The evidence appears very strongly to favor an epithelial origin for these atypical tumors, and it seems advisable, therefore, to classify them with the primary diffuse carcinoma derived from liver parenchyma. The term "atypical hemorrhagic malignant hepatoma" seems most suitable.

51. Promitosis in Tumor Cells.—The assumption of very primitive biologic mechanisms, not ordinarily possessed by normal metazoan cells, is believed by Schultz to be a characteristic feature of the cells of rapidly growing tumors. Among such mechanisms are very simple forms of division, as well as such which have always been termed atypical mitoses. Of these simpler division forms, one, which has been encountered in several varieties of malignant tumor, is characterized by the primary division of a nucleolus or, better, karyosome, the rest of the division simulating an

amitosis. The participation of the karyosome in this process is believed to indicate the return on the part of the tumor cell to that condition in which the division sphere is permanently intranuclear, both in rest and in division. Other division figures, studied in a rapidly growing giant-cell sarcoma of the esophagus, would indicate that the kinetic center which has taken an intranuclear position can become temporarily extranuclear during the later stages of a form of division which simulates mitosis. Tumor cells, in their return to primitive biologic mechanisms, may be expected to show those simpler promitoses from which the mitosis of metazoan cells has been developed.

52. Local Action of Lead.—Within endothelial leukocytes and endothelial cells inorganic lead is changed to a compound that is soluble in albuminous fluids, in which form it passes into the blood producing a "stippling" of the corpuscles, and into liver cells producing in them a basophilic granulation. The basophilic hyaline change in both red corpuscles and liver cells, McJunkin claims, is due to the immediate presence of lead as is shown by subjecting the preparations to prolonged treatment with an alkaline sulphid. The reason for the failure to produce by the administration of lead for a few months (in the case of one monkey, eight months) lesions other than local lesions at the site of application and the basophilic granulation of the liver cells and red blood corpuscles is not apparent.

54. Influence of Removal of Suprarenal.—The result of experiments presented in this communication and in a previous one are summed up by Friedman as follows: 1. Suprarenal hypofunction causes lesions in the stomach in rabbits and in dogs. 2. An excess of thyroid gland, as produced by repeated intravenous injections was probably responsible for the gastric lesions of two dogs and of one rabbit (of four animals experimented on). 3. Thyroid hypofunction caused the appearance of duodenal lesions in five animals out of six. 4. An excess of adrenalin, produced by repeated injections of the drug, led to the appearance of lesions in the duodenum of dogs. 5. The simultaneous production of suprarenal and thyroid hypofunction did not lead to any lesions in the stomach, nor in the duodenum in rabbits. 6. When after removal of one suprarenal the other became hypertrophied, lesions were seen in both viscera of three rabbits and in the duodenum of one. From Friedman's experiments it seems probable that gastric lesions might be dependent on suprarenal insufficiency as well as on an excess of thyroid gland, duodenal lesions on the contrary on thyroid hypofunction as well as on excess of adrenalin. Gastric and duodenal lesions might be dependent on the alternating effect of hypofunction and hyperfunction of the suprarenals.

Journal of Nervous and Mental Disease, Lancaster, Pa.

May, XLII, No. 5, pp. 257-320

55 *Spinal Cord in Case of Isolated Atrophy of Small Muscles of Hands. M. E. Morse, Worcester, Mass.

56 *Cerebellar Syndrome. W. F. Schaller, San Francisco.

57 Angioma of Cerebellum. L. Newmark, San Francisco.

55. Case of Isolated Atrophy of Small Muscles of Hands.—A case of isolated atrophy of the small muscles of the hands, of uncertain etiology, occurring in a man 58 years old, of alcoholic habit is cited by Morse. The essentials of the lesion in the cord were: 1. Atrophic and degenerative changes in the nerve cells, widely distributed in the gray matter, but more prominent in the postero-lateral and post-posterolateral columns. 2. Cell losses in the posterolateral and post-posterolateral columns. 3. Vascular changes, which consist in a thickening and a mild perivascular lymphocytic infiltration, the latter being confined almost entirely to the sulcal arteries and their branches to the anterior horns. 4. A characteristic distribution, the lesion commencing in the middle of the seventh cervical and extending through the first dorsal segment.

56. Cerebellar Syndrome.—Of the more dependable symptoms in cerebellar disease Schaller classes ataxia of cerebellar type, asynergia, adiadochokinesis and cerebellar catalepsy; falling symptom, and variations from the normal in the functional labyrinth tests and the pointing reactions of

Bárány. Less dependable symptoms are those produced by intracranial pressure: Nausea, vomiting, vertigo, choked disks and nystagmus.

Medical Record, New York

June 5, LXXXVII, No. 23, pp. 925-966

- 58 *Chronic Diseases of Heart, Kidneys and Arteries. I. S. Wile, New York.
59 Economy in Study. G. Van Ness Dearborn, Cambridge, Mass.
60 Medicine of Old Testament. S. B. Blakely, Binghamton.
61 Natural History of Cancer. R. Bell, London.
62 Logical Classification of Medical Literature. A. L. Von Der Osten, New York.
63 Diabetic Type of Pyorrhea Alveolaris. D. B. Freundlich, New York.

58. **Preventive Measures in Chronic Diseases of Heart, Kidneys and Arteries.**—The various agencies which should be utilized in public health education are catalogued as follows by Wile: 1. The maintenance of a health bulletin to be distributed by mail, to be sent to schools, public libraries, to social and philanthropic agencies. 2. The development of moving picture scenarios so as to present health factors to the eyes of the public. 3. The encouragement of short sketches dealing with health problems for productions at vaudeville houses, and aid in writing them. 4. The use of posters on public billboards. 5. The organization of health exhibits in vacant stores and compact traveling exhibits for loan purposes to schools, shops, factories, churches and similar institutions. Such exhibits should be of two types, namely, a general "keep well" exhibit constructively showing how to live, and special exhibits depicting and illustrating such particular health problems, as the prevention of tuberculosis and the care of the baby, and plotted curves, photographs, cartoons, drawings, papier maché models and various other appealing exhibits will be required. 6. The maintenance of frequent press notices concerning facts necessary for public-health education. 7. The organization of a staff of capable lecturers within the department and the securing of cooperation from the department of lectures of the Board of Education with a view of increasing the number of lectures on health topics to the adult population attending the lectures at public schools. Further, the organization of a volunteer lecture corps to be recruited from public-spirited physicians, nurses, etc., interested in public health. 8. The distribution of brief, concise and to-the-point health talks to parents and industrial workers through the medium of the children of the public schools, the agents of the Metropolitan Life Insurance Company, and the secretaries of organizations, of churches, directors of Y. M. C. A. branches and such organizations as the Boy Scouts, the Campfire Girls, the state militia, and other organizations now existent. 9. The establishment of a health day to be celebrated by special exercises in schools, churches, etc., dealing with health problems. 10. Active participation in the programs of conferences on charities and corrections, to indicate the relation of various social problems to public health.

Pennsylvania Medical Journal, Athens

May, XVIII, No. 8, pp. 599-680

- 64 Indications for Operation for Strabismus. W. Reber, Philadelphia.
65 Arthroplasty with Report of Cases. S. L. McCurdy, Pittsburgh.
66 Extraperitoneal Operation in Strictures of Sigmoid Colon. W. M. Beach, Pittsburgh.
67 Blood Pressure in Pregnancy. J. C. Hirst, Philadelphia.
68 *Surgical Treatment of Gastric Ulcer with Especial Reference to Choice of Operation. C. H. Frazier, Philadelphia.
69 Simulation of Gastric and Duodenal Ulcer by Adhesions. Duodenal Dilatation, Visceroptosis, etc., Their Recognition and Treatment. G. P. Muller, Philadelphia.
70 *Abdominal Pain, Its Significance and Diagnostic Value. J. B. Deaver, Philadelphia.
71 *Case of Perforation of Esophagus followed by Septic Infection and Ending in Recovery. G. M. Coates and R. M. Goepp, Philadelphia.

68. **Surgical Treatment of Gastric Ulcer.**—That the incidence of gastric ulcer has been constantly increasing with the introduction of methods for earlier and more accurate diagnosis is claimed by Frazier. That gastric ulcer is often a precursor of cancer has been proved conclusively; hence a review of statistics as to the incidence of the latter dis-

ease should serve as a guide in our estimation of the frequency of ulcer, and should further emphasize the importance of the early diagnosis and treatment of gastric ulcer. With the various methods now at our disposal, the diagnosis of gastric ulcer is not a difficult one; there are, of course, exceptional cases. The history should always arouse suspicion; the roentgenogram confirms in nine out of ten cases. Frazier advocates surgical intervention in chronic ulcer of the stomach and duodenum, because the effect of surgical intervention is more enduring and more satisfactory than that obtained by medical methods. The nearer to middle life the patient is, the more urgently does Frazier impress the need of an operation, for fear of cancer. Gastrojejunostomy alone, has left a trail of failures. Gastrojejunostomy with exclusion and infolding of ulcer is a distinct improvement. Transverse resection offers greatest assurance of a complete enduring "cure."

70. **Abdominal Pain.**—When, after an abdominal operation, pain makes its appearance on the second or third day or later, Deaver says, three conditions are chiefly to be considered, simple distention, peritonitis and obstruction. The pains of distention and obstruction are as a rule colicky and wavelike, while that of peritonitis is more steady, diffuse and unremitting. In the first case the pain is quite definitely related to peristalsis, but in peritonitis no such relation is observed. Peritonitis causes tenderness and muscular rigidity which are absent in distention or mechanical obstruction. The temperature is an unsafe guide but is more likely to be elevated in peritonitis and the pulse is more markedly affected in rate and volume. As between simple distention and obstruction, the difference in the severity of the symptoms is the chief guide. When the intra-abdominal conditions present both obstructive and inflammatory characteristics, as in the ileus which accompanies general and some local peritoneal infections, the difficulties are markedly increased. The most important single feature in differentiation is the character of the pain, whether wavelike and intermittent or steady and associated with tenderness.

71. **Perforation of Esophagus Followed by Septic Infection.**—The interesting features of the case cited by Coates and Goepp are the number of different septic manifestations—urticaria, pleurisy, nephritis, polyarthritis and severe secondary anemia, the rapidity of their onset and equally rapid subsidence. The prostration during the height of the attacks, that is, during the period of severe arthritis, which was the prominent clinical feature of the case, was in proportion to the severity of the nephritis and the anemia, and for a time the prognosis was regarded as extremely doubtful. The recurring attacks of intense and generalized urticaria suggest an effort at elimination of the toxins and were regarded as not altogether an unfavorable symptom. From the therapeutic point of view the gratifying effects of hypodermoclysis on the urinary elimination and the rapid repair of the blood under hypodermic administration of iron are interesting.

Southern Medical Journal, Mobile

May, VIII, No. 5, pp. 345-442

- 72 Wealth of Health. H. W. Wiley, Washington, D. C.
73 Neuroses in Their Relation to Chronic Infections. J. A. Hodges, Richmond, Va.
74 Duodenal Alimentation. C. Stanley, Washington, D. C.
75 Symptomatology, Etiology, Pathology and Treatment of Pellagra. J. C. Johnson, Atlanta, Ga.
76 Present Status of Typhoid Prevention in Southern Municipalities. A. W. Freeman, Richmond, Va.
77 Municipal Control of Typhoid. W. B. Foster, Roanoke, Va.
78 *End Results of Round Ligament Fixation. (Bumm's Method.) W. Kohlman, New Orleans.
79 Appendicitis—Has Last Word Been Said About It? W. L. Peple, Richmond, Va.
80 *New Method in Disposing of Stump of Appendix After Its Removal. J. H. Carter, Memphis.
81 Pituitary Extract in Obstetrics. J. M. H. Rowland, Baltimore.
82 First Aid to Injured. L. E. Burch, Nashville, Tenn.
83 Instruction of Railway Employees in Practical Application of First Aid to Injured. J. M. Salmon, Ashland, Ky.
84 Sclerocorneal Trephining in Glaucoma. W. H. Wilmer, Washington, D. C.
85 Some Results of Nose and Throat Operations in Chronic Poisoning of Heart, Lungs, Kidneys, Joint, etc. H. B. Decherd, Dallas, Texas.

78. **End Results of Round Ligament Fixation.**—Up to Jan. 1, 1914, Kohlman operated on 216 cases by this method. He has communicated with and examined 70 of these cases, 60 of whom were found in good condition in regard to the position of the uterus and are free of important symptoms. In 4 cases the uterus was found in retroversion complicated with moderate local symptoms. Six cases have been operated on again, and the uterus was found in normal position, the ligaments only slightly elongated; operation was required on account of recurrent disease of the adnexa. Eight patients have been pregnant since the operation, two twice, and have passed through a practically normal delivery. The cervix was found in the beginning of labor somewhat drawn to the back but conditions rectified themselves during the progress of labor. In two cases only a low forceps was employed on account of delayed expulsion. Two cases came under his observation quite recently in the eighth month of pregnancy, and so far they have progressed without any pain or discomfort.

80. **New Method in Disposing of Stump of Appendix.**—In Carter's method the appendix is caught near the base with a forceps and clamped, and if not ruptured, or likely to, it is left until suture is inserted, otherwise it is cut off just above the clamp and removed. Then take a suture (catgut preferred, No. 2), in a straight or curved round needle, inserting it into the bowel about $\frac{1}{4}$ of an inch from the base of the appendix and extending about $\frac{1}{4}$ of an inch beyond, the needle running parallel with the base of the appendix when it is brought out through the bowel, the suture including about one third of the appendicular base. Two more stitches are taken in like manner around the appendix causing the sutures to form a triangle around its base. As the sutures extend within the bowel, the assistant with a pair of thumb forceps pushes down on the appendiceal stump, therefore inverting it into the bowel, when traction is made on the suture and tied. After the suture is tied it is Carter's custom to place two or three Lembert's sutures over same to reinforce and at the same time cover over the small bit of catgut that is without the serosa.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Surgery, London

April, 11, No. 8, pp. 517-738

- 1 Principles of Operative Treatment of Traumatic Cerebral Lesions. W. Trotter.
- 2 Operation of Rib Mobilization in Treatment of Phthisis. H. M. Davies.
- 3 Symptomless Renal Hematuria Arising from Tumors, Aneurysms in Renal Pelvis, Calculus and Early Tuberculosis. D. Newman.
- 4 *Account of Six Specimens of Great Bowel Removed by Operation; Observations on Motor Mechanism of Colon. A. Keith.
- 5 Operative Technic of Ileocolostomy and of Colectomy. W. A. Lane.
- 6 *Bacterial Activity in Alimentary Tract. N. Mutch.
- 7 *Roentgenologic Studies of Large Intestine. A. E. Barclay.
- 8 Four Cases of Ileosigmoidostomy for Relief of Constipation and Intestinal Stasis. G. Barling.
- 9 *Colectomy for Hirschsprung's Disease. L. E. Barrington-Ward.
- 10 Analysis of Consecutive Series of Cases of Various Forms of Arthritis, Treated by Ileocolostomy or Colectomy. C. H. Fagge and E. C. Hughes.
- 11 Operations for Intestinal Stasis. R. D. Mothersole.
- 12 *Homobone-Graft in Case of Sarcoma of Radius. J. H. Robertson.
- 13 Splenic Jaundice. H. Upcott.
- 14 Result of Surgical Treatment of Long-Standing Case of Congenital Equinovarus. G. Robertson.
- 15 Contemporary American Surgery. G. W. Crile.
- 16 Bacteriologic Investigation of Wounds, Skin, Etc. J. O. Hamilton.
- 17 Frost-Bite. C. B. Lawson.
- 18 Case of Division of Vagus, Hypoglossal and Sympathetic Nerves by Bullet, with Formation of Arteriovenous Aneurysm of Carotid. K. H. MacMillan.
- 19 Case of Arrested Development of Small Bowel in Man Twenty-Eight Years Old. A. MacCormick.
- 20 Turnip in Rectum. G. R. Peterson.
- 21 Case of Multiple Foreign Bodies in Colon; Operation and Recovery. H. M. W. Gray and H. R. Souper.
- 22 Esophageal Obstruction Due to Enlarged Thyroid. J. Halpenny.
- 23 An Unusual Urinary Calculus (Hairpin Imbedded in Phosphate) in Child. L. E. Barrington-Ward.

4. **Six Specimens of Great Bowel Removed by Operation.**—Attention is directed by Keith to the knowledge which can be gleaned from a systematic examination of such specimens as are removed by operation from patients suffering from the incurable forms of colitis and of intestinal stasis. He states that the pathologic condition cannot be explained on the simple basis of mechanical obstruction; our only hope of penetrating the secrets of the disease is a fuller knowledge of the anatomy and physiology of the great bowel, and its manner of action in health and disease. His examination has convinced Keith that the operation of colectomy is justifiable in the cases in which the pathologic conditions seem to be beyond repair.

6. **Bacterial Activity in Alimentary Tract.**—The main facts which are substantiated by Mutch are briefly summarized as follows: Dilatation of the duodenum is usually associated with gastric stasis. Dilatation of the duodenum varies directly as the degree of ileal stasis, and—apart from this—shows no relationship to the ileal kink. Epigastric tenderness in constipated subjects is usually experienced over the third part of the duodenum; not over the pylorus. Typical "hunger" pain may arise when food in the lower ileum produces duodenojejunal obstruction. A pure culture of a long-chained gram-positive hemolysin-producing streptococcus was obtained from the duodenum of a man with severe anemia and pigmentation. The richness of the living bacterial flora of the colon is immeasurably greater than that of the last coil of the ileum. The degree of ileal infection with coliform organisms is proportional to the degree of ileal stasis. A marked ileal kink acts as a protective barrier against invasion of the ileum by coliform organisms.

The infection of the ileum with coliform organisms and the dilatation of the duodenum vary in a parallel manner. The infection of the ileum with coliform organisms is uninfluenced by the acidity of the gastric secretions. Urine of constipated patients often contains urobilin. Urine from constipated patients often contains hydroxyphenylacetic acid. The excretion of the more complex tyrosin decomposition products varies directly as the degree of ileal infection with coliform organisms. The excretion of tryptophan decomposition products varies directly as the degree of ileal infection with coliform organisms. The excretion of indoxyl, indolacetic acid and hydroxyphenylacetic acid is uninfluenced by an infection of the ileum with streptococci or with the *B. acidophilus* of Moro. The excretion of the last-mentioned substances varies in proportion to the degree of ileal stasis.

The excretion of tyrosin derivatives is uninfluenced by hyperchlorhydria, but increased by hypochlorhydria. The excretion of tryptophan derivatives shows the same relationship to gastric secretion as does that of the tyrosin derivatives. The excretion of indoxyl, indolacetic acid, hydroxyphenylacetic acid and urobilin is almost entirely abolished by ileocolostomy. An infection of the ileum with *B. aminophilus* occurs in constipated patients with a subnormal blood pressure, but not in other constipated patients. Chronic infection of the ileum with *Staphylococcus citreus* has been shown to be present with chronic septicemia due to the same organism, and with the chronic joint, lymphatic and splenic changes classified as Still's disease. The constitutional changes and those in the joints, lymphatic glands and spleen were abolished by colectomy. Fifty-five ileums of patients without Still's disease were free from *Staphylococcus citreus*. The hands of constipated patients recover from exposure to cold at a very much slower rate than do the hands of healthy subjects. A patient with Raynaud's disease was found to be the subject of chronic intestinal stasis. In his ileum were large numbers of an unusual gram-positive bacillus and a short streptococcus. Colectomy restored his hands to a normal condition, in which they showed normal reaction after exposure to cold. His ileal flora formed pressor bases from peptone.

7. **Roentgenologic Studies of Large Intestine.**—According to Barclay, the ileocecal region is in very close association with the duodenopyloric region. There is evidence of two separate reflexes between the ileocecal valve and the pylorus,

namely, one from the stomach to the ileocecal valve, and another from the ileocecal valve to the stomach, the latter (the ileopyloric reflex) being responsible for appendix dyspepsia. Ileal stasis is, up to a point, physiologic. Pathologic ileal stasis is usually associated with adhesions in this region, most frequently appendicular in origin. In all these examinations it is essential to prepare and examine patients on a routine plan. A scheme that includes "double" feeding is useful. The appendix can be seen in a certain proportion of cases, and, by palpation, it can be detected whether it is fixed or lying free. The normal movement of feces through the large intestine is by "mass" movement, in which a large column is moved through a long section of the colon in a few seconds; these movements take place probably some three or four times a day. The "mass" movements do not occur in the cecum.

Constipation occurs as the result of stagnation: (a) In the sigmoid and rectum, namely, inefficient defecation, or dyschesia; and (b) in the cecum, constipation proper. Constipation proper is probably the result of a defect in the mechanism of the "mass" movement. It is suggested that for the efficiency of this movement it is necessary that a sphincteric contraction should be present. The competency or otherwise of this sphincter, or *point d'appui*, determines whether the "mass" movement, when it occurs, propels all the feces forward, or sends some of them back into the cecum. The large, sloppy cecum is the result of this inefficiency, and not the cause of constipation. The opaque meal seldom gives information as to early neoplasms of the large intestine—it is only after the bowel becomes distended that information is obtained in this way. All suspected cases of neoplasm of the large bowel should be investigated by means of the opaque enema.

9. **Colectomy for Hirschsprung's Disease.**—Of seven cases—all examples of the disease in its most extreme form seen by Barrington-Ward, two patients died as the result of the operation, one from shock, and one from the effects of a severe accidental hemorrhage at the operation. Of the five remaining patients, four are perfectly healthy normal children without any distention or constipation. One has still some slight distention; but this is attributed to tuberculosis of the mesenteric glands, which has been a complication throughout. The most recent of these operations was ten months ago, and it is therefore reasonable to hope that their cure is permanent.

12. **Homobone-Graft in Case of Sarcoma of Radius.**—In Robertson's case there was a swelling the size of a tangerine orange at the lower end of the left radius. This swelling was rounded, hard, nonfluctulant, most prominent in front, and did not interfere with the movements of the wrist joint. The diagnosis of periosteal sarcoma was made, and the patient having refused amputation, it was determined to remove the tumor by a resection of the lower ends of the radius and ulna and to restore the arm by means of bone grafts. All tumor tissue was very thoroughly removed, and the wound prepared for the reception of the graft by careful hemostasis. The graft, composed of appropriate portions of bone with the periosteum and carpal ligaments, from a patient whose arm was being amputated at the shoulder, was then prepared and placed in position. The carpal ligaments were stitched with great care, especially posteriorly, and the radius was wired to secure fixation.

For some days after operation the patient had considerable pain and a slight evening rise of temperature, but the dressing was left intact until February 25, when on its removal the wound was found healed. From that time massage and passive movements were carried out daily, the arm being kept in anterior and posterior flat splints in the intervals. A roentgenogram taken at this time showed the radial graft in good position, radial deviation of the ulnar graft, and some slight rarefaction of the lower end of the native radius. When the patient was dismissed there was a slight degree of mobility between the ends of the grafted and the native bones, and movement at the wrist joint was not free. Eleven months later there was marked evidence of local recurrence of the

tumor, but no metastases in the lymph glands or in the lungs. Amputation was performed above the elbow. The wrist joint had not been reformed, a firm fibrous tissue intervening between the grafts and the native carpal bones. The tumor separated the ends of the graft and native bones, and invaded the graft radius equally with the native one. The native and graft ulna were also to some extent involved. A small isolated tumor nodule was seen in the substance of the semilunar bone. Apart from tumor invasion, the grafts had all the appearance of living healthy bone.

Bulletin de l'Académie de Médecine, Paris

May 4, LXXIII, No. 18, pp. 527-557

- 24 *Telephony a Myth.* (Les viols et la télégonie.) G. Barrier.
- 25 *Serotherapy of Wounds.* (Traitement des plaies infectées par le sérum spécifique de Vallée-Leclainche.) M. de Fleury.
- 26 *Improved Technic for Emergency Filtration and Sterilization of Water.* E. Fourneau and Lemeland.
- 27 **Loose Scrap of Shell Removed from the Right Ventricle; Recovery.* Beaussenat.

27. **Scrap of Shell Extracted from Interior of Heart.**—This case illustrates anew the remarkable tolerance of the heart, the scrap of shell weighing 1.5 gm. and measuring 1 cm. long by 3 mm. thick. It had been in the heart for four months and a half, during which there had been dyspnea on exertion and precordial distress, especially at night, occasionally leading to syncope. Roentgenoscopy showed the scrap of metal following the movements of the heart. By moving gently and speaking slowly the young man kept his symptoms mild. There were no murmurs or other signs of anything wrong in the heart, except a thrill at the apex. The foreign body was supposed to be in the pericardium, but when this was opened it could be felt loose in the right ventricle. The myocardium was then brought out of the pericardium and two loops of silk, about 5 or 6 mm. apart, were passed lengthwise through the ventricle wall. With these the heart was held firm and the lips of the incision held apart. The spurting black blood was checked with the left index finger, while the heart was held between the thumb behind and the three other fingers in front. During the diastole the scrap of metal was seized with forceps after one ineffectual attempt. The heart was then sutured with silk. For three days the dyspnea was intense, the pulse weak and irregular, the facies drawn and pale, but the patient recovered and may now, two months later, be considered actually cured. Recovery at first was delayed by three brief attacks of cough and blood-stained sputum, evidently from embolism in the lungs. Now auscultation gives normal findings and electrocardiography shows merely a predominance of the left ventricle. (See also Paris letter, June 5, p. 1927.)

Presse Médicale, Paris

May 10, XXIII, No. 20, pp. 153-160

- 28 **Clinical Pictures and Treatment After Wounds of Peripheral Nerves.* J. and Mme. Dejerine and J. Mouzon.

28. **Wounds of Peripheral Nerves.**—A number of illustrations are given to show the clinical pictures presented when the trunk nerve in the arm or leg has been severed or is suffering from compression or is recuperating after an operation. A number of typical cases are described, with the operative measures applied and the results to date. Any sign of spontaneous recuperation is regarded as a formal contraindication to operative measures unless the improvement is persistently restricted to sensory fibers. The necessity for respecting the nerve tissue proper in any operation is emphasized anew. Even pushing a sound nerve aside is liable to entail a tendency to paresis, pain and reaction of degeneration for a couple of months, and a regenerating nerve is even more sensitive.

Berliner klinische Wochenschrift

May 10, LII, No. 19, pp. 481-508

- 29 *War and Venereal Diseases.* (Krieg und Geschlechtskrankheiten.) K. Touton. Concluded in No. 20.
- 30 **When Should the Spinal Fluid be Examined in Syphilis?* A. Neisser.
- 31 *Aplasia of Left Kidney and Ureter; Frequency of this Deformity.* K. Secher.

- 32 *Pathogenesis and Treatment of Constitutional Purpura. (Die essentielle Thrombopenie.) E. Frank. Commenced in No. 18.
33 Universal Orthopedic Apparatus. (Kombinationsapparat.) M. Wünsch.

30. **Examination of Spinal Fluid in Syphilis.**—Neisser deplores the fact that many physicians still have failed to master the technic of examination for spirochetes, so that far too often syphilis fails to be recognized in the early phases, when it can be so much more easily stamped out. It would be an advantage also if all physicians made a point of examining the serum in all cases of illness of any kind, with and without a history of venereal disease.

Examination of the fluid drawn by lumbar puncture is equally indispensable at certain times. When everything indicates that the treatment has done its work and the course can be suspended, then examination of the spinal fluid will reveal whether this is really the case. Negative findings in the fluid do not absolutely guarantee that the central nervous system is entirely free from syphilis; but at least we have done our duty in such cases.

It sometimes happens that the Wassermann persists positive, notwithstanding repeated vigorous courses of treatment. The question is, should we keep on repeating the courses indefinitely? Here, again, the spinal fluid may serve as a guide. If the findings in this are all negative, there is every probability that the central nervous system is free. If the nests of spirochetes—which are probably responsible for the persisting Wassermann reaction—are located in other organs, the outlook is not so serious, for they can almost always be acted on here by intensive treatment. Neisser's idea is, thus, that it is indispensable to examine the spinal fluid in every case, but not often, merely to decide certain special questions. Each patient has to be warned that the lumbar puncture may possibly be followed by headache for several days, compelling him to stay in bed. This headache rarely occurs if the patient lies down at once after the puncture and keeps in this absolutely horizontal plane for twenty-four hours. Neisser injects now, directly after the puncture, 10 or 20 c.c. of the patient's own serum, salvarsanized or not, and this seems to be a more certain protection against headache.

32. **Constitutional Purpura.**—The first part of Frank's article was reviewed in these columns June 12, p. 2025. He here discusses the pathogenesis of the trouble, tracing it to a constitutional deficiency in blood platelets. Hence he prefers to call it by the more descriptive term "essential thrombopeny" instead of constitutional purpura or pseudo-hemophilia. In treatment, arsenic and sea or mountain climate are the main reliance with the use of an extract of blood platelets, locally or possibly intravenous, to arrest the hemorrhages. The extract of blood platelets contains the lacking thrombozyme and hastens coagulation. Intravenous injections of 5 or 10 c.c. of 10 per cent. salt solution are regarded by many as one of the best means to arrest internal hemorrhage. Frank adds that an ideal treatment is by intravenous injections of large amounts of normal blood plasma, rich in platelets. The blood of the donor (400 or 500 c.c.) is caught in a vessel covered with just enough leech extract to prevent coagulation (10 mg. Hirudin to 75 c.c. blood). After it has set on ice or been slowly centrifuged, the plasma is drawn and slowly infused into a vein. If the donor is not a blood relation, the plasma should be tested beforehand for a destructive action on the patient's blood corpuscles.

Correspondenz-Blatt für Schweizer Aerzte, Basel

May 8, XLV, No. 19, pp. 577-608

- 34 *Industrial Accidents from the Medical Standpoint. (Zum Unterricht in der Unfallmedizin.) F. de Quervain.

34. **Industrial Accidents from the Medical Standpoint.**—De Quervain regards it as great progress that in 1912 the authorities added a course on "accident medicine" to the medical curriculum in Switzerland. Hasty examinations and certificates made out in ignorance of the fundamental principles have often led to years of litigation that might easily have been avoided. The next step is to organize most wisely the course on industrial accident medicine to supplement the workman's compensation legislation. For this the present

surgical clinics should be utilized for instruction in minor surgery and in the after-care of injuries of the fingers, for example. He emphasizes that there is no such thing as surgery especially for industrial accidents; the principles are the same for all, but we may speak of special arm and leg or "extremity surgery," and for this, as for all industrial accident medicine, practical rather than theoretical training is the main point.

Deutsche medizinische Wochenschrift, Berlin

May 6, XLI, No. 19, pp. 545-576

- 35 Bread and Its Properties. II. M. Rubner. Concluded in No. 20.
36 *Improved Test for Occult Blood in the Stools. (Eine Verbesserung der Phenolphthaleinreaktion zum Nachweis okkultur Blutungen in den Faeces.) I. Boas.
37 War Wounds of Spinal Cord. (2 bemerkenswerte Fälle von Rückenmarksverletzung durch Gewehrschüsse.) E. Fraenkel.
38 Canned Culture Mediums. (Prüfung der Bakteriennährböden in Konservenbüchsen nach Uhlenhuth und Messerschmidt.) A. Hirschbruch and L. Levy.
39 Adjustable Extension in Plaster Cast. (Ueber distrahierende Gipsverbände.) Meyer.
40 Fine Results of Bloodless Treatment of Congenital Dislocation of the Hip-Joint. (Die Vorzüge der unblutigen Einrenkung bei der Behandlung der angeborenen Hüftverrenkung.) W. Böcker.
41 *The Laws of Inherited Syphilis. (Infektions- und Immunitätsgesetze bei mäterner und fötaler Lues.) J. Trinchese.
42 Inefficiency of the Antivermin Measures in Vogue. (Unzulänglichkeit der bisherigen Entlausungsverfahren.) A. Brauer.

36. **Improved Technic for Detection of Occult Blood in the Stools.**—Boas calls attention to the advantages of the simplified technic he is now using and has found much more sensitive than the benzidin and guaiac tests, while it is fully as reliable. An acetic acid-alcohol extract of the feces is made (5 drops glacial acetic acid to 15 or 20 gm. alcohol). Then 15 drops of the phenolphthalin reagent are dropped in a test tube, 5 or 6 drops of 3 per cent. hydrogen peroxid are added and 2 c.c. of absolute alcohol, and the whole is shaken up. Half of the above mentioned acetic acid-alcohol extract is poured into a filter-funnel and this is placed in the test tube so that the filtrate comes slowly into contact with the fluid in the test tube. If there is blood present, a pink or deep red ring forms at the junction of the two fluids. He purifies the commercial phenolphthalin by reduction with pulverized zinc in an alkaline solution. For this he shakes up 1 gm. of phenolphthalin in a solution of 25 gm. potassium hydroxid in 100 gm. distilled water. When thoroughly dissolved he heats the whole in an Erlenmeyer flask, adding metallic zinc until entirely decolorized, which requires one or two hours. The fluid then is cooled, brought to the original volume and filtered. The fluid then is limpid, keeps several weeks unchanged and the colorless fluid shows no change of tint on addition of acetic acid, hydrogen peroxid or alcohol. Several hundred applications of this "phenolphthalin ring test" during the last few months have confirmed its superiority for examination of stools, but this technic cannot be used for stomach content. For this he prefers the guaiac test on an acetic-acid alcohol extract of the stomach content. In conclusion he reiterates the extreme importance of the discovery of occult blood in the stomach content as a sign of gastric or duodenal ulcer.

41. **The Laws Regulating Maternal and Fetal Syphilis.**—Trinchese's conclusions from his experience at a serologic laboratory at Berlin and analysis of the literature are to the effect that Colles' and Profeta's laws were based on mistaken premises and do not correspond to the facts, as there is no paternal transmission of syphilis, the fetus does not generate immunizing substances and the placenta does not permit passage of immunizing substances from the maternal to the fetal tissues. The earlier the fetus is infected, the more rapidly the syphilis runs the course of sepsis, killing the fetus within six weeks. Until about the eighth month the fetus does not generate immunizing substances, that is, its blood responds negatively to the Wassermann test even although its tissues may be swarming with spirochetes and the mother present a positive Wassermann. In the eighth and ninth months the fetus may begin to present a weak and inconstant Wassermann reaction. If the child becomes infected first during the last few weeks before birth, there may be no

clinical manifestations of the syphilis and no Wassermann reaction as the time has been too short for either to develop. These are the children that used to be supposed "immune"; they supply the material for the cases of tardy inherited syphilis. A syphilitic mother can have a child clinically free from syphilis and with a negative Wassermann; or the Wassermann may be positive; it may have symptoms of syphilis and a positive Wassermann; or it may have symptoms and a negative Wassermann. This sequence rises from the mildest to the severest type. The last mentioned—clinical manifestations of syphilis without any indications of a Wassermann reaction—generally proves fatal.

Medizinische Klinik, Berlin

May 9, XI, No. 19, pp. 527-552

- 43 *War Wounds of Peripheral Nerves. M. Nonne. Commenced in No. 17.
- 44 *Prophylaxis of Typhus. G. Singer and others.
- 45 Indirect Injury of Internal Ear in War. (Schädigungen des inneren Ohres durch Geschosswirkung.) E. Schlesinger.
- 46 *Epidemic Parotitis. (Epidemische Speicheldrüsen- und Nebenhodenentzündung.) H. Eichhorst.
- 47 Emergency Sterilization of Water. (Versuche über Trinkwassersterilisation.) H. Strausz.
- 48 Serodiagnosis of Syphilis. (Ueber Ergebnisse der Hermann-Perutz-Reaktion bei Syphilis.) G. Stümpe.
- 49 *Prolonged Retention of Placenta After Abortion. (Zur Kasuistik der Fehlgeburt.) H. Walther.
- 50 Causes of Death of Prominent Physicians of History. (Todesursachen bei namhaften Medizinern.) H. Vierordt. Commenced in No. 17.

43. **Wounds of Peripheral Nerves.**—Nonne remarks that soldiers afford more instructive data than the shifting inmates of public hospitals, so that the next year or so will probably add much to our knowledge in regard to injuries of peripheral nerves and effects of treatment. His experience with wounded soldiers has confirmed Charcot's saying that one must suspect hysteria everywhere. He reports a number of cases in which a wound was followed by paralysis but the behavior of the tendon reflexes in the paralyzed limb was normal, and the paralysis was soon cured by suggestion in hypnosis. In nearly every one of his cases of "grande hystérie" the true nature of the disturbance had not been recognized, and the diagnosis had been cerebral, spinal or neuritic paralysis, and time and effort had been wasted on futile measures. When hysteric contracture affects a limb that has been wounded, general anesthesia may be the only means to cut out the hysteric element from the clinical picture. In short, Nonne reiterates, hysteria very often fails to be recognized. This is particularly liable among the wounded as war hysteria takes predominantly the monosymptomatic and "local" (traumatic) form. He has operated in forty-five cases of wounds of peripheral nerves, and is convinced that a nerve that has been smoothly severed should be operated on early, as soon as the complicating lesions have healed. If there is doubt whether the nerve has been divided, wait six or eight weeks to see if function returns spontaneously. If not, operate. The after-care, exercise, etc., are of extreme importance.

44. **Typhus.**—Singer appealed to our exchange to solicit communications on this subject from hygienists, and five are published here from various leading hygienists. Uhlenhuth emphasizes the necessity for keeping the "clean" quarters separate from the infected quarters. It is impossible to be too careful here; no means should be omitted to keep vermin out of the clean part. Sticky substances, bird lime, etc., may render good services here. Persons who have had typhus should be selected for the care of typhus patients whenever possible.

46. **Epidemic Parotitis.**—This term, strictly speaking, does not apply to the two cases described, as the submaxillary and not the parotid glands were the ones involved. In each case the epididymis was also the seat of an inflammatory process instead of the usual orchitis. In both cases the pulse was very slow, only 56, and during fever only 84 in one case; in the other, 70 or 80 and 92.

49. **Retention of Placenta after Miscarriage.**—Walther discusses here merely the miscarriages occurring in the fifth

and sixth months, with prolonged retention of the placenta. The danger of ascending infection and of hemorrhage in such cases does not seem to be appreciated by all physicians in its true importance, and he relates a series of five cases in which physicians had been content to wait for Nature to expel the placenta, and under this direful expectant treatment serious complications had developed. In one case sudden and serious hemorrhage recurred several times after an incomplete abortion; in others there were constant losses of blood. In the other cases there was putrid and septic infection. In two of the cases the physicians had made no attempt to empty the uterus; in the others repeated but futile attempts had been made.

Walther insists that during the fifth and sixth months the placenta should be expelled within two hours after the fetus, and the physician should see that this is done, with just as much care as at term. Physicians should study the relative proportions of fetus and placenta at different ages so as to recognize when part has been left behind. Figures are quoted showing that at the fifth month the placenta averages 10 by 12 cm., and is 1 or 1.5 cm. thick, and at the sixth month, 12 by 13 cm. and 1.75 to 2 cm. thick. These miscarriage cases are often particularly difficult to manage as the physician may not be called in until late, when all that came away has been disposed of. In order to stimulate the uterus to throw off the placenta, Walther advocates quinin, which, he says, has been crowded somewhat into the background by the hypophysis preparations. In miscarriage it works much more promptly than the latter, as he illustrates by two recent examples. In one the placenta had not separated by the twelfth hour but was promptly expelled spontaneously after two doses of 0.5 gm. quinin sulphate in one hour. He warns that ergot directly promotes retention.

If the Credé does not loosen the placenta, he repeats it under general anesthesia. If there is much hemorrhage the uterus can be manipulated by pressure from without and from two fingers in the posterior culdesac of the vagina. If the physician is called late in the case, Walther advises calling in an experienced consultant, as the removal of an undetached placenta with the cervical canal closed up requires great skill. The curet is dangerous, especially a small one, as it lifts part of the placenta and opens the vessels in that location beneath and from them the woman may bleed to death before the whole of the placenta has separated. Correct management of the retained placenta after a miscarriage during the second third of pregnancy is to dilate the cervix with a tent until the finger can be introduced; then loosen the placenta with the finger. If this proves impossible, introduce an abortion forceps to the lower pole of the placenta, or, as a last resort, a large, blunt, wide curet; abrupt dilatation of the cervix is dangerous.

Münchener medizinische Wochenschrift, Munich

May 4, LXII, No. 18, pp. 609-640

- 51 Advantages of Systematic Regulated Gymnasium Work for Convalescent Soldiers. (Errichtung von Uebungsabteilungen für Lazarettrekonvaleszenten.) R. D. v. Tabora.
- 52 Sugar Enrichment to Facilitate Detection of Meningococci in Spinal Fluid. M. Obé.
- 53 Intravenous Vaccine Therapy of Typhoid. (Ueber Impfstoffbehandlung des Typhus abdominalis auf intravenösem Wege.) H. Reibmayr.
- 54 Salvarsannatrium. J. H. Fabry and A. Fischer.
- 55 *Serodiagnosis by Optic Method. (Weitere experimentelle Untersuchungen über die Spezifität der Abwehrfermente.) H. Jaffé and E. Pribram.
- 56 Superior Advantages of Salicylic Acid in Treatment of Acute Rheumatism. (Kann und soll der akute Gelenkrheumatismus mit reiner Salizylsäure behandelt werden?) J. Zadek.
- 57 *Charcoal as Dressing for Wounds. (Wundbehandlung mit Tierkohle.) E. v. K. Lenz.
- 58 Prophylaxis of Typhus. B. Necht and J. Halberkann. (Vorbeugung von Fleckfieberübertragungen auf Aerzte und Pfleger.) T. v. Wasielewski, G. Wulker and W. Kulka.
- 59 Hygiene at the Front. (Gesundheitskommissionen im Felde.) E. Sergeois.
- 60 The Diet at the Front. (Winke für die Ernährung im Felde.) W. Peyer.
- 61 Emergency Artificial Legs. (Interimsprothesen für Amputierte.) Schaedel.
- 62 *Wounds of the Skull. (Schädelschüsse.) H. Thiemann. Commenced in No. 17.

55. Specificity of Protective Ferments.—Jaffé and Pribram declare that although the nature of the protective ferments is still a mystery, yet the fact of their specificity seems now to be well established. They report further experimental work which confirmed that the digesting properties of the serum can be arrested by heating, but it can be activated again by adding fresh serum. Even when heated to 58 C. for forty-five minutes, rabbit protective ferments thus inactivated can have their digesting property restored by addition of fresh guinea-pig serum.

57. Charcoal Treatment of Wounds.—Lenz reports thirty cases in which charcoal was used, and with excellent effect, in treatment of suppurating wounds. They were first cleansed with hydrogen dioxid, then gently dabbed dry with gauze after which the surface was buried under a layer of charcoal blown on with an insufflator until the whole surface was black. The dressings were changed daily, hydrogen dioxid being used to rinse off the charcoal.

62. Wounds of the Skull.—Among the many points emphasized by Thiemann from his extensive experience is the advisability of refraining from anything more than cleansing the wound and dressing it, until the man reaches a well equipped hospital in the home zone. The way in which the gaps in the skull grow up is astonishing, as also the absence of deficit phenomena in many cases of extensive destruction of brain tissue. In one case none were evident although one-third of the right frontal brain had been shot away; in another most of the right half of the cerebellum had been destroyed, and in another large portions of the parietal lobe and central convolutions. The extent of the primary injury of the brain does not in itself contraindicate operative treatment.

Therapie der Gegenwart, Berlin

May, LVI, No. 5, pp. 161-200

- 63 Typhoid Among the Soldiers. (Zur Diagnostik und Therapie des Typhus im Felde.) F. Klemperer, W. Oettinger and F. Rosenthal.
- 64 *Autoserotherapy of Typhoid is Ineffectual. (Zur Behandlung des Typhus mit Eigenserum.) R. Meyer.
- 65 *Treatment of Exophthalmic Goiter. (Gesichtspunkte zur Behandlung des Morbus Basedowii.) W. Weiland.
- 66 *Aluminum Acetate in Alcohol Effectual in Smallpox. (Neue Methode der Blatternbehandlung.) F. Traeger.

64. Inefficacy of Autoserotherapy of Typhoid.—Meyer has given this method of treating typhoid a thorough trial, and reproduces here the curves of nine cases out of a much larger experience. He followed the technic which Widal and Königsfeld have used with much success, according to their published reports, but Meyer was unable to detect any benefit from it.

65. Exophthalmic Goiter.—Weiland remarks that men trained to think surgically are apt to regard exophthalmic goiter altogether too much from the surgical standpoint, and internists view it from the internal medicine standpoint, while men who have had much experience are liable to follow the method of treatment with which they have been most successful in the past, without due regard to whether the present case fits into the frame of the former cases. In the present article the experiences in Lüthje's service at Kiel for the last ten years are analyzed. They confirm the necessity, with internal measures, of supplementing general treatment both physical and psychical with a diet to influence the metabolic disturbances and specific treatment of the thyroid itself. Measures in all these directions are called for usually in every case, from the mildest thyrotoxicosis to the severest type of exophthalmic goiter.

Disturbance from perverted thyroid functioning develops very insidiously as a rule. At first there are symptoms of a general nervous disturbance; the temperature is normal unless there is an underlying tuberculosis. The proportion of patients restored to full earning capacity is larger under operative than under medical measures, but the latter perseveringly applied restore full earning capacity in a larger percentage than is generally realized. Still greater benefit can be realized if roentgenotherapy is used to supplement

other measures, with or without an operation. Weiland states that he has never witnessed a case in which every one of the symptoms had entirely retrogressed under surgical or medical measures or both, but we are justified in calling the case cured when the patient feels strong and well, the heart behaves normally, and there is no further restlessness, tremor or abnormal sweating, and full earning capacity is restored.

The first thing in treatment is to ensure physical and mental repose; a few days in bed benefit in mild cases as much as a few weeks in the severer forms. This repose should not be disturbed by dietetic or other restrictions, but should be utilized to tranquilize the patient's mind and obtain his cooperation in the efforts for recovery. The treatment at this time should be the same as for nervous prostration or convalescence from any sickness except that sedatives may be required to overcome severe motor and psychic unrest. In the milder cases no drugs are needed unless a prescription seems to be called for, in which case valerian might be ordered. Arsenic is also useful, but he never gives iron. The diarrhea or sweats disappear spontaneously as the general condition improves. For several years it has been the practice at Kiel to give sodium phosphate in every case of exophthalmic goiter, for reasons which Weiland enumerates, and it is regarded as an essential part of the treatment. It is given in daily doses of 3 or 4 gm. in a 10 per cent. solution. Digitalis is given only under the same indications and dosage as with organic disease of the heart.

The diet should be that of forced feeding, training the patient to masticate and striving to tempt his appetite, making special use of carbohydrates and fat, possibly supplemented with some pancreas preparation. It is not necessary to push the forced feeding to bring the weight up to normal. Local applications of cold and electricity may relieve the tormenting symptoms from vascular goiters. He has not had favorable results from organotherapy of exophthalmic goiter, but has been much impressed with the benefit from Roentgen exposures. They can be applied in all forms of exophthalmic goiter. He used hard tubes, of $3\frac{1}{2}$ ma, with 16 x as the maximal dose, fractionated at two sittings with a few days' interval, repeating this for three or four months, with two and four weeks' intervals.

If the weight and strength keep running down and the heart functioning growing worse, an operation should be recommended without delay but otherwise not until after a thorough course of internal measures. For operative treatment, the objective symptoms form the criterion. Weiland in conclusion emphasizes that after operative treatment the patient requires medical oversight as much as after an operation for a gastric ulcer.

66. Aluminum Acetate in Smallpox.—Traeger has found extremely useful for all kinds of abscesses and glandular swellings the local application of aluminum acetate in alcohol. In a recent case of smallpox he applied it also and improvement was evident at once. The fever subsided and the pustules retrogressed, scarcely ever leaving a scar. This favorable experience was repeated in nine other cases during a small institutional visitation of smallpox. Most of the patients were children and these applications reduced the pain and itching so much that the children clamored for them. He used 50 parts of the aluminum acetate to 1,000 parts of alcohol rectificatus; cotton dipped in this was laid over the face and covered with oiled silk. The chest, abdomen and back were also dressed with the same mixture, alternately during three hours. Pitting seemed to be materially checked by this simple means.

Zeitschrift für Kinderheilkunde, Berlin

XII, Nos. 4-5 pp. 227-368. Last indexed March 27, p. 1117

- 67 Uric Acid Content of Children's Blood. (Harnsäuregehalt des kindlichen Blutes.) E. Liefmann.
- 68 The Luetin Test Unreliable for Children. J. C. Schippers.
- 69 *Associated Acquired and Congenital Diseases of the Skeleton. M. Segawa.
- 70 *Anomalous Roentgen Findings in Child's Thorax. T. Gött.
- 71 *Megacolon. (Die Therapie bei der Hirschsprungschen Krankheit.) O. Schneiderhöhn.

69. **Congenital Plus Acquired Bone Disease.**—The child in the case reported in detail by Segawa was under constant observation from the day of birth to its death at eleven months. The parents were healthy except that the father is a hard drinker. The child presented typical congenital osteogenesis imperfecta, and on this became superposed both scorbutus and rachitis. The roentgenogram and the microscopic findings are compared with analogous cases in the literature. The work issues from Pirquet's service at Vienna and fills seventy pages.

70. **Anomalous Shadows in Child's Thorax.**—The puzzling Roentgen-ray findings were much alike in the two cases described but the affection was of an entirely different nature in each. In one there was an abscess from rupture of suppurating glands. In the other case there was a hard leukemic infiltration. Both processes had developed in the same tissues and in the same region in the mediastinum so that the shadows cast by both were alike. They differed from the shallow arc or rounding shadow, which Rach has described as typical of a spondylitic gravity abscess, in that the outline was longer and nearly straight. Possibly this straight instead of a curved outline of the shadow may aid in differentiation.

71. **Treatment of Megacolon.**—It is necessary in treatment to determine whether the cause of the distention of the colon is a spasm of the sphincter, or a congenitally normally large bowel, or whether it has enlarged from some mechanical bend or kink on account of abnormal length and the movability of the sigmoid flexure. Four cases are described; 2 were improved by internal measures alone and 2 by operative treatment. Adding these 4 to those found in the literature, Schneiderhöhn has compiled 358 cases of Hirschsprung's disease, and discusses the views of the various authors. The outcome is not known in 39 cases; 179 of the patients died, but the megacolon was not responsible for the death in 11 of these cases. In 110 cases a clinical cure was realized and great improvement in 24. No benefit was apparent in 9 cases. A cure was thus obtained in 30.7 per cent. of the available total, while the mortality was 43 per cent. Of the 151 treated by internal measures alone, only 38 were cured and 14 improved; 79 died, and the outcome is not known in 14 cases. In 6 no benefit was realized. Schneiderhöhn emphasizes that this unfavorable clinical record for internal measures—over half dying and only one-fourth cured—is due to inadequate or inappropriate measures or a too brief course of treatment or to the measures not being applied until irreparable lesions had been installed. Purgatives and enemas he ranks among the unsuitable measures, stating that he has found whole series of cases on record in which death followed almost at once after their application, and generally with the symptoms of acute colitis and perforation peritonitis. He cites some typical examples to illustrate this. Megacolon, he reiterates, is the manifestation of a mechanical closure of the intestinal tract which peristalsis is unable to overcome. Purgatives, enemas and coarse foods add to the distention and cause the bowel to work harder to get rid of its contents. This is liable to entail rupture at some eroded point. The parents often take the child home at the first sign of improvement, and it does not get the full course of treatment and proper aftercare. In the 143 operative cases, the mortality was 36 per cent.; the cures represent 46 per cent. Twelve different operative procedures were applied in the various cases, as he shows in tabulated form.

Analysis of all this material demonstrates that the mode of treatment must be selected for the individual case. We should not operate needlessly but neither should we delay too long with internal measures. They should be given a thorough trial first, combatting with sedatives any tendency to spasmodic contraction in any part of the bowel. If the contracted point is accessible it should be bloodlessly stretched. In other cases the bowel may be rinsed out, with ample drainage provided, reenforcing these measures with massage, electricity and a suitable diet. The above measures will often accomplish the cure if the patient comes

under treatment early enough and if it is kept up systematically and long enough. Not only do the symptoms disappear; but the colon becomes reduced in size and the hypertrophied walls retrogress until the bowel functionates normally once more. Internal treatment is particularly liable to succeed in children. As they grow, the anatomic conditions approximate more and more closely to the normal condition in the adult. Of the 38 patients cured by internal measures alone, 31 were children; 12 others were improved. The proportion of children cured by operative measures is no higher than the general proportion of the cured. Of the 69 children operated on, 32 were cured and 26 died. Hence it is wise to hold back from operating on a child until internal measures have been given every chance, unless one's hand is forced by severe symptoms. When an operation is done it should be thorough and not leave conditions that will require further intervention. In a number of cases two operations were necessary; in 7, three; and in one case each, four, seven and eight operations were done. Colopexy or resection at two sittings gave the best results in the cases on record. These correspond best to the causal indications. The congenital enlargement or undue length of the loop may require resection if colopexy does not offer promise of a permanent cure.

Zentralblatt für Chirurgie, Leipzig

May 8, XLII, No. 19, pp. 321-344

- 72 Modification of Perthes' Compressor to Arrest the Circulation. (Zur Technik der Operation der Krieganeyrsmen.) K. Steinthal.

Zentralblatt für Gynäkologie, Leipzig

May 8, XXXIX, No. 19, pp. 313-336

- 73 Radiotherapy in Gynecology. T. H. Van de Velde.

May 15, No. 20, pp. 337-352

- 74 Spinal Anesthesia. H. J. Boldt (New York).

Zentralblatt für innere Medizin, Leipzig

May 8, XXXVI, No. 19, pp. 293-308

- 75 What Communities Can Do to Ward Off Epidemics During the War. (Fürsorge der Gemeinden gegen Seuchen im Kriege.) Am Ende.

May 15, No. 20, pp. 309-324

- 76 *Somnambulism. (Zur Kasuistik des Naktambulismus.) J. Löwy.

76. **Somnambulism.**—Löwy thinks that there are possibly therapeutic hints in the case he reports: A young man with advanced mitral stenosis had severe congestion of the liver and kidneys, and ascites, compensation having entirely failed. At the slightest physical exertion there was arrhythmia and the much dilated heart was so incompetent that he was unable to take more than a few steps without help. The man in the next bed noticed about 1 a. m. one night that the young man's bed was empty and the nurse found at 3 a. m. that a window nearby was open. Suicide was suspected and the yard and the building were thoroughly searched in the dark, cold, rainy night but no trace of him could be found until 5 a. m., when he knocked on the outside of the window of another ward on the same floor and was taken in. He complained only of cold and fell asleep at once, and was unable to explain the occurrence when he roused. The window ledges were narrow and slippery and about one yard apart. It must have required considerable physical exertion to step from one to another, and yet for four hours the young man must have been circling the wall several stories above the ground. The pulse was found only transiently 20 beats above what it had been the day before, and the blood pressure had dropped from 115 to 110 mm. Hg; no other change could be detected. It is evident that in the somnambulistic state there are no nervous inhibitions, and hence the sum total of the work imposed on the heart by physical exertion is less. The physical exertion is made without any superfluous muscular movements, and hence makes less demands on the heart.

Gazzetta degli Ospedali e delle Cliniche, Milan

May 6, XXXVI, No. 36, pp. 561-576

- 77 *Atypical Pneumonia. (Sul decorso della polmonite fibrinosa.) L. Nelli.

May 9, No. 37, pp. 577-592

78 Radiology and Military Surgery. V. Maragliano.

77. **Atypical Pneumonia.**—Nelli writes from his province in Italy to comment on the peculiarly severe and protracted form pneumonia assumes there, especially in persons who drink much or who are already infected with malaria. Two illustrative cases are described.

Policlinico, Rome

May 9, XXII, No. 19, pp. 621-656

79 *Treatment of Pernicious Anemia. C. Bartolotti.

80 Disturbances from Swallowing Air. (Aerofagia.) G. Genoese.

May, Medical Section, No. 5, pp. 193-240

81 Electrocardiography in a Case of Congenital Defect of the Right Heart. (Vizio congenito del cuore destro.) G. V. Ferralis.

82 *Action of Sugar on Kidney Secretion and on the Circulation. (L'azione degli zuccheri sulla secrezione renale e sulla circolazione nell'uomo.) C. A. Crispolti.

83 Indications and Contraindications for Salvarsan in Syphilitics with Other Diseases. (Arsenobenzolo nelle malattie mediche da sifilide.) T. Pontano. Commenced in No. 4.

79. **Serotherapy in Pernicious Anemia.**—Bartolotti has been impressed with the way in which the reds increased in numbers under the influence of antidiphtheria serum. This reaches its height the fourth or fifth day and then gradually declines, but never drops to its former figure. The effect is most striking when the number of reds is small to begin with. Antistreptococcus and antistaphylococcus serums have the same action but it is less pronounced than that of diphtheria antitoxin. He has also noticed that extracts of various organs have a notable influence in this line in severe secondary anemia. On the basis of these data he treated a woman of 38, with severe pernicious anemia rebellious to iron and arsenic, with antidiphtheria serum, giving four injections of 1,000 units each, with intervals of forty, sixteen and twenty-one days. A week after the first injection he commenced combined organotherapy, giving extract of spleen, spinal cord and blood, alone or combined; the daily dose was about 0.5 gm. of the extract, gradually increasing to 2.75 gm. a day and then tapering off. By the fourth day after the first injection of antitoxin the reds had increased from 823,750 to 1,618,000 and by the sixth week to 3,832,000 while the hemoglobin from 35 to 30 had risen to 90 per cent. Nearly six months after suspension of all treatment—the complete course having taken thirteen weeks—the hemoglobin was 95 per cent. and the reds numbered 5,084,000; the blood findings otherwise were also normal.

82. **Action of Sugar on Kidney Functioning and on the Circulation.**—Crispolti has been studying in the clinic the application of the results of Lo Monaco's recent experimental research on the effect of sugar. He apparently demonstrated that small subcutaneous doses of sugar increase kidney functioning to a notable extent, while larger doses reduce the output of urine. The output is also reduced when the small doses are kept up for a long time. Crispolti injected intramuscularly into the buttocks 1 or 5 c.c. of a 100 per cent. solution of saccharose, and tabulates the findings in six persons with sound kidneys, the conditions of the tests about identical in all. The findings cover a period of thirty-two consecutive days in five cases and twenty days in the other case, and are tabulated under fourteen headings. The injections were made daily for a week or ten days and then suspended for equal periods. The findings show that small doses did not modify the blood pressure or the circulation, but that large doses, 5 c.c. of the 100 per cent. solution—increased the blood pressure and the pulse. The subjects also

gained in weight on these large doses, showing that they have nutritional value as well. This explains Leo's finding that starving rabbits given a daily intravenous or subcutaneous injection of 1 gm. glucose survived five days longer than the controls. Crispolti found also that the sugar solution had a marked effect on the action of the kidneys, small doses stimulating and the 5 c.c. doses checking kidney functioning. Not only the total output of urine was reduced, but the proportion of urea and chlorids was also reduced. The patients were very thirsty and drank much more water than usual, and they complained of not feeling so well; they lost appetite and some had headache and nausea under the large doses. He thinks the reduced output of urine and of urea, etc., amply explains these vague disturbances under the large doses. On the other hand, diuresis was materially promoted by the small 1 c.c. doses, and the proportion of urea and chlorids also increased. With the small doses there were no disturbances, no excessive thirst, and the mouth was moist; with the large doses the mouth felt parched.

Sugar in small doses seems to dilate the blood vessels while in large doses it has a constricting action on them. This explains the cases in which hemorrhage has been arrested by injection of sugar. It also offers an explanation of the inhibiting action of large doses on diuresis; the vessels in the kidneys of course share in the general constriction. The data thus presented suggest that small doses of sugar to promote diuresis are indicated in all conditions of oliguria from various causes. Large doses, on the other hand, will prove useful to reduce polyuria in diabetes or nervous polyuria if the blood pressure is not overhigh to start with. While the large doses are being taken, the diet should be mostly liquid; this not only tends to prevent harm from the retention that follows the large doses, but it facilitates diuresis.

Riforma Medica, Naples

May 9, XXXI, No. 19, pp. 505-532

84 Dysentery. M. Ascoli.

85 Antagonistic Action on Peristalsis of Elements of Intestinal Content. G. Ollino. Commenced in No. 18.

Hospitalstidende, Copenhagen

May 5, LVIII, No. 18, pp. 425-448

86 Centenary of Danish Anatomist, Physiologist and Pathologist, A. Hannover. J. Fibiger. Concluded in No. 19.

Hygiea, Stockholm

LXXVII, No. 7, pp. 353-400

87 Fourfold Reinfection with Syphilis. (Bidrag till reinfektionskasuistiken.) G. Ahman.

88 *Flap from Abdominal Wall Shares in General Obesity. (Hudtransplantation med säregt resultat.) J. Strandberg.

88. **"Obesity" of the Hand.**—A girl of 12 had a defect in the back of her hand remedied by a flap taken from her abdomen. It healed in place and answered its purpose perfectly until late in life. After 30 she became obese. Then the patch on her hand increased in size proportional to the increasing thickness of the abdominal wall, as in illustration.

Ugeskrift for Læger, Copenhagen

May 6, LXXVII, No. 18, pp. 683-730

89 Total Loss of Memory and Progressive Dementia After Attempt at Suicide by Hanging. (Amnesi med fremadskridende Demens efter Suspension.) M. Anchersen.

90 Traumatic Rupture of Kidney or Intestine Without Trace of Injury on the Skin; Two Cases. H. Kaarsberg.

Correction.—The German term *Kriegstypus*, "war typhus," refers to typhoid, not typhus. This correction applies to Titles 50 and 74 in THE JOURNAL, pages 1882 and 1949, of the current volume.



Flap taken from abdominal wall shares in obesity (Abstract 88).

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WORK OF THE AMERICAN MEDICAL ASSOCIATION *

WILLIAM L. RODMAN, M.D.

President of the American Medical Association

PHILADELPHIA

In assuming the presidency of the largest and most important medical organization in the world, and at the time of its greatest achievements, I am overcome with humility and a consciousness of my own limitations. Profoundly grateful for so signal and unmerited an honor, I shall ask that the same partiality which placed your standard in my hands strengthen and support me until I shall have transferred it, unsullied and undimmed, into the hands of my successor.

With your help I may succeed; without it, failure is certain; therefore, grant it me in unstinted measure.

As the splendid work of the Association, carried on by its officers and several councils, has not been reviewed by my immediate predecessors, it would seem eminently fitting that I should, at this time, attempt a retrospect of some of its most noteworthy achievements, and incidentally point out how, with your cooperation, other equally desirable results may reasonably and certainly be attained.

THE AMERICAN COLLEGE OF SURGEONS

As the American Medical Association always stands for altruism and noble endeavor, it is my first duty, as well as my great pleasure, to congratulate most heartily the officers, board of regents and fellows upon the auspicious beginning of the American College of Surgeons, its achievements and its splendid aspirations. It has already, in its brief existence, accomplished much in elevating the general tone and level of American surgery, and met all reasonable expectations of its sponsors. The college was organized to fill a distinct need, and its aims and purposes were well presented by its president, Dr. J. M. T. Finney, at the inaugural meeting in Chicago, in November, 1913, in an address which was notable for its ability, sincerity and lofty character. With a rare and keen discrimination, equaled only by the courage shown, he pointed out the weaknesses in our armor, and the professional obligation of all to overcome them. I cannot do better than quote some of his forceful words, and, further, to express the hope that every member of the profession, in or out of the college, will read and read again the entire address:

The aim of this new organization and the reason for its existence lie in its disinterested and unselfish efforts to elevate the standards of the profession, moral as well as

intellectual, to foster research, to educate the public up to the idea that there is a difference between the honest, conscientious, well-trained surgeon and the purely commercial operator, the charlatan and the quack; furthermore, that the term "surgeon" means something more than a suave manner, a glib tongue, a private hospital, a press agent, and the all too easily acquired diploma. The standardization of surgery is absolutely essential to guard the public against such as these, as well as to preserve the honor of the guild itself. So far as the public is concerned, it is necessary to protect it from the wolves in sheep's clothing, from those who would prostitute their high office for the purpose of gain; from the ignorant and the untrained; from those who by reason of the lack of surgical judgment and skill are incompetent. That such are present in considerable numbers in our profession, and that they continue to ply their nefarious trade in every community of any size, with reckless disregard of the consequences, unfortunately cannot be denied. Are we to sit idly by while the fair name and fame of our profession are being dishonored and defiled? Is there nothing that we can do to protect the public and ourselves? Our presence here this evening is an answer to these questions. The American College of Surgeons has been called into being as an active, vigorous, virile protest upon the part of the profession itself against this unhappy state of affairs.¹

No one who impartially reviews the work of the college, conducted as it has been by officers and a board of regents of the highest personal and professional standing, can withhold from them a large measure of praise for unselfishness, devotion to the cause, and a very evident intention to be true to the highest ideals of the profession.

In every community men are operating who have no right to take human life into their hands. This does not apply to the general practitioner who, in an emergency, and to the best of his ability, operates in an attempt to save life, but to those who, for gain, undertake that which should be done only by the skilful surgeon. Surgery is a special science, extrahazardous in its nature, and hence the public has a right to demand of the surgeon the very highest physical, mental and moral equipment.

The positive stand the college has taken on fee-splitting alone more than justifies its existence. This evil has become intolerable, and a wave of protest is rising throughout the land which should, and we believe will, overwhelm the offenders. Reform is bound to come, and the public will surely take the initiative if we do not. In some states the legislatures have already enacted laws constituting fee-splitting a crime. But it is most undesirable that our problems and shame should be corrected by legislators who imperfectly understand the real conditions. Let us at once apply the axe to the root, make this nefarious

* President's address before the American Medical Association at the Sixty-Sixth Annual Session, San Francisco, June 22, 1915.

1. Finney, J. M. T.: American College of Surgeons, presidential address, delivered at the first convocation of the college, Chicago, Nov. 13, 1913.

practice impossible, drive from the surgical temple those who defile it, and let their names and methods be anathema maranatha. If there be those within the ranks of the college who are at this time tainted with commercialism, it was not so intended by the board of regents, and they will make short shrift of any one caught *flagrante delicto*. I hold no brief for the board of regents, but am acquainted with every one of its members, and am satisfied that the honor of American surgery is safe in their hands. Undoubtedly mistakes have been, and others will be, made. But shall we expect human prescience to do that which Christ Himself did not do? Did He not in selecting His disciples choose Thomas who doubted, Peter who denied, and Judas who betrayed Him?

COUNCIL ON HEALTH AND PUBLIC INSTRUCTION

The Council on Health and Public Instruction continues to investigate health conditions, to educate the public and to foster a sentiment that will force the enactment of health laws. We are better prepared today to prevent disease and to save life than ever before; but we need the confidence and intelligent cooperation of the people before the work can be satisfactorily accomplished.

The Council is in touch with the newspapers, and since the Press Bureau was established three years ago, has issued 164 bulletins for publication in 4,900 newspapers. These bulletins are made up of extracts and abstracts of editorials and original articles from THE JOURNAL, with occasional articles on popular health topics, contributed by prominent members of our Association, but published without signatures.

Popular write-ups on medical subjects are too often but garbled statements of medical facts. Yet the daily press wishes, and has a right, to publish what the people want to read. In Kings County, N. Y., a publicity committee has cooperated with newspaper editors in working out a plan for getting truthful reports of interviews on medical topics. This scheme has worked so admirably that the Judicial Council recommended to the House of Delegates the formation of such a publicity committee in every county medical society in the country.

Another plan of the Council is to unite all of the public health organizations into a national league. With this in view, it has suggested that the various public health organizations hold their 1916 annual meetings at the same time and place. Special societies, such as those for the study of tuberculosis, cancer, infant mortality, etc., might be made sections of this national league, which would be a great advantage to them.

The Bureau of Literature has circulated pamphlets on health topics, notably on cancer, which at this time is being given great attention, not only by our Association, but by the American Society for the Control of Cancer, by a cancer committee appointed by the Clinical Congress of Surgeons of North America, by the Cancer Commission of Harvard University, and by state and municipal commissions as well, all working to the same end, namely, the enlightenment of the public as to the early symptoms of cancer, the necessity for prompt surgical intervention and the danger of running after false gods.

Several speakers connected with this bureau have told me of the large and interested lay audiences they have addressed in different parts of the country, and I myself have had a similar experience in the states of

Maryland, Virginia, North Carolina, Ohio, Missouri, Illinois, Minnesota, New Jersey and Pennsylvania. I have also been assured by local physicians in the cities and towns visited by such lecturers on cancer that the results have been most encouraging, and in many instances have led to early operation where, without such knowledge, the patients might possibly not have been operated on at all. I believe that the Association has done, and can do, no better work. In addition to the agencies already named, the federal government, through the director of the census, announces a new departure which should be welcomed. When the 1914 returns come in from the United States registration area, they will be made the subject of a special monograph on cancer. The deaths will be classified under some thirty headings, instead of seven as heretofore, and according to the region or organ affected, which is the arrangement followed in the standard reports of the registrar general of England and Wales. While not germane to the cancer question, it is of interest to note that the government Public Health Service also has undertaken a new work in beginning a sanitary investigation of navigable waters, thus far confined to the Potomac, Ohio, the shores of the Atlantic and the Gulf. This promises to be of vast interest and benefit to the entire country.

Many committees have done admirable work, notably the Committee on Resuscitation from Electric Shock, who have issued a chart and booklet for use in electric lighting plants which is considered authoritative all over the world; also the Committee on Resuscitation from Mine Gases, a report of whose work has been issued by the federal government.

The Joint Committee with the National Educational Association has been engaged in a fruitful study of health problems in education which will give an impetus to sanitation in rural schools, hitherto much neglected.

The activities of the Medicolegal Bureau are still in their incipency, and it must be admitted that on the question of public health legislation the profession is still at variance. Efforts have been made, for nearly half a century, to secure the passage of laws regulating the practice of medicine in the different states, yet we fail to agree on the most essential requirements. The Association is, however, now making a more scientific study of medicolegal questions, and has issued two pamphlets dealing with this phase of its work. Nothing, however, could be more unwise or undesirable than hasty or ill-considered legislative experiments.

PROPAGANDA DEPARTMENT AND THE COUNCIL ON PHARMACY AND CHEMISTRY

The Propaganda Department reports an increasing public interest in the matter of "patent medicine" frauds, and has issued more than thirty educational posters as well as lantern slides for popular lectures on this subject. Boards of health, clubs and newspapers are alike active in disseminating information to the public.

The aims of the Council and what it has accomplished have made an impression upon the medical profession of both England and Germany, and in the latter country an association with similar functions has been formed.

Naturally the work of the Council has aroused much antagonism on the part of pharmaceutical manufacturers and those journals which make advertising a specialty, and some drug firms have threatened the Council with

legal proceedings if it published anything concerning their products. Others have already begun legal action which is being vigorously resisted by the Board of Trustees. But it is gratifying to note that other firms whose preparations are really new and of therapeutic value have voluntarily submitted them to the Council for examination and endorsement. Drugs are accepted only after most careful investigation.

The Association now has in its laboratory three chemists who give their whole time to the analysis of medicines. The Council has attempted to distinguish between medicines good and bad. In addition to New and Nonofficial Remedies describing proprietary and new drugs which are deemed worth the consideration of physicians, it has published "Useful Drugs," which contains the really valuable drugs in our *materia medica*. This a number of the best schools now use as a textbook. Its labors, too, have materially influenced the teaching of *materia medica* and therapeutics. It remains, however, for the profession to set its ban on all proprietary medicines, if the only information concerning them comes from those who manufacture and sell them.

A few newspapers submit their medical advertisements to the Propaganda Department for its opinion before publishing them. Would that the so-called independent medical journals might follow their example, and seek an opinion before advertising outrageously fraudulent nostrums in their columns.

The medical profession should realize the inconsistency of its Council working to eliminate these products and some of its journals doing their best to perpetuate them. It is absurd for us to fight self-medication on the one hand and encourage it on the other. Can we not by concerted action either stop these obnoxious advertisements or refuse to countenance the journals that carry them?

COUNCIL ON MEDICAL EDUCATION

The Council on Medical Education was established in 1904. Conditions demanded its creation, as other agencies had proved inadequate to meet a situation which had become intolerable. The moral influence of this great Association was necessary to quicken and give vital force to what had long been good intentions or ambitious dreams on the part of other and smaller organizations.

Its work has more than justified its existence; for it has, in a decade, accomplished more in the way of regulating and elevating medical education than had been done in a century; and it has been able to do this without the slightest legal power, but solely by reason of the righteousness of its cause, the high character of its members, and the wide publicity given its recommendations and acts in a journal which goes approximately to 70,000 medical men weekly. No institution could resist, much less defy, the official acts of such a body.

The profession has given the Council most cordial support, and it cannot be said that schools have been irresponsive. Indeed, when one considers the chaotic state of medical education in the United States in 1904, and then views the situation as it is today, there is cause for felicitation all around—to the Council, to the profession of the country, and to medical institutions—for so happy a consummation could not have been reached without the hearty cooperation of all.

Truth to tell, there are outside influences which have been most helpful in this beneficent work, and to them

all due credit should be given ungrudgingly. The Association of American Medical Colleges, the Federation of State Medical Boards, the American Academy of Medicine and the Carnegie Foundation have at all times cooperated cheerfully, zealously and effectively. But, after all, is it not to the greater credit of the Council that it has been able, largely through the tactfulness and diplomacy of its chairman, to make use of and coordinate so many forces for good, which, while working separately, as they hitherto had done, had oftentimes, though inadvertently, pulled apart instead of together? No one who has attended the annual meetings of the Council, Federation of State Medical Boards, and College Association, held on consecutive days, in the same hall, the members of each body having the privilege of debate in all, could fail to be impressed with the admirable team work thus far displayed. To have united these bodies for effectiveness called for the ability of a wise general, and to weld and hold them together may require the genius of a field marshal.

If mutuality is to be the watchword of all, the structure must, and will be enduring; but if one body insists upon conditions and standards which do not commend themselves as both reasonable and attainable throughout the whole country, there is danger of retrogression. We go either forward or backward; the former is usually difficult, requires time, and those who are to be successful must keep ever in mind the admonition, "They stumble that run fast."

When the Council was organized in 1904, it published, as an ideal standard to which it would gradually approach, the following:

(a) Preliminary education sufficient to enable the candidate to enter our recognized universities, the passing upon such qualifications by the state authorities.

(b) A five-year medical course, the first year of which should be devoted to physics, chemistry and biology, and such arrangements should be made that this year could be taken either in a school of liberal arts or in the medical school. Of the four years in pure medical work, the first two should be spent in laboratories of anatomy, physiology, pathology, pharmacology, etc., and the last two in close contact with patients in dispensaries and hospitals in the study of medicine, surgery, obstetrics and the specialties.

(c) A sixth year as an intern in a hospital or dispensary should then complete the medical course.

This goal has been reached, at least on paper; the ranks have been thinned, as more than a third of the schools are now *hors du combat*, and it is expedient to mark time for a while, and give those institutions which have approached the firing line at double-quick speed a chance to catch their breath.

There are many reasons why this should be done. In the first place, the standard is now as high as it should be for *all* of the schools of the entire country. An irreducible minimum has been reached, and should be honestly enforced—that is, as soon as it can be. There is, of course, no limit to a maximum that any highly endowed and exceptionally circumstanced institution may adopt for itself.

Second, the present standard of the Council (four years in an accredited high school, one year in the basic sciences of chemistry, physics and biology) is on a parity with that of Canada and Great Britain, and with European countries. What reason have we to establish a cultural standard in medicine higher than that imposed by older countries?

Third, medicine is not a thing apart, but only a link in the educational chain, and should be based upon and

correlated with the secondary schools, colleges and universities of the country. Professional education, in medicine at least, has advanced much faster than our general educational system has done. Would it not be logical, henceforth, to direct our efforts toward stimulating progress in secondary education until it shall have caught up?

To make my meaning clear: We demand a four-year high school diploma, and, in addition, one year in biology, chemistry and physics of every matriculant in medicine; and this, notwithstanding the fact that many of the states are poorly equipped with *good* four-year public high schools, and that some, though having recently acquired them, are as yet without graduates. But the very states without such secondary schools, upon which we depend for the necessary cultural knowledge as a prerequisite to the study of medicine, have from one to three medical schools drawing nearly all of their students from their own state. No one knows this better, nor has any one expressed it more clearly, than did Dr. Pritchett when he said:

To enforce honestly a four-year high school requirement would call for great firmness and self-denial on the part of the medical schools [in the South]; but to require on top of this a year of college including the sciences and a modern language is to inaugurate anew a régime of compromises and makeshifts, and to substitute an imitation of education for the genuine thing.

Furthermore, the second requirement, one year in the sciences, is no better, if, indeed, so well complied with. The high schools, colleges and universities by no means agree as to the character, scope and extent of such course, and when it should be given. At this moment their differences could not be greater or confusion worse confounded.

Fourth, it is paramount that a man complete his professional training and begin to practice by the time he reaches 25. This must appeal to every one who views the situation from a practical standpoint. To be a nonproducer, a dependent upon some one else, at an age when men can be both productive and independent, is abhorrent to the American mind, as we are sensitive upon this point and a people of action rather than doctrinaires. Therefore, the Council should keep ever before it this essential fact, and other less important requirements should weigh as nothing against it. Furthermore, there is a way to bring this about without in any way curtailing either the secondary or professional training one must have. The fault at this time is unquestionably with the secondary, and not the professional end of it. We have agreed that a course in biology, chemistry and physics is a prerequisite to the study of medicine, but we do not agree at all as to where, how and when such a course should be given. At this time it is given in the high schools, in the colleges and in the universities, and, judging from the very recent report of the committee appointed by the Association of American Medical Colleges to investigate the subject, is taught as indifferently in one place as another.

In order to meet this condition, medical schools not connected with universities, and some that are, have been compelled to take over this work so that it may be properly correlated with medicine. It should be given, however, by a separate and distinct corps of teachers, and entirely apart from the work of medical students. This system, while educationally unsound, as we must admit, became a necessity because of the unsatisfactory courses given by the various secondary

schools, colleges and universities throughout the country, and, moreover, the seeming unwillingness on the part of their representatives to modify their courses in any way, either for the convenience or benefit of those intending to study medicine subsequently. And yet, these same presidents, deans and other representatives of colleges and universities seriously advise us to add another year of university work, so that sufficient science shall have been taught the prospective medical student. Why should such a demand be made only upon American medical students? No other country makes it; why then should we? To spend an unnecessary year of one's life in obtaining cultural knowledge that is, to say the most, of questionable and uncertain value to him in his profession, is worse than a crime—it is a blunder. The literary colleges must at least improve their laboratories and tuition, so far as the sciences are concerned, before they can reasonably ask that one relatively fruitless year be passed within their walls; to double the dose would certainly be a serious handicap to the student and might be fatal to our educational system. The committee appointed by the Association of American Medical Colleges has this to say in its report:

We are forced to the conclusion that the literary colleges over the country are not giving the science subjects demanded in our schedule in their first year's curricula, and, apparently, in many instances are not giving biology and physics as regular work for a bachelor's degree.²

If we add to this testimony that of President Lowell of Harvard and others who have read papers at the several conferences referred to, it is perfectly clear that there is no uniformity of practice or thought among the officials of colleges and universities, so far as the scientific course is concerned. Therefore, for the present at least, it must be taught largely by the medical schools, as has long been the custom in England, where the results are most satisfactory; or there must be as has been suggested by distinguished educators, a rearrangement of the curricula of high schools, so that they will embrace a course in the sciences which will be acceptable to medical schools. This, I believe, is the very best solution of the problem, as there is no good reason why a first-class high school should not give a boy such instruction whether he intends to study medicine or not. Many of the high schools do this now, and all might be induced to make the necessary change reasonably soon. In a recent conversation with the principal of the Central High School of Philadelphia and the head of the department of science, both expressed the opinion that boys leaving the high school should be fully prepared to begin the study of medicine. Both men are entirely familiar with our modern requirements, as they have kept in close touch with the situation at all times. Professor Keller, for many years head of the science department, has been kind enough to give me, in addition, his opinion, in a letter from which I am authorized to quote. He says:

We are satisfied that the instruction now given in our scientific course fully meets the present actual requirements for entrance to the medical schools. The work includes a comprehensive course of instruction in science, including biology, zoology, physiology, physics and chemistry, as well as in two languages, either Latin and German, or French and German.

2. The members of the committee making this report are all connected with universities.

We can see no reason why the present requirements in biology, physics and chemistry should not be covered by the instruction given in any first-class high school, such as we have in the larger cities.

The reasons for giving this instruction in high schools are many. First, boys from 15 to 19 are at the very time of life when they are more interested in such a course than they would be later on at college or university, when they will, perhaps, have chosen their future vocations and wish to prepare for them specifically. Second, education is naturally a function of the state, and this is being realized more and more all the time. One has only to consult the reports of the commissioner of education at Washington to be convinced of the marvelous changes for the better wrought in a decade. In 1901 there were 8,210 secondary schools with 649,951 students, whereas in 1911 there were 13,268 such schools with 1,246,827 students.

Mr. Claxton, commissioner of education, suggests that the twelve years of elementary and high school, now grouped into eight years of primary and grammar school and four years of high school, be rearranged, making the course six years in each. Taking the seventh and eighth years as part of the high school makes it easy to begin departmental teaching in these grades, and to adopt the methods of teaching and discipline to the changing demands of the children. It also makes it possible to begin vocational education two years earlier than is now the case, which all must think desirable. Virtually nothing is lost in the primary school by such an arrangement, as teachers are generally agreed that the time spent in the seventh and eighth grades is nearly always, under the present plan, a period of marking time.

High schools change with surprising swiftness, even in the older states. What was last year a registered three-year high school in New York often becomes this year a registered four-year high school. During the past decade a steady stiffening of the requirements for admission has occurred. Only the better high schools have been able to keep pace with these changes and to meet fully these requirements. The whole system of secondary education of a state may undergo in half a decade a thorough reorganization and uplift; the State of Virginia offers an example.³

I quote again from Commissioner Claxton:⁴

Not only must the courses of instruction in all public schools be varied and differentiated to meet the varying needs of all the children of all the people, they must also be so adjusted as to give the information and training necessary for intelligent and successful employment in all standard occupations. Whatever is needed to be done for the welfare of society in city or state should be taught in the public schools, unless it can be taught elsewhere better and more economically.

Whatever may be the solution of the problem of vocational education, it is quite clear that two things should be held firmly in mind: (1) that all education is one thing and not many, and that vocational schools are an integral part of our common school system; that whatever may be the trade by which one makes a living, humanity and citizenship, with all their requirements, are common to all, and must be considered in the education of all individuals and classes.

In the state of Pennsylvania there were but 193 four-year high schools in 1904, whereas there are 353 reported in 1914 (of these, forty-three are in cities and 310 in counties). There are still more schools

giving three and two year courses, it is true (383 of the former and 134 of the latter); but if the rapid evolution of the past decade continues, there will very soon be more high schools giving a four-year course than schools of lower grade.

Now, while high schools are undergoing such evolutionary changes, is the propitious time to make an appeal to them to arrange their curricula so as to include a liberal science course. This appeal should have additional weight because they are public institutions maintained for the advantage of all; whereas colleges and universities, being largely private corporations, are managed to suit themselves and their officers, and would naturally be less responsive to outside requests or influences. The advantages would be palpable and direct, mutually beneficial to state, municipality, secondary, higher and professional education. The state and municipality owe, and can perform, no higher duty than to furnish youths with the very best educational advantages, as all that they give in this way is thrice repaid in a quickened, higher and better citizenship. Perhaps the very best and most wholesome law which a state can enact is that making education compulsory, thereby, to a certain extent, taking the control of a child from its parents. If this right is both assumed and exercised, it should be carried out conscientiously, wisely and thoroughly, and the states, domestic and foreign, that have measured up to this obligation have secured results which have placed them far and away ahead of those which have not. In no other way can we explain the satisfactory state of medical, as well as other branches of professional education in Germany and France, for instance. There professional education is considered, as it should be, a part of a general educational system, and hence is built upon a solid foundation. The thoroughness of the German secondary school system is most admirable, and should be imitated by other countries. The French, however, have better solved the question of premedical education, which is, at the present time, the most important question awaiting solution in America. After leaving the lycée with a baccalaureate, one must, before beginning the study of medicine, take a scientific course for one year, which includes physics, chemistry and natural history. It is designated as the P. C. N. course. It is given under academic auspices, and not by the medical schools—a practice educationally sound beyond question—but the course is objected to by the teachers of medicine as being too general in its scope and not sufficiently correlated with medicine. It is, nevertheless, thorough, embracing lectures and demonstrations in the morning, and active, practical work in well-equipped laboratories in the afternoon.

In England the same distrust of college and secondary school training in the fundamental sciences, upon which medicine rests, has always been shown, and to such an extent that the Conjoint Board of London, representing the Royal Colleges of Medicine and Surgery, refuses to recognize and give full credit for any such course taken outside of a medical school. Subject, but not time, credit is given. A student from such institutions must spend at least six months in the first year of a medical school reviewing what he has already had, and going further in the basic sciences before he can enter the second year of a five-year course in medicine.⁵ This action is made necessary by the rudimentary state of public, or what they call board school, education in England, and the unevenness of scientific instruction

3. Babcock, Kendric Charles: Bull. 29, U. S. Bureau of Education, 1913.

4. Report of Commissioner of Education.

5. Frederick G. Hallett, Secretary, Conjoint Board, London.

elsewhere than in medical colleges. It is thought to be the best possible solution of the problem for that country, at this time, by an able, experienced and impartial teacher who is thoroughly acquainted with educational matters throughout the world, and who is, moreover, an enthusiastic advocate of the French system wherever it is practicable.⁶ So, even if it be maintained that many of the high schools will not, or cannot, give an entirely satisfactory course in the sciences, their students beginning medicine can be given subject but not time credit, as is done in England, by our medical schools. I am of opinion that the English plan, which requires that at least six months of the science course be repeated, has much to recommend it and gives better practical results than the French system. When a boy takes his scientific course in a medical school, he is already pursuing what is to be his life work, he associates with medical students, occasionally attends, and is, perhaps, inspired by, a clinic, and his work of the first year is properly correlated with that of the second; moreover, and this is of the utmost importance, he is away from the many distractions inseparable from the first year of college life, when it is not expected that he take matters too seriously, but drift with the current.

In the medical school it is intensive study; in the college extensive study. I believe intensive work is better for the professional man, whereas a more diversified and widely distributed course is better for the man of letters.

The suggestion of Dr. Pritchett and Mr. Flexner that the secondary schools of Germany should include a satisfactory course in the sciences is certainly, I think, as applicable to our public schools.⁷ Commissioner Claxton has shown it to be not only desirable, but also feasible in the United States, where changes are being made so rapidly in our secondary schools. Therefore, the present is the opportune time to bridge the gap between the secondary and vocational school by bettering the former and permitting a youth to begin medicine, law, engineering or other vocation before he is 20. It will then be quite possible for him to have graduated from a medical school and to have had a year's service in a hospital by the time he is 25. Then, and then only, in my opinion, will we get the type of men for whom there is a demand in the profession. To require, as medical schools do today, that part of one's preliminary education shall be in a high school, where there is confessedly no average standard for all of the states, and another part in a college or university where no greater uniformity is to be found, is, to say the least, an anachronism. We are a young nation with no hampering restrictions and traditions to fetter and hold us back when the very life of our educational system is at stake. Either the high school system should be changed, as urged by Commissioner Claxton, so that the four-year course will embrace all of the English, mathematics, sciences and languages necessary for professional enrolment, or paper credentials, which are now of relatively little value, should be given up altogether, and men accepted as medical students only after passing the necessary entrance examination.

Practically all medical teachers agree that the greatest defect with students is, and always has been, the lack of an adequate knowledge of English. Mathematics, the sciences and languages are of great importance, unquestionably; but to understand, to speak and

to write English correctly is of far greater importance, and should be insisted upon as paramount. It was undoubtedly wise for the Council to omit German and French as a requirement after 1914. In lieu of them, it should strenuously insist on a more thorough preparation of students in English, and suggest that it take the place of German, which was formerly advocated by the Council, is still being taught by many schools in the premedical year, and is insisted upon by the Association of Colleges. A student can learn but little of any language, of which he has known nothing previously, in one year; yet the same time given to the study of English, and the necessary emphasis put upon it at the very beginning of his professional career, would be most fruitful. Appearance, address and correct use of English must always be among a physician's best professional assets, and to be indifferent concerning any of them certainly does not make for success.

In 1903, at its annual meeting in New Orleans, the Association of American Medical Colleges enacted into law a recommendation which had been made the year previous by President Vaughan to the effect that all matriculants in medicine should have a four-year high school diploma. A committee had been appointed at the meeting in Saratoga, and reported formally on the recommendation at New Orleans.

I had then, as now, the distinguished honor of succeeding Dr. Vaughan as president, and used what personal and official influence I could summon to put into effect his recommendation, notwithstanding the fact that it was strenuously opposed by many of my best friends and the two faculties of which I was then a member. As there were only about one third of the number of high schools in 1903 that we have now, and most of them gave one, two and three year courses, and but few a four year course, it was thought best to make the new requirement effective after July 1, 1905, and to give the student the option of an examination in lieu of a satisfactory diploma. This postponement also gave schools time to discharge all outstanding obligations to their students who had matriculated under the former standard. Some of the present difficulties were foreseen, but there was not, and should never be, the slightest sectional discrimination in an organization that is national in scope. This may be proper on the part of states, but the Association of American Medical Colleges and the American Medical Association should legislate, and have always legislated for the entire country.

There is but little doubt that the action taken by the College Association in 1903, and by the American Medical Association since the creation of its Council on Medical Education in 1904, has done much to stimulate the high school system all over the country, improving those schools which did exist, and causing states without adequate high schools to establish them. The medical profession has always exercised a wide influence on our common school system, as thousands of its members serve on school boards throughout the country, have intimate contact with educators, and can exert a wholesome influence upon them. Now is the accepted time to do it, for there are evidences of unrest everywhere. I know that it exists in Philadelphia, and that the adoption of the suggestion of Commissioner Claxton for junior and senior high schools is now being actively agitated in that city.

It is clearly the duty of the Council on Education to have, and even to publish, a list of acceptable and unacceptable medical schools; but I agree with the

6. Flexner, Abraham: Carnegie Report.

7. Carnegie Foundation, Medical Education in Europe, 1912.

position taken by Dr. Pritchett, in his paper at the February conference in Chicago, that the simpler the classification the better, as fewer mistakes will be made and, therefore, heartier support accorded by all. Nice discriminations between wholly acceptable schools are unnecessary, serve no good purpose, will naturally be resented, and may lessen the usefulness of the Council. There is always danger of overdoing a good thing. For example, all will agree that the railroads of the country formerly needed regulation by state and federal government, so flagrant had been their offenses and shortcomings. But nearly everybody, certainly a majority, now think that zealotry in the best of causes went too far, and resulted in injury to the railroads, the country and the people. Hence the present reaction and undoing of much that was unwisely done.

Therefore, the Council abolished "A plus" from its classification. It is proper and feasible to distinguish between schools which are acceptable and those which are not. The former have the necessary all-time teachers, equipment and hospital facilities, the latter are wanting in all of them to a greater or less extent; hence there can be no honest and intelligent difference of opinion concerning them. But, when the Council undertakes to discriminate between high grade schools, mistakes certainly will be made, as Dr. Pritchett so forcibly pointed out; for men would be more than human if they did not use all honorable means to secure the highest rating for their schools, and resent that which seems a work of supererogation, needlessly discriminatory, and inviting criticism and opposition. But while I am very clear as to both the wisdom and expediency of the present classification, I am also of opinion that it is the duty of the Council to give full credit to schools — and to make it equally prominent in its reports — which maintain a different standard from its own, be it higher or lower; and, further, to express an opinion, not only as to the ability of a school to fulfil its pledges, but also if it is consistently doing so. Standards are worse than useless if they are not both honestly and fearlessly enforced, whether the offender be strong or weak. Let others, as the prospective medical students who are most concerned, know exactly what the country offers in an educational way, and precisely where they can get it — not where it is promised. Every one knows that the catalogues and other announcements emanating from schools cannot be absolutely relied upon, as they are oftentimes the specious plea of the advocate and partisan and, if accepted at their face value by prospective students of medicine, will prove in the end both disappointing and illusory. One will hardly go to a doting parent for an unbiased opinion as to the ability, beauty and virtues of a child, nor will one seek opinion concerning a pastor from one of his devoted parishioners. It is about as wise to expect all deans who write medical and other prospectuses to spend their time in criticizing their own institutions.

At the meeting of the Council, Dec. 28, 1914, a suggestion was made, to the effect that, in addition to and following the official classification, the Council should enumerate on a separate page all those schools which require a diploma before one can begin therein the study of medicine; on another page those schools which require two or more years of college work before matriculation in medicine; on still another page those schools which require one year of collegiate work, and, on a final page, those schools which require, in addition to a five-year medical course, a sixth year as intern in

an acceptable hospital. The representative of the Federation of State Medical Boards, who was present, said that this arrangement would greatly facilitate their work. I again endorse the proposition, and hope to see it become operative.

A committee, of which President Vaughan is chairman, was appointed by the Council to report a plan by which clinical teaching can be made more effective and practical. On this committee are ten of the ablest and most experienced teachers in the country, and their final report, whatever it may be, must have great influence toward controlling clinical teaching in America. The preliminary report of this committee, presented by the chairman, was read and fully debated at the meeting of the Council in February. It was a most careful, conscientious and able review of clinical teaching, showing how hospitals connected with medical colleges could be so managed as to insure to students practical, and, at the same time, most necessary advantages. Questions of general hospital management, endowment and equipment were considered, as upon them, in large measure, efficient clinical instruction must depend.

THE NATIONAL BOARD

To meet a situation which, under our peculiar form of government, has resulted in hardship, and must, if continued, cause countless embarrassments, a national Board of Medical Examiners has been organized, and will hold its first examination in Washington in October. The character and scope of this examination will be such that no state ought to, and we believe none will, deny recognition, in the fullest sense, to those who pass it.

At the same time, I wish to make it absolutely clear that such a board will not, cannot and should not interfere with the several state boards. Such an examination is for the exceptional, not the average man. It is for the man who, while young, willing and able to pass it, does so with the hope that it may prove a good investment for him in case of business opportunity, ill health in his family, or other impelling reasons which may cause him to change his location. All of us have in mind sad examples of able, even distinguished, general practitioners and specialists, who, compelled to remove from one state to another, were estopped from practicing their profession. Laws have been made, and rightly so, to restrain the ignorant and designing from imposing upon those whom the state would protect. That the state should insure the people protection in so vital a matter by placing its stamp upon medical practitioners cannot be questioned, and there is but one way in which this may be accomplished with equity and justice to all; that is, by requiring an examination at the hands of a state board of examiners. That conditions in all of the states are much better than those which existed prior to the formation of such boards cannot be questioned, for medical schools were given their first shock and made to improve by state boards, years before the Council on Medical Education was created; but the great number of states in our Union, some still maintaining multiple boards, makes a uniform standard simply impossible. Indeed, the boards of the several states not only differ in standard one from another, but the two or three boards in one state may differ as widely among themselves. Yet these differences are not only natural but also to a certain extent commendable, although especially trying and vexatious to practitioners who must move from state to state.

For many reasons a national board with power to confer a diploma carrying with it the unquestioned right to practice in any state—indeed, to follow the flag—has always been desirable, though, as yet, unattainable under existing laws. But there is a way by which such recognition may be accorded to a carefully selected and representative board, entitled of right to the confidence of the entire country, without changing the law in some states, and with but slight and immaterial changes in others. Many states have already, quite properly, given rather wide discretionary powers to their boards of examiners and invested them with authority either to recognize, or to withhold recognition from, extrastate agencies, domestic or foreign. This rests entirely with these boards, and they are governed solely by the standard of the body whose credentials are proffered. If high, they may be accepted without examination of the applicant; if low, they are rejected, and if doubtful, the candidate must be examined. No other course is reasonable. In some states the law is mandatory, and compels the applicant for licensure to be examined, in prescribed fashion, whatever his qualifications or credentials.

It should be a simple matter to induce all of the states at once to recognize a national board whose only aim is to improve the existing situation, and remedy a defect in our law and form of government, provided such board give an examination equal in every way to that required by the most exacting state in the Union. If this be done, then it becomes the patriotic duty of the several states to recognize its licentiates, just as the provinces of Canada now recognize the examination of its national Board of Examiners. There identically the same relations exist between states and general government as obtain with us, and there states' rights and jealousy of the general government prevented for more than fifty years the creation of a national Board of Medical Examiners. For several years past Canada has had such a national board, everybody is pleased with it, and all wonder how they got along without it. The president of the board explained its workings to us fully at the annual Conference on Medical Education in 1914. Shall we do less than Canada? Shall our states be less generous to their practitioners than her provinces? I do not for a moment think so.

The past fifteen years have witnessed a remarkable change in sentiment on the part of the several states toward the federal government. Many things formerly viewed, and resented, as encroachments upon the powers of the states are now not only accepted, but also eagerly sought by them or their representatives in Congress, and consequently all have been bettered. In no direction has a proposed change in our practice offered more to, and taken less from, the sovereignty of states than a properly constituted national Board of Medical Examiners will do. It proffers much; it takes nothing.

If questions of health, quarantine, pure food, the sale of narcotics, laws controlling the destruction of migratory birds, the granting of national charters, etc., have been yielded by states to the federal government—all of which has recently been done—why should there be the slightest hesitation on the part of any state to recognize the act of a national board of examiners, when by so doing it does not in the least surrender either authority or dignity? Certainly such a body, representative of the entire country geographically as well as through its public services and its leading

national medical organizations, would be entitled to the same consideration—it asks no more—that is accorded a state board.

The government, without any authority in the premises, has, through the Secretaries of the Treasury, War and Navy, assented to the service upon such board of the Surgeon-General and an associate from each of these departments; and, in addition, has promised that the government laboratories, hospitals and schools for instruction may be used by the national board in conducting its examinations. The combined resources of these three government services are more than ample to meet every demand; moreover, they will insure an examination of such character as we believe to be necessary, yet is impracticable where large numbers of applicants are examined in one building, within a prescribed time, and by only a few examiners.

With the resources available to the board, a number of men can be examined in the several laboratories, some may be given a practical examination in the hospitals, while others undergo written, and still others take oral examinations, or operate on cadavers, all at the same time, but under different examiners.

An executive committee of five members is perfecting details for the first examination, which will be held from October 4 to 11, and longer if necessary, and, presumably, will be similar to that of the Conjoint Board of the Royal Colleges of Medicine and Surgery in England. An advantage, and a very great one it is, to those passing this examination, is the fact that they may subsequently become members of the Medical Reserve Corps of either the Army or Navy, if they so desire, provided that they fulfil the requirements as to age, and pass a satisfactory examination. The government gains also by the enlargement of these corps, and is insured sufficient medical officers in time of war, riot, pestilence or other exigency. Therefore, as I have intimated, it is the patriotic duty of all to support a board which can contribute so much to the national government in time of stress. Those who recall the Spanish War will vividly remember the difficulties which beset both our Army and Navy in obtaining sufficient medical officers. Many of those accepted were far from being up to the standard of the services; this I know, and, having been asked a number of times to recommend young men for the Army, remember how difficult it was to get them. I frequently discussed the matter with the Surgeon-General's office, as well as with Col. A. C. Girard, who was chief medical officer at Camp Meade, where I visited him and sent a number of contract surgeons from time to time.

The National Board has adopted the standard of the Council on Medical Education of the American Medical Association, and, in addition, will require at least one year of service in an acceptable hospital. These requirements will be rigidly enforced; that is, an applicant must give satisfactory evidence of having had the following:

(a) A diploma from a high school of good standing giving a four-year course.

(b) A satisfactory course in science, embracing physics, chemistry and biology, of not less than one year.

(c) Four years in a medical school of A grade.

(d) At least one year as intern in an acceptable hospital.

The hospital year is required for two reasons. First, no one should practice medicine independently, how-

ever well taught theoretically, until he has had practical training under experienced men, and this can be secured only in a hospital. Some colleges require it before graduation, and some states demand it before licensure.

Second, I think it most desirable that those who pass the examination should have the option of becoming members of the Reserve Corps of the Army or Navy; but to insure this, all requirements must be met. A year's internship in a hospital is required by both the Army and Navy.

While the amount of the fee to be paid by each applicant taking the examination has not, as yet, been determined by the board, there is no doubt that it will be much in excess of that charged by state boards, yet less than the amount charged by the Conjoint Board of England (£42). In America distances are often great, which may, with some, add materially to the expense of taking the examination in Washington; and, over and above the fee paid the national board, every one must also pay the usual fee for registration in the state of his adoption. Recognition of one's qualifications to practice medicine and surgery, by a given state board, by no means absolves one from paying the customary fee, just as though one were examined. To be excused from examination is all that can be reasonably expected, and this must be considered a courtesy, not a right.

As to the personnel of the board, I can say that there will probably be fifteen members, several not having as yet been appointed. All sections of the country are to be represented. As at present constituted, the board consists of: Admiral William C. Braisted, Surgeon-General, U. S. Navy, chairman; Major-Gen. William C. Gorgas, Surgeon-General, U. S. Army; Gen. Rupert Blue, Surgeon-General, U. S. Public Health Service; Col. Louis A. LaGarde, U. S. Army, treasurer; Asst. Surg.-Gen. W. C. Rucker, U. S. Public Health Service; Commander E. R. Stitt, U. S. Navy; Dr. Herbert Harlan, representing the Confederation of State Boards of Examiners; Dr. Isidore Dyer, representing the Association of American Medical Colleges; Dr. E. Wyllys Andrews, representing the American College of Surgeons; Dr. Lewis B. Wilson, representing the Mayo Foundation; Dr. Victor C. Vaughan, representing the American Medical Association; Dr. William L. Rodman, secretary, representing the American Medical Association.

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Extermination of Sleeping Sickness on Prince's Island.—

Portugal is rejoicing that the prompt and thorough measures taken by the national public health service have apparently stamped out sleeping sickness from its colony on the island do Principe, west of Africa, where it seemed to have established a permanent foothold. The glossinas have apparently been exterminated from the island, and the thirty uncured persons are isolated in a state hospital under the direct supervision of the public health authorities. The medical mission that has been in charge of the work has appealed to the central authorities to refuse admission to the island to persons and cattle from infected countries, and to require notification of every case of trypanosomiasis that may develop. Cattle raising should be restricted to the southern part of the island, and hog raising should not be allowed anywhere. The number of dogs should also be restricted. The commission did not limit its work to sleeping sickness, but instituted a general educational campaign in hygiene which the *Medicina Contemporanea* describes in detail.

THE NATURE AND TREATMENT OF BRONCHIAL ASTHMA *

ROBERT H. BABCOCK, M.D., LL.D.

CHICAGO

Until about five years ago, the nature of this distressing affection was a matter for considerable discussion. The very terms applied to it attest the uncertainty regarding its pathogenesis. Thus it was called bronchial, spasmodic, nervous and idiopathic asthma. The appellations "nervous" and "idiopathic" have reference to its obscure causation, while the terms "bronchial" and "spasmodic" denote rather an attempt to define its pathology, if, indeed, it possesses any definite pathology. By some writers the dyspnea was believed due to spasm, but even among these advocates, complete agreement did not exist. Hyde-Salter, Biermer and others argued in favor of spasm of the bronchioles, while Wintrich and Bamberger stoutly maintained inspiratory spasm of the diaphragm to be the condition responsible for the respiratory distress. On the other hand, Weber contended for a fluxionary hyperemia as the essential nature of the asthma. Then we find the Curschmann spirals or the Charcot-Leyden crystals advanced in proof of bronchiolitis as the cause, or rather as the pathologic condition present.

In the consideration of the etiology of this malady, it was believed that heredity played a conspicuous rôle, as shown by asthma in both parent and child. This was especially true in those cases which developed in early life. In all cases a marked nervous influence was believed to exist and to account for the development of the asthma in later years of life and in those asthmatics whose paroxysms were evoked by psychic or emotional impressions or by the wetting of the feet, as cited by Hyde-Salter. Then came the announcement by Hack and others that some cases of asthma were cured by operation on and removal of intranasal abnormalities, as spurs on the septum, etc. The relief afforded in such cases was accidental and led to no intelligent or scientific conception of the actual nature of the disease.

The treatment, accordingly, was purely empiric, and aimed especially at the relief of the paroxysm or at its avoidance. Atropin was vaunted by Trousseau, while potassium iodid was praised by others. For the relief of the paroxysms themselves, asthma powders, morphin, ether, etc., were employed without any intelligent conception of their mode of action aside from the belief that they overcame muscular spasm.

Such, in brief, was the unsatisfactory state of our knowledge and of our therapeutics of spasmodic asthma up to 1909. In that year, Auer and Lewis published an account of their experiments on guinea-pigs by the intravenous injection of fatal doses of horse serum or edestin, and of their discovery that death was due to asphyxia from inspiratory distention of the lungs. In short, it was found that anaphylactic shock in these animals manifested itself as a typical picture of bronchial or spasmodic asthma. Moreover, it was proved that the result was the same when the vagus nerve was cut, the spinal cord and medulla destroyed and powerful artificial respiration was instituted. That the lungs were acutely overdilated with air was shown by even small portions of them

* Read before the St. Louis Medical Society, Feb. 13, 1915.

floating on water and crepitating distinctly on palpation. The experimenters concluded, therefore, that the extreme distention of the lungs was owing to tetanic contraction of the circular muscles of the fine bronchioles and alveolar ducts, and that this muscular spasm was of peripheral, not centric origin. Lastly, it is noteworthy that they found that a hypodermic injection of from 0.5 to 1 mg. of atropin was capable of preventing death from a dose of the foreign protein which proved fatal in the controls.

The foregoing observations on animals called attention to certain facts reported of the effects of serum injections, for example, diphtheria antitoxin, on persons who were sufferers from what is known as "horse asthma." In several instances, persons who had been sensitive to emanations from horses displayed, on receiving the preparation of horse serum, alarming symptoms which in a few cases resulted in death. Accordingly, it was suggested by Rosenau and Anderson, S. J. Meltzer and others that bronchial asthma in human beings might be a phenomenon of protein sensitization, or anaphylaxis, as it is commonly called. Impressed by this suggestion, I studied cases of asthma from a different point of view and soon became an ardent advocate of this conception of the nature of this distressing complaint.

Some of the cases which I shall refer to seem to set forth clearly the applicability of this theory to the etiology of asthma; but let me now present some of the facts regarding anaphylaxis as stated by Victor C. Vaughan in his contributions to the relationship between protein sensitization and disease or immunity.

When a protein foreign to the animal economy enters the circulation, certain body cells generate a proteolytic ferment which attacks and destroys the invading substance. This holds true whether the protein be bacterial or some stable body as egg albumin; the pollen of plants, horse serum or the emanations thrown off from animals, etc. According to Vaughan, this foreign protein, whatever be its source, contains two principles, of which one is toxic and in large enough doses may cause death, while the other sensitizes the animal and is characteristic of the protein. If the protein be introduced at short intervals and is not of an overpowering amount, the cells of the host split it up successfully, and immunity is established. But if the protein be introduced a second time after a period of two weeks or longer, and if it be in a considerable dose, the phenomena of sensitization or anaphylaxis occur.

Furthermore, the proteolytic ferment generated by the body cells is specific for that particular protein which called it into being and for no other. Moreover, the protective cells are capable of generating proteolytic ferments against as many different kinds of proteins as gain access to the blood. Consequently, an animal may become immune against or sensitized to a number of foreign proteins. Again, the body cells appear capable of storing up for an indefinite time, perchance for months or even years, their specific proteolytic ferment, so that a person sensitized to horse serum, for example, in the form of diphtheria antitoxin, may display the phenomena of anaphylaxis on a second administration of the antitoxin or other serum years subsequent to the initial injection. Lastly, the cells of the parent which have generated or stored up a specific proteolytic ferment seem capable of transmitting to the offspring the sensitization of the parent.

In this way can be explained the liability to asthma, for instance, observed in several members or several generations of a family.

Finally, it should be borne in mind that the atrium or focus through which a foreign protein may gain access to the animal body may be varied. That is, the avenue of entrance may be parenteral, as an infective focus in the nose, throat, mouth, abdominal cavity, etc., or it may be through the digestive tract. In the last case, the sensitizing agent may be introduced in the form of some article of food, as cheese, shellfish, etc. Ordinarily the protein of the diet is absorbed as amino-acids which are again reconverted into that particular form of protein capable of utilization as nutriment by the body cells. But if, through some defect in digestion, a protein, as of lobster, does not undergo complete solution into amino-acids, and some one of the intermediate products is absorbed, it sensitizes the individual. Then if, after a sufficient lapse of time, twelve days or more, the same article of food is eaten and again passes into the circulation before its complete conversion into amino-acids, it occasions the phenomena of anaphylaxis, as, perchance, urticaria or an attack of bronchial asthma. It is only in this way that we can account for a paroxysm of asthma after an unusually hearty meal or the indulgence in some particular article of diet.

So many and varied are the causes that excite or precipitate an asthmatic seizure that at first thought it may seem absurd or impossible to explain their action on the basis of anaphylaxis. There are few complaints that display such apparently puzzling vagaries. Thus, one asthmatic declared he was sure to experience an attack if he slept on a pillow of goose feathers. The sensitiveness of some sufferers to emanations from horses or cats is well known. Hyde-Salter enumerates among the exciting causes a wetting of the feet, sudden emotion of grief, as in one instance in which an asthmatic learned of the unexpected death of his wife, an indigestible meal, constipation, the appearance of the menstrual function, etc. In some cases the sufferer may be unable to ascribe his attacks to any special exciting cause. Again, there are some asthmatics whose paroxysms of dyspnea come almost periodically after intervals of practical freedom from the attacks of their enemy. In others, the dyspnea is never wholly absent, being associated with the evidence of chronic bronchitis and becoming intensified at times into typical paroxysms of asthma. The state of the latter patients is truly pitiable, and it is these that tax our therapeutic resources to the utmost.

If, now, spasmodic asthma is to be explained on the hypothesis of protein sensitization, then we must assume the existence either of a focus in the body from which the foreign protein is absorbed, or that at some period, perhaps in childhood, protein sensitization occurred or that sensitiveness to a special protein was inherited from a parent, whether the protein be thrown off by animal, fowl or plant.

It might very naturally be asked why one individual shows his protein sensitization by a paroxysm of asthma while another does not, but instead may develop urticaria. At first sight this difference in reaction seems to contravene the claim made for the anaphylactic nature of asthma, or that this lack of uniformity warrants the inference of some specific asthma-producing protein. One cannot account for this differ-

ence except on some such hypothesis as a neurosis or perchance inherited sensitization, notwithstanding the fact that the experiments of Auer and Lewis show asthma in guinea-pigs to be independent of any influence on the part of the nervous system. Certainly anyone treating an asthmatic sufferer must gain the impression that neurosis plays an important part in the complaint.

On the other hand, experience with autogenous vaccines seems to indicate that the anaerobic bacillus discovered in the sputum of the case to be cited is in reality the *causa peccans*. At all events, in all of my cases to date this organism has been found, and has seemed to be the agent which in the vaccines did the most good.

Various foci may be the source whence protein is absorbed. Nasal polypi are not uncommon in asthmatics, and are thought responsible for the dyspnea through reflex bronchial spasm or hyperemia. But how explain the connection on the same hypothesis between asthma and chronic cholecystitis? A physician who had suffered from asthma for sixteen years at length developed symptoms due to gallstones. Believing that this condition still further increased the injury to his heart likely to result from his asthma, he decided on drainage of his gallbladder. This was done successfully, and to the surprise of both patient and surgeon, was followed by a remarkable effect on his asthma. So long as drainage of the gallbladder was maintained, the physician was free from his old enemy, and for the first time in sixteen years was able to remain at home and pursue his practice during the winter. When, however, drainage was allowed to cease, the asthma returned, but in a less severe form. The present state of this patient is not known to me.

How can this be explained on any other ground than that of absorption of a foreign (bacterial) protein? The same explanation holds with regard to nasal polypi. They are symptomatic of chronic ethmoiditis, and their presence in the nasal fossae interferes with free secretion, and hence favors absorption of bacterial protein from the ethmoid cells or from the nasal passages. Their removal does the same thing as did drainage of the gallbladder. This is attested by the fact that radical operation on the ethmoid by curettage has been followed in more than one instance by marked improvement, if not cure of the asthma.

Whenever, as reported by Hack thirty years ago, asthma is lessened or cured by the removal of intranasal abnormalities, it is because better drainage is secured and protein absorption is prevented. In like manner, when Hyde-Salter observed asthmatic attacks to coincide with menstruation, it is not unlikely that some condition such as pyosalpingitis existed, and menstrual congestion interfered with drainage and promoted absorption of bacterial proteins.

We now come to the consideration that in cases of long standing there is quite sure to develop a chronic bronchitis which of itself gives rise to cough and dyspnea even when positive spells of asthma are not present. It is this condition which sometimes accounts for the failure of complete cure following many operations on the nose or accessory parts. When chronic bronchial catarrh exists, careful examination of the sputum by cultural methods discloses various and often numberless bacteria. So long as expectoration is free, absorption is hindered; but whenever cough tightens, ample opportunity is afforded for absorption of

bacterial protein and for the phenomena of protein sensitization in the form of asthma. This is well shown by the following case, which illustrates also the sort of treatment likely to prove efficacious in accordance with our newer conception of the disease:

Last July I saw a man who had suffered from asthma for two years, and for two months had been confined to his bed. He was unable to lie down, and physical examination disclosed the typical picture of bronchial asthma: short and ineffectual inspirations with prolonged expirations, chest distended and filled with whistling, wheezing râles that were audible at some distance, a dilated right ventricle and tense, accelerated, somewhat arrhythmic pulse. Cough was difficult, and expectoration scanty and tenacious. Close questioning could elicit no history of a primary focus save that he had catarrh and one loose tooth. He was told to apply epinephrin ointment to the inside of the nose, and was given a prescription containing among other things tincture of lobelia and fluidextract of *Grindelia robusta*. A nose and throat specialist was sent to examine the upper respiratory tract, but no condition that might explain the asthma was found. Next his loose tooth was extracted, and disclosed a small alveolar abscess which was thoroughly evacuated. Vaccines were prepared from the pus of this abscess, but owing to neglect or misunderstanding were never administered.

During this time the man was not under my personal observation, but had been removed to a hospital, and was not again seen by me until late in September. The man had improved after the cure of the alveolar abscess so as to be able to get out on pleasant days, but still suffered with asthma every night. At this time the heart was not much dilated, but the lungs were still filled with numerous dry and moist râles of chronic bronchitis. Accordingly, it was decided to have cultures made from his sputum and vaccines prepared. Rosenow did this work for me, and reported a few fusiform anaerobic bacilli in preponderating numbers, but also pneumococcus, *Streptococcus viridans* and *Streptococcus haemolyticus*. The anaerobic bacillus emitted a somewhat offensive odor, and was believed to be the real offender. Nevertheless a mixed vaccine was prepared, and of this, 0.1 c.c., or 2 minims, was injected. When the man reported after three days for a second injection, he asserted that he had lost his nocturnal asthma after the initial dose of vaccine. In all, about twelve injections were given in gradually increasing doses at intervals of from three to five days, with the result that he not only experienced entire relief from his asthma, but his bronchitis had vanished and he declared he felt perfectly well.

Convinced as I am of the anaphylactic nature of bronchial asthma, the foregoing case seems to me to point the way to the successful management of many if not most instances of this hitherto baffling malady. The first step, of course, is the discovery and removal if possible of the focus from which the protein is absorbed when, as in the case just narrated, this exists in the body of the patient. If, as in some individuals, the asthma is evoked by emanations from an animal or other extraneous source, we can do no more than try to protect against exposure.¹ It is probable that most asthmatics have some abnormality within the nose, accessory cavities, throat or mouth. This defect either furnishes the foreign protein or, if in the nose, obstructs nasal secretions and so favors the growth and absorption of bacteria. Consequently all these possible foci, and especially the ethmoid and teeth, should be painstakingly examined by a competent and wide-awake specialist. If these parts, nose, sinuses, tonsils, teeth and jaws are negative, as proved if necessary by the Roentgen ray, then search should be made in all other parts of the body, and no possible source of

1. The establishment of immunity to horse serum or pollen of plants is being attempted and may yet become a positive therapeutic measure.

infection overlooked. A most minute inquiry into the history is often of the greatest value. Thus I recall a young woman whose asthma was found to have developed not long after what she called a cold, but which coryza had been attended by a profuse purulent discharge. This information led the way to a proper investigation, and a chronic ethmoiditis was discovered.

In some cases, it may be a chronic bronchitis or a patch of pulmonary fibrosis with atelectasis that is furnishing the bacterial protein. In such a case, or when operative procedure has not wholly rid the system of infection, a vaccine should be prepared from the sputum or other discharge, and injected under proper precautions. Some cases will yield readily to such treatment, but others may be met in which repeated cultures and vaccines will be required, for in some cases of bronchitis the chief offending germ may not be at first obtained. Such an instance, now under observation, has proved most perplexing and disappointing.

Perhaps, some one might say, treatment by means of antigenous vaccines may be all right, but what are we to do for relief of the paroxysms while vaccines are being prepared or until our exhaustive study of the case has revealed the original cause of the trouble? This is a proper question, since our therapeutic ingenuity is often sorely taxed. There are a few old and tried remedies which are now known to be antagonists to anaphylaxis and the action of which is explicable on this theory. Thus Trousseau almost a hundred years ago recommended atropin as a preventive, and, singularly enough, Auer and Lewis discovered that from 0.5 to 1 mg. of this remedy injected into guinea-pigs would mitigate or prevent anaphylactic shock from doses of protein that proved fatal in the controls.

Besredka, according to Vaughan, states that alcohol and narcotics exert transient and slight prophylactic effect against the symptoms of protein sensitization. This probably explains the short-lived freedom from an attack which some asthmatics find from whisky, as well as the prompt amelioration usually afforded by a hypodermic of morphin or heroin, etc.

Ten minims of a 1:1,000 solution of epinephrin thrown under the skin are in most cases highly efficacious, and probably possess transient antispasmodic or antianaphylactic power. Pyridin, ethyl iodid and the highly vaunted asthma powders act in the same way very likely, while at the same time they excite bronchial secretions. Tincture of lobelia, aspidospermin, ipecac and *Grindelia robusta*, or other expectorant remedies may be of service by promoting expectoration and thereby lessening absorption of bacterial protein when there is extensive bronchitis. A patient of mine was completely free from his asthma for three weeks after having been etherized for a tonsillectomy, but got his asthma again so soon as he contracted a coryza.

To my mind, no line of management offers so much promise of cure of this obstinate malady as does the administration of autogenous vaccines, in addition to the discovery and removal if practicable of the source of the protein absorption; but the rub comes in the detection of the focus or foci of infection. Patience is required on the part of both patient and doctor, and we should not hesitate to call in the service of experts in some special line of surgery, as rhinologists, in our aim at a thorough investigation and treatment of the case. Therefore, the initial step in successful management is a correct diagnosis.

77 East Washington Street.

THE TREATMENT OF INFANTILE PARALYSIS

PRELIMINARY REPORT, BASED ON A STUDY OF THE VERMONT EPIDEMIC OF 1914*

R. W. LOVETT, M.D.

BOSTON

In the fall of 1914, I was asked by the State Board of Health of Vermont if I would undertake on their behalf the treatment of the cases of infantile paralysis occurring there in the summer of 1914, of which there had been 293. A private citizen had given to the State Board of Health a certain sum of money to be expended on an investigation into the epidemiology of the epidemic and on the treatment of the affected persons. Dr. Simon Flexner of the Rockefeller Institute consented to take charge of the epidemiology end of the inquiry, and I embarked on the enterprise of the treatment of these cases in December, 1914.

The problem of the treatment of so large a group of cases was of itself a new and difficult one. The physicians of these cases were notified by the State Board of Health of certain centers where clinics would be held, and I made five trips to Vermont, spending two days at a time there, for the purpose of prescribing treatment. Cases were grouped in Burlington, Barton, Montpelier, St. Albans and Rutland, the local hospital in each instance being utilized for the purpose, and to each of these places I went with my senior assistant, Miss W. G. Wright, and investigated and prescribed for the cases by groups. Every possible facility was afforded to me for this investigation, and the work everywhere was made easy and agreeable by the interest and cooperation of the physicians and by the very efficient assistance of the State Board of Health.

There applied for treatment at the clinics 235 cases, but a certain number of cases of other years were brought for advice, and a certain number of cases of other paralyzes were brought, cutting down the number of the 1914 cases to 149, and it is from these 1914 cases that the conclusions presented are drawn.

All patients were stripped, and the muscles were individually tested as to function. Cases in babies, which could not be examined in this way, are not included in the report. The muscles were classed as wholly paralyzed, partly paralyzed, and normal. By wholly paralyzed is meant that no response could be elicited from a voluntary attempt to contract the muscle either in a contraction of muscular fibers or tightening of the tendon.

The condition of each muscle was then marked on charts, which I originally obtained from Dr. E. A. Sharpe of Buffalo, and these charts form the basis of the following analysis.

NATURE OF THE PARALYSIS

It became evident that partial paralysis was much more common than total. Of 1,452 muscles affected, 416 were totally paralyzed and 1,036 partly, that is, the relation of partial to total paralysis was as 2.5 to 1. The ratio of partial to total paralysis varied in individual muscles, a matter to be discussed later.

A curious phenomenon was several times observed, where part of a muscle was paralyzed and the other

* Owing to lack of space, this article appears in THE JOURNAL in abbreviated form. Reprints of the complete article may be obtained from the author on request.

part not. This was observed in the deltoid muscle, where the anterior or posterior half might work independently of the other, and once in the pectoralis major, where the sternal and clavicular parts were separated by function.

The predominance of partial over total paralysis is of importance. The reason for it would seem to lie in the grouping and relation of the nerve cells in the anterior cornua of the cord. These cells lie

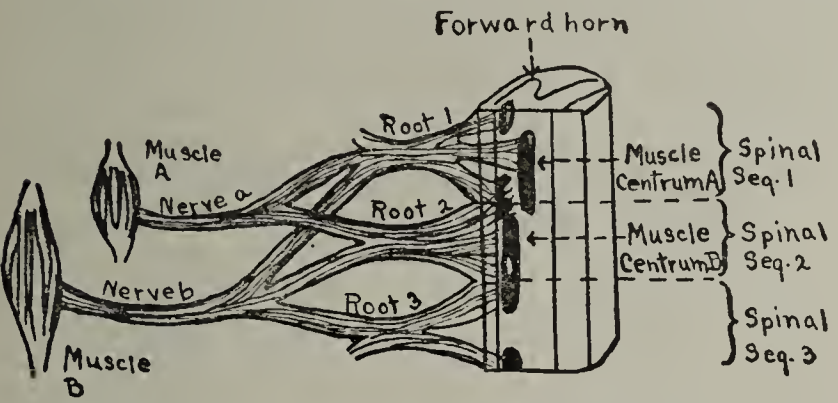


Fig. 1.—Radicular and peripheral muscular innervation. Muscle A supplied by segments 1 and 2; muscle B supplied by segments 1, 2 and 3 (Bing).

in longitudinal bundles, which are naturally largest in the cervical and lumbar enlargements.

I quote from Bing: ⁴

Each contains fibers from several anterior roots, and, conversely, each anterior root distributes its fibers among several peripheral nerve trunks. . . . Anterior nerve root lesions, on the other hand, unless very extensive, merely weaken and do not completely paralyze the muscle, owing to the fact that as a rule the muscle is innervated from several roots.

Moreover, we must remember that the poison of infantile paralysis apparently reaches the cord by means of the circulation, and that the main blood supply is from the anterior spinal artery, horizontal branches from which enter the cord at each side at different levels, about 200 in number. The planes of destruction, therefore, are likely to be transverse, while the lines of nerve center association are longitudinal, so that in the case of a muscle which derives its innervation from a group of nerve cells occupying several segments, a transverse lesion may well leave certain centers intact, and some power may remain in the muscle.

This matter of partial paralysis is most important in the matter of treatment, as we shall see when we come to discuss the therapeutic measure of muscle training, because in such muscles there remains some initiative, and with it the power of developing more muscular volume and new associations by repeated passages of impulses from brain to muscle.

AFFECTION OF INDIVIDUAL MUSCLES

A tabulation was next made as to the affection of individual muscles, which shows that they were affected either partially or totally in the degrees indicated in Table 1. This table gives the number of total paralyzes of each muscle, the number of partial and total paralyzes, and the proportion of total to partial in each.

The main facts are that the quadriceps, gluteals and gastrocnemius lead in frequency, and that paralysis of leg muscles is much more frequent than of arm

muscles. Abdominal paralysis existed in more than half of all the cases (seventy-nine), and affection of the muscles of the spine in more than a quarter (forty). The latter points have a distinct bearing on the occurrence of scoliosis, and indicate, I believe, that such affections are more common than had been supposed. The cases of abdominal paralysis were always symmetrical with two exceptions, one right and one left. This paralysis may occur as the only

TABLE 1.—DEGREE OF AFFECTION OF INDIVIDUAL MUSCLES

Muscle	Number Paralyzed	Number Partial	Number Complete	Proportion of Partial to Total
Adductors	68	52	16	3.2:1
Gluteals	133	106	27	3.9:1
Flexors of hip	81	63	18	3.5:1
Quadriceps	152	119	33	3.6:1
Hamstrings, outer	97	66	31	2.7:1
Hamstrings, inner	95	73	22	2.7:1
Gastrocnemius	128	88	40	2.2:1
Tibialis anticus	119	53	66	0.8:1
Peroneals	96	40	56	0.7:1
Deltoid	57	45	12	3.7:1
Trapezius	49	42	7	6.0:1
Infraspinatus	17	8	9	0.9:1
Pectoralis	29	22	7	3.1:1
Biceps	31	24	7	3.4:1
Triceps	28	22	6	3.6:1
Abdominal	79	64	15	4.3:1
Latissimus dorsi	49	40	9	3.4:1
Spinal	40	36	4	9.0:1
Flexor carpi ulnaris	16	12	4	3.0:1
Flexor carpi radialis	16	11	5	2.2:1
Extensor carpi ulnaris	19	14	5	2.8:1
Extensor carpi radialis	18	13	5	2.6:1
Opponens pollicis	12	9	3	3.0:1
Extensor pollicis	23	14	9	1.5:1
	1,452	1,036	416	

paralysis in the entire muscular system. When associated with paralysis of other parts, the association is always with leg muscles.

The tibialis anticus and gastrocnemius are the only leg muscles which have been found to be affected by themselves without paralysis occurring elsewhere in the body. Of the former muscle, there were five

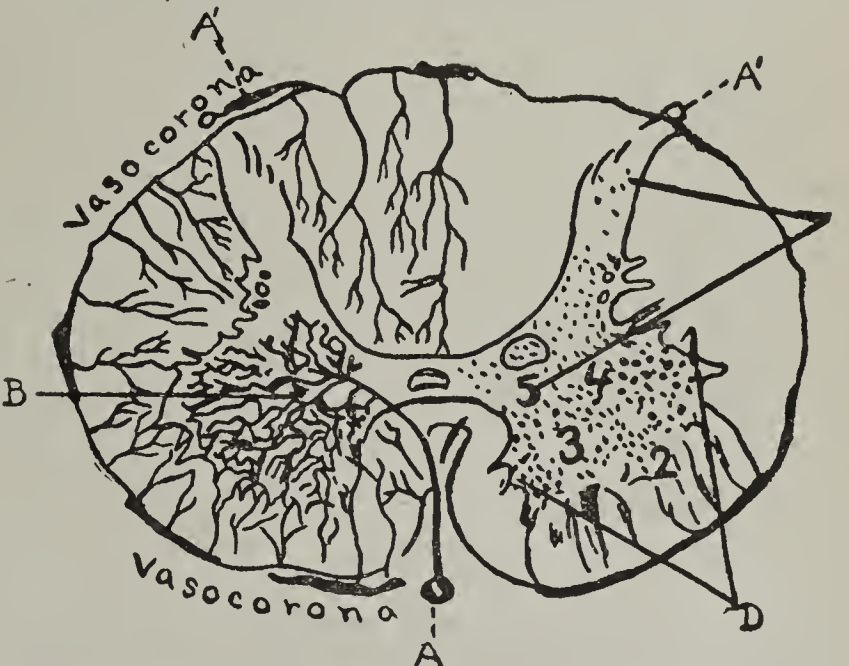


Fig. 2.—Distribution of blood vessels and nerve cells in the transverse section of the cord. A, anterior spinal; A', posterior spinal; B, area of distribution of sulco-commissural artery; C, tract cells; D, root cells. 1, postero-lateral; 2, antero-lateral; 3, antero-mesial; 4, central; 5, postero-mesial (Bing).

cases of paralysis, of the latter three. Deltoid paralysis may occur alone in the arm.

The investigation of paralyzes of the arm showed (1) that the paralysis was most frequent at the shoulder and diminished in frequency from the shoulder to the hand; (2) that the paralysis was severest (that is, that the percentage of total cases

4. Bing, Robert: Compendium of Regional Diagnosis in Affections of the Brain and Spinal Cord, New York, Rehnman Company, 1909.

was largest) in the shoulder and diminished as one went toward the hand, and (3) that paralysis of the muscles of the left arm was very much more frequent than of the right arm.

These three factors will be considered and tabulated, and then the leg will be considered in the same respects, after which the possible meaning of these phenomena will be discussed.

Other facts about paralysis of arm muscles are as follows: In cases in which the muscles of the upper extremity are involved without paralysis occurring at other parts of the body, it is more severe in this region than when the muscles of the legs are also involved; that is, arm paralysis which is strictly regional is more severe than arm paralysis which

lower leg; that is, the proportion of total to partial paralysis increased as one went away from the hip toward the foot (Table 6).

RIGHT AND LEFT LEG

With regard to the relative frequency of paralysis in the right and left leg, the figures show in a total of 954 paralyzes of leg muscles that there were 465 muscles paralyzed in left legs and 489 in the right, showing no especial difference in the affection of the two sides. This is a marked contrast to the predominance of left paralyzes in the arm.

TABLE 4.—FIGURES SHOWING THAT PARALYSIS OF THE MUSCLES OF THE SHOULDERS, ARM AND FOREARM IS MORE FREQUENT ON THE LEFT SIDE THAN ON THE RIGHT

Muscle	Right	Left
Deltoid	24	33
Trapezius	18	21
Infraspinatus	6	11
Pectoralis	11	18
Biceps	11	20
Triceps	12	15
Flexor carpi ulnaris.....	7	9
Flexor carpi radialis.....	7	9
Extensor carpi ulnaris.....	7	12
Extensor carpi radialis.....	6	12
Extensor pollicis	5	7
Opponens pollicis	10	13
Total	124	180
Ratio	2	to 3 (very nearly)

TABLE 5.—FIGURES SHOWING GREATER FREQUENCY OF PARALYSIS IN UPPER SEGMENT THAN IN LOWER

Muscles	No.
Quadriceps	152
Gluteals	133
Gastrocnemius	128
Tibialis anticus	119
Outer hamstrings	97
Inner hamstrings	95
Peroneals	96
Flexors of hip.....	81
Adductors	68

TABLE 6.—PROPORTION OF PARTIAL TO TOTAL PARALYSIS IN THE MUSCLES OF THE LOWER EXTREMITY

Muscles	Partial to Total
Gluteal	4.0: 1
Quadriceps	3.6: 1
Flexors of hip.....	3.5: 1
Adductors of hip.....	3.2: 1
Hamstrings	2.7: 1
Gastrocnemius	2.2: 1
Tibialis anticus	0.8: 1
Peroneals	0.7: 1

ANALYSIS OF PREDOMINANCE OF PARALYSIS IN LEFT ARM AND FREQUENCY OF DISTRIBUTION IN ARM AND LEG

Certain interesting problems are opened up by this study of arm and leg affections which demand analysis. The facts of paralysis occurrence are as follows: The muscles of the limbs nearest the trunk are more frequently affected than the distal ones; the left arm muscles are noticeably more frequently affected than the right. The leg muscles in the right and left leg are equally affected.

The facts of use or function are that the right arm is much more actively used than the left, not only more frequently, but also for more varied and complicated and finer movements; the legs are used equally. It would therefore seem that muscles used actively, continuously and in a complicated way were more likely to escape than those less used, or used for simpler, less continuous work. One would suppose that the blood supply would be more free around the spinal centers where the motor activity was greatest

TABLE 2.—FIGURES SHOWING THAT PARALYSIS OF THE ARM MUSCLES IS MOST FREQUENT IN THE SHOULDER AND DIMINISHES TOWARD THE HAND

Muscle	Total Paralysis
Deltoid	57
Trapezius	39
Pectoralis	29
Infraspinatus	17
Shoulder group	142 ÷ 4 = 35.5
Biceps	31
Triceps	27
Upper arm group.....	58 ÷ 2 = 29.0
Flexor carpi ulnaris.....	16
Flexor carpi radialis.....	17
Extensor carpi ulnaris.....	19
Extensor carpi radialis.....	18
Forearm group	70 ÷ 4 = 17.5
Opponens pollicis	23
Extensor pollicis	12
Hand group	35 ÷ 2 = 17.5

TABLE 3.—FIGURES SHOWING THAT PARALYSIS OF THE ARM MUSCLES IS SEVEREST AT THE SHOULDER AND DIMINISHES TOWARD THE HAND

Muscle	Total Paralysis
Deltoid	12
Infraspinatus	9
Pectoralis	7
Trapezius	7
Group	35 ÷ 4 = 8.75
Biceps	7
Triceps	6
Group	13 ÷ 2 = 6.50
Flexor carpi ulnaris.....	4
Flexor carpi radialis.....	5
Extensor carpi ulnaris.....	5
Extensor carpi radialis.....	5
Group	19 ÷ 4 = 4.75
Extensor pollicis	3
Opponens pollicis	9
Group	12 ÷ 2 = 6.00

exists in combination with more general paralysis. This statement rests on the analysis of fifty-eight cases.

With regard to paralysis of the muscles of the lower limb, the following facts were observed, which are of importance as contrasted with the similar observations in the arm:

1. The paralysis was on the whole more frequent at the hip, and diminished in frequency toward the foot; that is, the individual muscles in the upper segment were more often affected than in the lower (Table 5).

2. The paralysis was on the whole lightest in the hip, next lightest in the thigh and severest in the

and most complicated, and perhaps less free where the motions were less frequent and complicated. This would account for the predominance of left arm paralysis and the equal paralysis of both legs.

After these figures were worked out, it seemed that such a relation between right and left should appear more in older than in younger patients, because in the younger ones the differentiation between the right and left arms is of course less marked than in the older, younger children being much more nearly ambidextrous. If such a relation between right and left arms rested on a functional basis, it would be expected that there would be a larger proportion of left arm paralyzes in older than in younger patients. In twenty-four patients 5 years old and younger, there were twelve left arms and twelve right paralyzed, a ratio of 1:1. In twenty-seven patients over 5 years of age (from 6 to 38 years) there were twenty cases of left arm paralysis and seven of right, a ratio of 3:1.

I should wish to acknowledge here my great indebtedness to Prof. W. B. Cannon and Assistant Professor Martin of the Physiological Department of Harvard University for much assistance on the physiologic side of the problem.

This also accords with the distribution of the paralysis in both arms and legs, which has been shown to be most frequent near the trunk. The demands on the hip and shoulder muscles are simple and less continuous than on the muscles of the lower leg and forearm or of the hand and foot. The latter are continuously active in small, fine, complicated movements, whereas the larger muscles nearest the trunk deal with the coarser and less frequent movements. The relation between the activity of the proximal and distal parts of a limb are not unlike those of the left and right arm in their relative use. It seems probable from these facts and this grouping that, on the whole, muscle centers given to finer, complicated, more frequent movements have a more active blood supply and are less likely to attack on their nerve centers from the virus of infantile paralysis than the centers of muscles functioning in heavier, less complicated and less frequent movements.

ANALYSIS OF SEVERITY DISTRIBUTION IN ARM AND LEG

In the next place, it has been shown that the muscles of the upper extremity are more severely affected nearest the trunk and less severely lower down, whereas in the leg this relation is reversed, and the largest proportion of severe paralyzes is in the lower leg and foot. This is estimated on the proportion of total to partial paralysis in the individual muscles.

This puzzling phenomenon is more nearly correlated to the weight coming on each muscle in the activities of the upright position than to any other factor. The great majority of these patients were walking in some form or other, so that the weight-bearing position may fairly be taken into account.

At the shoulder, the deltoid, triceps and biceps all help to hold the arm up against the shoulder joint, and the weight to be met not only in this suspensory function, but also in attempted movements, is greatest at the shoulder and less as one goes down the arm, because the weight of the whole arm is obviously more than the weight of the lower one or two segments. Upper arm muscles, consequently, have more weight to handle than lower arm and hand muscles.

In the leg, on the other hand, the weight to be met in muscular function increases as we go from the hip to the feet, as of course there is greater superincumbent weight at the lower leg than at the hips, so that the lower leg muscles must raise more weight than hip muscles in walking, for instance. There is, of course, no proof that this variation in severity of paralysis is caused by this greater or less weight to be met in muscular function. The explanation accords with the facts, however, better than any other seems to do. Severity distribution cannot be connected with size of muscles, or function of a peculiar sort. It cannot be explained by local circulatory sluggishness affecting dependent parts. It is not associated with anterior or posterior muscles, nor is it easy to connect it with spinal localization. It seems purely a segmental limb distribution, and whether it is or is not the correct explanation, severity of paralysis is proportionate to the weight to be met by the muscles of the different levels, not because this factor influences in any way the original affection of the cells, but because it may retard the recovery of those muscles working against the greatest weight.

This suggestion has a direct bearing on the matter of treatment, for if it is correct it may be interpreted into showing the ill effects on muscular recovery of overuse, a matter which will be discussed later.

Infantile paralysis has been heretofore regarded as a haphazard affection of muscles, most frequent in the leg, and in the cord lesion it appears to have a purely accidental distribution most marked in the lumbar enlargement. It is possible, however, that there are other factors than the cord lesion which determine the ultimate condition of affected muscles. The analysis just made as to frequency and severity of paralysis shows that in cases some months after the attack there are apparently existing conditions not easily to be explained by the cord lesion alone, but suggesting that function, and especially the function of maintaining the upright position, may have something to do with determining the ultimate distribution.

ASSOCIATED PARALYSES IN THE LEG

Further pursuit of the inquiry suggested by the analyses just given takes up the question of muscular grouping in the leg. If the paralysis were a purely segmental affair wholly determined by the cord lesions, there would be in the limbs a roughly segmental distribution, muscles at the front and back of the thigh and front and back of the leg being more often paralyzed in this combination than in any combination suggesting associated function. In other words, opponents would be more often paralyzed in combination than would synergistic or functionally associated muscles at different levels.

The leg rather than the arm was selected for this analysis because of the greater simplicity of function in the former. In the arm, rotation movements complicate the more purely forward and backward movements of the lower extremity.

The inquiry then resolved itself into the investigation of whether associated or antagonistic muscles were most often paralyzed in combination in the legs.

The muscles in the leg most closely associated functionally are the gluteals, the quadriceps and the gastrocnemius, for they are the muscles which maintain the upright position. The gastrocnemius holds the tibia upright on the foot, the quadriceps holds the

knee straight, and the gluteals hold the trunk erect on the legs. The associations were as follows: If the quadriceps is paralyzed, either the gluteals or the gastrocnemius or both are almost always associated with it. In 109 cases there were only two exceptions. In three cases the quadriceps had no association in the leg. In the 109 cases of quadriceps paralysis, to contrast with the 106 associations of gluteals or gastrocnemius, there were only fifty-eight associations of paralysis of one or both hamstrings. The quadriceps, therefore, is affected nearly twice as often with its associated muscles as with its antagonists.

When the gastrocnemius is involved, the quadriceps or gluteals were involved in 108 out of 109 cases; but the antagonists of the gastrocnemius, the extensor longus digitorum and the tibialis anticus, either one or both, were paralyzed in combination with it in only sixty-six cases.

EXPLANATIONS OF PREDOMINANCE OF ASSOCIATION PARALYSIS

This predominance of association paralysis is susceptible of several possible explanations, of which the following may be mentioned:

1. The muscles which maintain the erect position are all very large, and must have large centers composed of many motor cells. On account of their very extent, therefore, they are more likely to be affected than smaller muscles by a generally distributed destructive process in the cord. That this is not altogether acceptable is shown by reference to Table 1, in which it will be seen that the tibialis anticus and peroneals, which are small, are of high incidence, and the pectoralis major, a large muscle, is of low incidence.

2. The second explanation is that associated muscles may be so intimately grouped in the arrangement of their motor centers in the cord that they are more likely to be involved in the same lesion than opposed muscles would be. If, however, one may trust to the present data on the segmental innervation of these muscles, this view is not borne out.

3. The third explanation for the predominance of residual paralysis in associated rather than antagonistic groups may be in the functional relation of the muscles themselves. Three muscles, the gluteal, the quadriceps and the gastrocnemius, work together to maintain the upright position, and if a whole leg is lightly affected, it may be that the association of these muscles in function may retard their recovery by their intimate and necessary functional dependence on each other; especially if one were seriously affected, it might retard the recovery of the muscles associated with it by throwing more work on them than they were able to perform in their affected condition, which condition would not obtain with regard to antagonists.

At this stage of the inquiry, it is not possible fairly to choose either one of these three explanations as the one to be accepted to the exclusion of the others.

CLINICAL APPLICATION

Such are the facts elicited in this preliminary analysis.

I regard one point as fairly well established by these figures, namely that there is another factor beside the plain anatomic distribution of the lesion in the cord which determines something of the extent and severity of the residual paralysis.

The therapeutic measures at our disposal in fairly early cases are massage, electricity and muscle training.

Massage may be expected to improve the local and general circulation, to facilitate the flow of lymph, and to retard muscular deterioration. It cannot, however, be expected to facilitate the transmission of a motor impulse from the brain to the muscle.

Electricity is less highly regarded in the treatment than was formerly the case. The unintelligent use of electricity month after month to the exclusion of other measures has been one of the handicaps which has stood in the way of the best progress in many cases. It is quite possible that it may improve the muscular condition. Statements of its value rest as a rule on bare personal assertion or on the unusually rapid improvement of individual cases; but cases vary greatly in their rate of improvement, and the only way to judge of the value of electricity is to use it on one side of the body in bilateral cases and use the other side as a control. In the winter of 1913-1914, some cases in private practice were given daily treatments of galvanic electricity on one side and none on the other, while daily muscle training was being given by my assistant, who was not told which side was receiving the electrical treatment. At the end of some months she was asked if either side had shown more rapid improvement than the other, and no difference had been noted. This simply confirmed my general experience of many years of less careful observation.

Muscle training, on the other hand, rests on a sound physiologic basis, works out empirically better than any other of the measures, and the large proportion of partial paralysis in the cases observed shows its reasonableness.

OVERFATIGUE AND OVERUSE

We come now to the final, and what I believe to be the most important part of the paper, namely, the possible effect of overfatigue and the overuse of massage on returning muscular function, a phase of the treatment question almost wholly neglected.

If we take the case of a partly paralyzed muscle with some remaining power, we are anxious to bring about in that muscle the greatest possible return of functional power; that is plainly our object of treatment. Now the rational exercise of a normal muscle results in increase of size and power of that muscle, and presumably the result would be the same in a muscle weakened by infantile paralysis which was rationally and physiologically exercised or massaged. We are, however, dealing with muscles in many instances very weak and incapable of doing much work, and it must be an easy thing to overexercise them.

As to the question of this overuse, the following facts are suggestive: The majority of the early cases seen in Vermont showed partial rather than total paralysis; the gastrocnemius muscle in cases of early paralysis was quite different from the stretched, lengthened and powerless gastrocnemius muscle of late cases. Muscles partly paralyzed in which power is returning may be rendered functionless by slight grades of overuse. These considerations all have a bearing, and in connection with observations to be mentioned, indicate the possibility that in many cases of infantile paralysis we are encouraging in partly paralyzed muscles a function wholly beyond their ability, and are thus delaying their return of power and possibly converting partial into total paralysis. The observations follow:

It has been repeatedly observed in my private practice that power might begin to return in a very faint degree to a muscle while under muscle training, and that with care this power would steadily increase, but if that muscle were exercised even very gently every day, that power would diminish or disappear, so that we exercise such muscles only once in three days at the outset, increasing the work most carefully.

A young man under my care, severely paralyzed in both legs, six months after the attack showed some return of power in the peroneals. This developed and was exercised in the usual way, but he was so delighted with the new function that one year after the attack he tried it at intervals all of one day on the principle that if a little exercise were good a large amount would be better, and the power promptly disappeared, never to return in full amount after some five months.

A young man with a paralysis of the left arm acquired in Vermont in September, 1914, was brought from New York to see me in December, 1914. He was having massage and exercises daily from an apparently competent masseur, and was urged to use his arm as much as he could to stimulate returning function; but for a month he had not improved, and the parents therefore decided to send him to me for treatment. He could not, however, come to Boston for a month, and asked what treatment he should pursue in the meantime. A sling supporting the shoulder was put on, he was forbidden to use the arm except at meals, and massage was stopped. After a month of this routine he showed at least 25 per cent. of increase of power.

I saw with Dr. F. B. Percy of Brookline, Oct. 19, 1914, a child of 10 with a total paralysis of the anterior tibial muscle and partial paralysis of the gastrocnemius. Ten days after the attack, sensitiveness had gone, but the child could only walk badly and unsteadily. She was kept quiet for a month more, when she was allowed to walk a few steps daily. She made a remarkable gain, and massage and muscle training were begun, Jan. 6, 1915, although the amount of walking was not increased to any extent, the child walking only a very little. In four months the gastrocnemius and tibialis anticus had apparently nearly normal power when their resistance was tested by the hand, but the child still limped a little. Feb. 24, 1915, four months after the attack, the mother was asked to keep this child practically off of her feet for two weeks while the other conditions of treatment were the same. At the end of this time the limp had disappeared.

Oct. 5, 1914, I saw a child of 5 with nearly complete paralysis of one leg below the knee from an attack three months previous. The child walked badly, but was much helped by a brace to hold the foot at right angles to the leg. Muscle training was started, and the child improved satisfactorily, evidences of returning muscle power becoming plain. March 6, 1915, the mother made a statement that attracted my attention, namely, that the child walked better in the morning than at night. She was asked to keep the child off of his feet as much as possible for a month, restricting walking to the greatest possible degree. April 6, 1915, examination showed during the month a very striking increase in power in the muscles controlling the foot, and it was evident that the progress in the last month had been far greater than in any previous month, and the child walked as well at night as in the morning.

These illustrative cases seem to me to show that much smaller degrees of overuse may be deleterious than is generally supposed. Probably any of us would agree that gross and persistent overuse of partly paralyzed muscles would be undesirable; but it seems to me reasonable that in the early stage of returning power, we should be exceedingly careful in the use of muscles in walking and in the use of heavy and prolonged massage, much more careful than we are at

present, if I may judge the practice of others by my own previous methods.

I hesitate to reason from an unproved conclusion in this connection; but may I once more call attention to the fact that the proportion of total to partial paralysis is greatest in the muscles which have the greatest weight to oppose in the standing and walking position and least in those which have the least weight, in a series of cases observed some months after the acute attack. If overuse is the harmful factor that I believe it to be in retarding recovery, its effect would be noted in just those muscles which show the highest proportion of total paralysis.

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EXPERIMENTAL STUDIES OF VARIOUS ANTISEPTIC SUBSTANCES FOR USE IN TREATMENT OF WOUNDS

BASED ON THE WORK OF SIR W. WATSON CHEYNE*

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PHILADELPHIA

The purpose of this paper is the experimental study of the antiseptic power and diffusibility of various substances commonly used to check bacterial growth. The study is based on and largely follows the report of Sir W. Watson Cheyne.¹

The study by Cheyne grew out of a desire to prevent sepsis in the wounds of soldiers received while on duty in the trenches and at the battle front during the present war. As a result of these wounds, an enormous number of serious infections have occurred, followed by a high mortality. This is due in part to a delay in reaching the base hospital and in part to the large number of wounded needing treatment at one time. It was Cheyne's idea that each man should carry a convenient package of some antiseptic diffused in a proper vehicle which could be introduced into wounds immediately after their occurrence, thus preventing or retarding bacterial growth locally, until a thorough disinfection could be carried out at a more convenient time and place.

In a later communication as a result of this work, the British government is now forwarding two packages to each man in the navy, one a paste made up of 20 per cent. phenol (carbolic acid) in a lanolin base and the other a powder of equal parts of boric and salicylic acids. A paste was chosen as a vehicle because of its ease in handling, because of the danger of liquids being lost and because of the fact that the recesses of lacerated tissues are more easily reached. Cheyne advised a paste composed of lanolin, 6 parts, and white wax, 1 part. This proved best from every point of view according to his experience. In our own work we have used this, and find one made up of castor oil, 70 parts, white wax, 20 parts, and spermaceti, 10 parts, to be equally advantageous, to diffuse a little more readily and to be considerably cheaper.

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¹ Read before the Pathological Society of Philadelphia, May 13, 1915.
1. Cheyne, W. W.: *Lancet*, London, Feb. 27, 1915.

The relative inhibitory, germicidal power and diffusibility of various antiseptics used and the most effective strength was determined by incorporating them into the base and growing bacteria on a slab of agar-agar over the paste. It was found that blood clot and agar worked equally well, and our work has been confined to agar.

The general scheme is to place the paste on the bottom of a Petri dish underneath the slab of nutrient agar, and to inoculate the upper surface of the agar with a bouillon suspension of bacteria. The activity of the antiseptic can be easily judged by observing the presence or absence and extent of growth on the surface of the medium.

TECHNIC

In order to obtain comparative results, conditions must be exactly the same for each substance tested. Hence 0.5 gm. of the antiseptic substance is used in each instance. This is spread on a coverslip three-quarters inch in diameter. Where drugs are to be tested in liquid form, two thicknesses of filter paper three-quarters inch in diameter are saturated with the substance, and the experiment carried on as with the paste. The agar slab must be the same thickness in every case. For this Edmund's chamber is used (Fig. 1). This consists of two glass plates.

a brass ring one-quarter inch in thickness, a small portion of which has been removed, and three heavy paper clips. One plate is sterilized by passing through a flame and laid on a support, and the brass ring is flamed and laid on the plate, the open portion of the ring at one margin. The second plate is sterilized and placed over the ring. These are bound together with the paper clips. This forms a chamber open at one point into which melted agar is poured and allowed to solidify. When solid, the paper clips are removed, and the upper plate and brass ring

lifted. This leaves the agar slab on the lower plate. The coverslip with the paste is placed on the center of the exposed agar, care being taken to have the paste next to the agar. The lower part of a Petri dish is inverted over the agar, and the Petri dish, agar and glass plate turned upside down. With a platinum rod the agar is easily transferred to the Petri dish. A tube of melted agar is poured around the slab to hold it in place. Finally the upper surface of the slab is inoculated by gently stroking with two loopfuls of a bouillon suspension of bacteria. The suspension is made by transferring two loopfuls of a twenty-four to forty-eight hour bouillon culture to a tube of sterile bouillon. This technic is that used by Cheyne with but slight modification for convenience. The plates are incubated for twenty-four hours at 37 C. (98.6 F), and the results recorded. The results remain remarkably fixed after the initial growth, even for days and weeks.

The organisms used in our work were the *Staphylococcus aureus*, *Streptococcus pyogenes* and *Bacillus coli*. It was found that substances inhibiting *B. coli* acted on the streptococcus to the same degree and on the staphylococcus to a greater degree, so that in most of this work *B. coli* has been used.

In comparative results the points observed include: 1. Is growth present and to what extent? 2. Is the growth directly over the paste? 3. How close to the

margin of the paste does the growth extend? 4. What are the size and number of the colonies in relation to their distance from the paste?

From this comparison a convenient classification of the results may be given under three groups. 1. Those drugs which are markedly active. 2. Those drugs which are slightly active. 3. Those drugs which are inactive.

In order for a drug to fall under the first group, it must have not only antiseptic powers but also a wide range of diffusibility. The phenol group stands out preeminently, so much so that it is almost alone. Thus, too, the activity of the drug should be within a non-toxic dose as compared to common usage in an ointment, or as to its known absorbability in internal administration. Under the second heading drugs may be quite antiseptic locally, and yet according to this method show little or no diffusibility, except immediately over the paste, which means in distance a diffusing power of one-quarter inch through agar. Substances, for example, the dyes, may be quite diffusible and yet have little antiseptic power. If this range of diffusibility applies in vivo and the percentage of the drug used is carefully worked out,

I see no reason why there is not offered a wide variety to be applied in the rational treatment of wounds not only in war but in civil life.

A summary of the substances tested follows:

1. Those drugs which are markedly active; under this we may include the following: tricresol, 10 to 20 per cent.; phenol, 10 to 20 per cent.; thymol, 10 to 20 per cent.; creosote, 25 per cent.; mercuric iodid, 10 to 30 per cent.; tincture of iodine, 5 to 10 per cent.

2. Those drugs which are slightly active: salicylic acid, 20 to 30 per cent.; Japanese powder, salicylic and boric acids, 20 to 30 per cent.; zinc chlorid, 20 per cent.; mercuric chlorid, 0.2 to 0.4 per cent. (in solution, 1:750, and 1:625); guaiacol ointment, 10 per cent.; mercuric ointment, 33 per cent.; creosote, 10 per cent.; carbolfuchsin (contains 5 per cent. phenol).

3. Those drugs which are inactive: iodine, 2 to 6 per cent. (crude drug); menthol and camphor, of each, 20 per cent.; boric acid, 30 per cent.; iodoform, 90 per cent.; zinc sulphate, 1 to 5 per cent.; alcohol absolute, alcohol methyl, alcohol, 95 per cent.; calcium chlorid, 20 per cent.; liquor formaldehydi, 0.1 and 0.5 per cent. (in solution 1:1,000, 1:500); lead nitrate, 5 to 10 per cent.; silver nitrate, 5 per cent. (in solution, 20 grains to 1 ounce); turpentine, 1 per cent.; ether, chloroform, Delafield's hematoxylin, sudan III, Loeffler's methylene blue, eosin watery solution; iodine green, glycerin, bismuth betanaphthol, 20 per cent.; salol, 20 per cent.; hexamethylenamin, 20 per cent.; zinc oxid, 25 per cent. scarlet red (2 per cent. scharlach R); bismuth subnitrate, 50 per cent.; balsam Peru, ointment, 25 per cent.; scharlach R saturated solution.

It might be well here to include a little detail concerning some of the more important drugs. Of all the substances used, thymol and tricresol stood out prominently. This was noticed in two ways. They had a wide range of diffusibility, at the same time

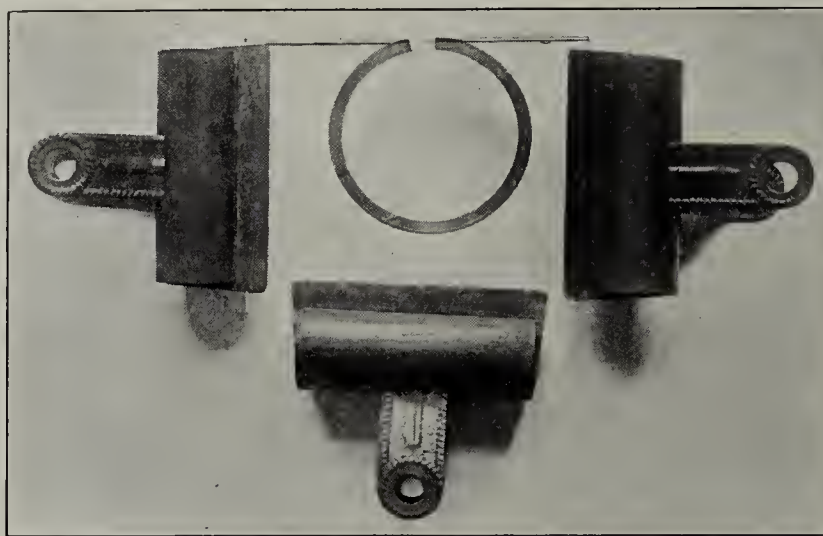


Fig. 1.—Edmund's chamber: a brass ring, two slides and three paper clips.

inhibiting the active growth of those few colonies which formed. Alone they were both active, while in combination this activity seemed somewhat increased. Tricresol was used in percentages of 5, 10, 15, 20 and 25. It was noticed that with *B. coli*, for instance, in a 5 per cent. paste, a diffuse growth took place over the entire surface but much thinner over the paste; in 10 per cent., no growth over and one-quarter inch beyond the paste; in 15 per cent., very few and small colonies on the outer one-quarter inch of the agar; in 20 per cent., no growth. Thymol had about the same action, and possibly from all standpoints showed a little more activity.

Many combinations were tried, including phenol, creosote, thymol, salicylic acid, mercuric iodid and tricresol in varying percentages. Out of this group tricresol and thymol were selected as the best. Tincture of iodine (Fig. 2) gave the following: in 0.5 and 1 per cent., growth over the entire slab; in 2 and 4 per cent., up to the filter paper; in 5 per cent., one-quarter inch beyond the paper, and in 10 per cent., no growth. Crude iodine in 6 per cent. in paste failed to inhibit the growth over the entire surface,² but this solution contains only a small amount of iodine: about 0.35 per cent. Salicylic and boric acids, in equal parts as a dusting powder known as Japanese powder, because of its use in the Russo-Japanese War, in a 30 per cent. paste seemed to be quite efficient.

Those substances listed under the inactive heading in the percentages given all show diffuse growths over the agar slab. Silver nitrate, while it showed colonies over the entire surface, reduced the size of those colonies quite appreciably. Scarlet R (scharlach R 2 per cent.), a much used antiseptic, showed large colonies. Scharlach R in saturated alcoholic solution showed large colonies. Sudan III, an allied substance, showed quite an extensive growth.

From our experience, the following paste or ointment is recommended. Thymol and tricresol, of each, 10 per cent. in a base composed of castor oil, 70 parts, white wax, 20 parts and spermaceti 10 parts. Thymol and tricresol are more efficient in 15 and 20 per cent. pastes. They are recommended for use in 10 per cent. when infection has not taken place, or is superficial and not virulent, and in the higher percentages when the infection already exists or is severe. In the

use of this paste, 1 dram of a 10 per cent. ointment represents 0.3 gm. or about 5 grains each of the antiseptic. Thymol internally in twenty-four hours has been recommended in dosage of 7 gm. in three hours (Wood). It is true that this is removed afterward by purgation. Pure cresol may be given internally in 2 to 3 minim doses (Wood). Cresol has the advantages of phenol with greater power, less irritation and lower toxicity. This statement may be open to criticism. However, we feel safe in recommending this ointment in dram doses of 10 or even 20 per cent. In the higher percentages, caution should be taken especially as to frequency of application. Since its object is a germicidal one, in these percentages one application should be sufficient with future asepsis

maintained by less toxic substances. One of us has applied 1 dram of the 10 per cent. ointment, rubbing it well into the unbroken skin surface. There have certainly been no general effects and only the mildest local tingling. Examination of the urine before and two hours after the application showed no appreciable change in the sulphates.

CONCLUSIONS

1. The method as outlined by Cheyne offers an excellent means for the study, experimentally, of the diffusibility and antiseptic power of drugs.

2. The results obtained are confirmatory in some cases and startling in others as to the value of well-known remedies.

3. The phenol group and thymol give the best results as far as our work goes.

4. We are able to recommend an ointment composed of a base, castor oil, 70 parts, white wax, 20 parts, spermaceti, 10 parts, with tricresol and thymol, 10 per cent. each. Lanolin and wax may be

used, but the vegetable base has some advantages.

5. These results are experimental, and must be borne out by clinical application. This we hope to do and report on in the near future.

6. The only drawback is the possibility of toxic effects, and this may be overcome by cautious usage in the amount applied and the interval between dressings.

7. This paste has a wide range in civil life as well as in war, and should prove more effective than those of common usage because of the increased percentages of the drug.

8. At the same time, the principle of the large dose is to establish at once or to maintain an asepsis in a wound, until ideal conditions for surgical treatment are available.

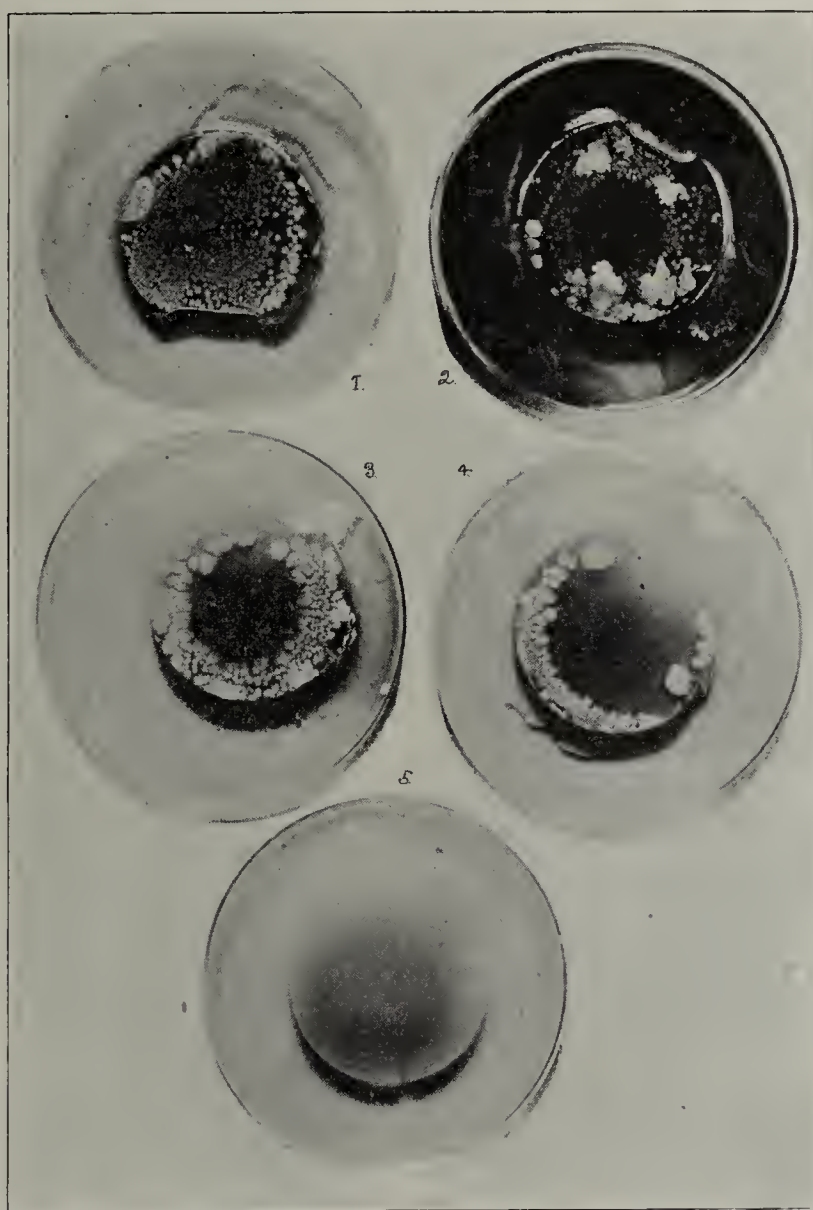


Fig. 2.—Tincture of iodine series: 1, 1 per cent.; 2, 2 per cent.; 3, 4 per cent.; 4, 5 per cent.; 5, 10 per cent.

2. In 10 per cent., mercuric iodid had a fair degree of diffusibility. Lugol's solution showed a growth over the entire surface.

THORIUM—A NEW AGENT FOR PYELOGRAPHY

PRELIMINARY REPORT

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BALTIMORE

In order that a solution may be ideally suited for use in pyelography, it must fulfil the following conditions: It should be nontoxic, nonirritating, and quite fluid, so as immediately to escape from ureters and bladder, and present the greatest possible degree of opacity to the Roentgen ray, casting not only a good shadow but also one of clear delineation.

Various colloidal solutions of salts of the heavy metals such as iron, silver, bismuth, copper and lead, and suspensions of the salts of bismuth, calcium and

Roentgen ray. This solution also inhibits, but does not prevent the growth of ordinary bacteria. It flows readily, owing to its lack of viscosity, and escapes immediately from a ureteral catheter when injected into the pelvis of the kidney, or can be voided immediately if used in the bladder. It is perfectly clear to



Fig. 1.—Rabbit's ureter and pelvis of kidney injected with 50 per cent. solution of thorium nitrate in distilled water.

magnesium have been tried. All of these solutions sediment on standing, and while being, for the most part, quite opaque to the Roentgen ray, are viscous, and some are quite toxic and irritating.

Thorium nitrate dissolves readily in water, giving a clear, markedly acid solution, which, while being opaque to the Roentgen ray, is unsuitable for use because of its being an irritant, possessing a marked degree of astringency, and precipitating insoluble salts in the urine. This solution cannot be injected intravenously into animals because it causes intravascular clotting.

The neutral solution of thorium nitrate and sodium citrate, however, about to be considered, possesses, as far as observations made at the present show, all of the previously mentioned salient characteristics for use in pyelography. In this solution there seems to be a complex ion formation which changes both the chemical and pharmacologic action without causing any decrease of the opacity of the solution to the

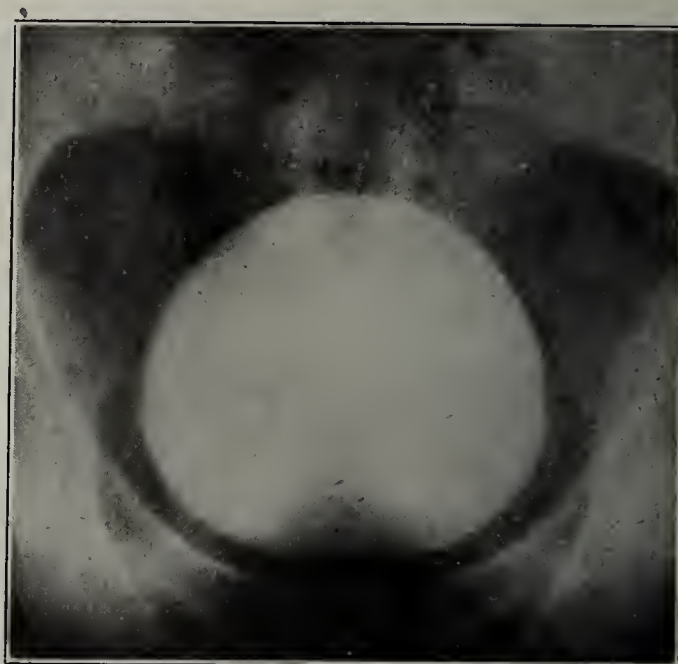


Fig. 2.—Normal bladder shadow. The bladder of this patient was injected with 350 c.c. of a 10 per cent. neutral solution of thorium nitrate and sodium citrate. Cystoscopic examination seventy-two hours after injection showed the bladder picture to be the same as before injection. The patient experienced no discomfort after the injection, nor were there any signs of irritation.



Fig. 3.—Trabeculated bladder with dilated internal sphincter, bilateral hydro-ureters and hydronephrosis due to congenital obstruction in the posterior urethra in a boy, aged 12 years. In this case, 600 c.c. of a 10 per cent. neutral solution of thorium nitrate and sodium citrate were allowed to flow in by gravity through a urethral catheter, the patient being in the Trendelenburg position while the picture was being taken. Cystoscopic examination, five days after the injection, showed the bladder picture to be the same as before injection. Phenolsulphonephthalein output and blood urea estimation were the same as before the injection. There were no signs of any irritative action.

transmitted light, possessing a faint, yellowish tinge in large volume. It is perfectly clean and does not stain the clothing. From an economical standpoint, it

has a decided advantage, being much cheaper than any of the silver preparations used at present, which are very expensive, particularly if used in quantities sufficient for bladder pictures and large hydronephroses. These preparations are also objectionable because they stain the clothing, have such viscosity as to make



Fig. 4.—Renal pelvis and ureter. Seven and five-tenths c.c. of a 15 per cent. neutral solution of thorium nitrate and sodium citrate were allowed to flow into the pelvis of the kidney by gravity through a ureteral catheter. The phenolsulphonephthalein output was unaffected by injection; the solution caused no signs of any irritative action.

injections through a small catheter difficult, are very irritating when they escape into the tissues, and have, as a matter of fact, been followed by death in several instances.

The solutions used contain 10 per cent. and 15 per cent. thorium nitrate and are made in the following way:

To make 100 c.c. of a 10 per cent. solution, 10 gm. of thorium nitrate are dissolved in as little distilled water as possible; to this solution, kept hot on a water or steam bath, are added 30 c.c. of a 50 per cent. solution of sodium citrate, the additions being made in small quantities and care being taken to shake the solution thoroughly after each addition. At first after the addition of the citrate solution, a white gummy precipitate is formed which later becomes granular, and finally dissolves on the addition of all the citrate solution. This solution is then made neutral to litmus by the careful addition of a normal solution of sodium hydroxid, and made up to the required volume of 100 c.c. with distilled water. On filtration, a clear, limpid solution is obtained, which, when sterilized, either by boiling or steam under pressure, is ready for use. The stability of the solution is not affected in the least by sterilization.

The neutral solution of thorium nitrate and sodium citrate, prepared as directed above, is not irritating to the mucous membranes or peritoneal surfaces, does not precipitate salts in the urine, and can be injected intravenously up to 1.5 c.c. per kilogram of body weight and given by stomach up to 4 c.c. per kilogram of body weight in dogs without causing any change in the phenolsulphonephthalein output, blood urea content, hemoglobin content or cellular elements of the

blood. No gastro-intestinal symptoms have been observed in any of these animals up to the present time. Complete protocols of these animals and further studies in regard to its pharmacologic action will be published in a subsequent paper. This solution may also be used in the roentgenographic study of the gastro-intestinal tract and other viscera.

The illustrations show not only the density of the shadow but also its clear delineation, when this solution is injected either into the bladder, ureter or pelvis of the kidney.

Further clinical studies are being pursued, and a report of their results will be published later; but the advantages of this neutral solution of thorium nitrate and sodium citrate for pycelography and other skia-graphic studies are so great that this preliminary report is now given. It is being used regularly in all our suitable urologic cases, and apparently is perfectly innocuous. If further experience confirms our present studies, it seems probable that we have in it a method of great value to urologists and roentgenologists.

SHORT CIRCUIT OF THE VAS DEFERENS

CHARLES MORGAN McKENNA, M.D.

Surgeon to St. Joseph's Hospital; Instructor in Genito-Surgery, College of Medicine, University of Illinois; Genito-Surgeon to People's and St. Bernard's Hospitals

CHICAGO

By short circuit of the vas I mean joining together the patent lumen of the vas with a section of the epididymis or testicle. Just a word regarding the anatomy of these parts in order to make the following clear.

The testis is composed of an enormous number of much convoluted seminiferous tubules, which fill up the intervals between the septums. These tubules form larger tubules, and finally make up the vasa efferentia, and on reaching the head of the epididymis form a larger tube which is called the canal of the epididymis. After a tortuous course, this ends at the globus minor and opens into the vas deferens. This is at the extreme lower pole of the testicle. The vas deferens begins at the tail of the epi-

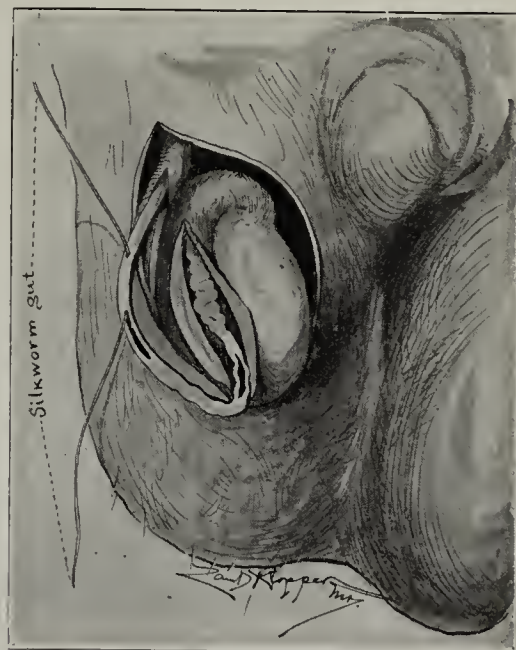


Fig. 1.—Exposure of vas deferens; silkworm gut in lumen of cord.

didymis and ends in the common ejaculatory duct, where it enters the prostatic or first part of the urethra.

The operation under discussion is usually done to repair an old gonorrheal epididymis in which there is an obstruction of the vas between the tail of the epididymis and the external inguinal ring. It is of the greatest importance, therefore, to know whether that part of the vas is patent between the external inguinal

ring and the opening of the ejaculatory duct into the prostatic urethra. This may be investigated at the time of the operation, but better should be done two or three days before the operation by drawing the vas through a small skin opening and injecting it with a solution of argyrol or collargol. By injecting the vas with either one of these solutions, the urine will become discolored a dark brown on first urination, hence, showing the vas between the incision and the prostatic urethra to be patent. If it should be found that the vas was not patent, it would be of no avail to do a short circuit operation, but Lespinasse's operation of the distal end of the vas becomes the one of choice.

Granting that the lumen is patent, the next point to be considered is the condition of the channel as to infection. It would be quite an error to go on with the operation if the seminal vesicle or ejaculatory duct contained any pathogenic organisms. I therefore wish to emphasize that it is quite important that the operator be absolutely sure that these parts are perfectly clean and will perform their duty if called on, provided one succeeds in opening the passage for the spermatozoa. If there is any doubt as to this condition existing in the seminal vesicle or ducts, these should be treated after Belfield's method.

Dr. E. D. Martin of Philadelphia in 1900 tried this operation with success. He used four fine silver wires for the anastomosis and used the head of the epididymis as the base for the implantation. This was done on each side at different sittings, and at the second operation succeeded in getting free spermatozoa in the urethra.

Scatudo in 1901 tried the same operation by doing an implantation of the vas into the rete of the testis. In his case, he did a complete resection of the epididymis, using the argument that if it were tuberculous, he could still get free sperm direct from the testis. One of his dogs escaped without an examination being made, and the others did not show any live sperm.

Boarri in 1908 reported a case in which he succeeded in getting the sperm through direct from the rete in the testis.

My own work has been done mostly on dogs at the St. Joseph's Hospital. This is more or less of a preliminary report on the work thus far carried out. In the first three dogs operated on, the incision was made over the vas in close proximity to the epididymis. The vas was divided at this point and brought in apposition to a section of the epididymis, the incision in the epididymis being made in the head. In the first three cases, ordinary catgut was used to make the anastomosis, and as a result no sperm could be found in the urethra. In the next three cases, two were done the same as the first, and in the third a fine silver wire was used instead of the catgut, which was removed later. In the case in which the wire was used, no trouble was manifested in finding free spermatozoa in the urethra. Before doing the next two, I consulted Dr. Belfield, who explained that, while he had never tried it or seen anything in literature,

he thought it would be a good scheme to introduce a silkworm-catgut in the lumen of the vas, and draw it out through the skin. This was done, and I shall show later in the technic of the operation how it materialized. In the last two dogs operated on, a side anastomosis was done instead of the end of the vas being used as at first. The silkworm-catgut introduced in the lumen of the vas was not used as an anastomosing suture, but as a means to leave the lumen patent and remove any blood clot that might tend to obstruct the vas after the operation. This plan worked perfectly in all cases, even in one case in which the vas was crossed over to the opposite epididymis.

The work on man so far consists of six cases, five of which can be reported. Out of these five, two have passed living sperm, three have not passed any, and in the last one, sufficient time has not elapsed between the operation and the time of the writing of this paper. I feel that I am somewhat to blame for the nonappearance of the sperm in these cases. While there had been success with the operations performed on the lower animals, it is quite a different thing to operate on man when pathologic conditions exist. The error

was made in doing the anastomosis, the head of the epididymis, instead of the tail, being always used. The selection of the portion of the organ to be used depends altogether with the operator. This may or may not be in the extreme tail of the body.¹

It is not a good plan to do the anastomosis unless plenty of free motile spermatozoa can be found. Free spermatozoa cannot be mistaken by the naked eye when there are enough present. The appearance of sperm in the vas is that of white milky pus passing through blood. After a few observations there will be no difficulty in locating the best field for the implantation. But considerable time should be spent in locating a suitable section for the implantation, to assure the patient a fair prognosis. Thus far, I

have had no difficulty in finding the motile sperm in the tail of the epididymis or one-fourth inch above the tail. In one of the cases in man in which operation was performed, the amount of sperm was so much that I was sure there must have been some pus still remaining in that section of the epididymis. Before the operation was completed, a slide was covered with the fluid and sent to the laboratory for diagnosis. Dr. George Dick made a microscopic report which showed the slide to be completely covered with living sperm. In this case sperm was found afterward in the urethra.

TECHNIC

I base my technic for short circuit or transplantation of the vas deferens on the contention that vas operations should follow out sound surgical principles as used in surgery in other parts of anatomy. Some of the important points are:

1. Clean exposure and fixation of the cord.

1. In one of the first cases reported in which the head of the epididymis was used for the implantation, the second and fifth nights after the operation the patient had an emission in which blood and argyrol were found in the discharge. This was certainly a proof that the operation was a success, and if free spermatozoa had been present they would have passed through.

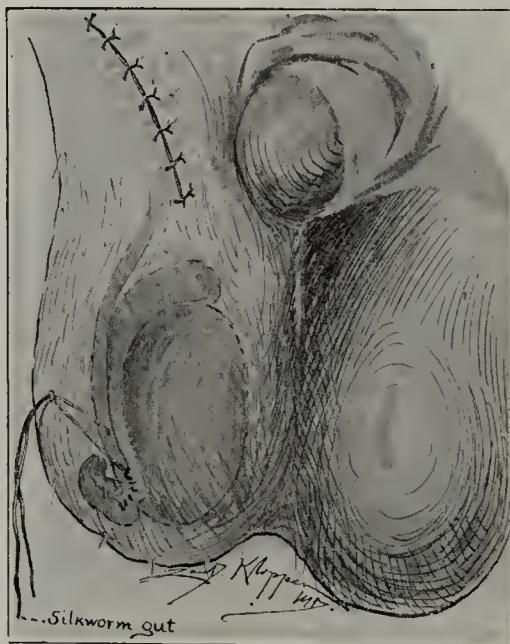


Fig. 2.—Anastomosis of vas with epididymis.

2. The patency of the vas between the incision and the ejaculatory ducts. (This information is obtained by doing an injection of the vas previous to the present operation, Belfield's method.)

This operation is indicated when the occlusion is below the internal inguinal ring. The procedure is as follows:

The patient is cleaned and prepared as for any other surgical interference, except that tincture of iodine is not allowed to touch the scrotum in order to prevent excoriation. The patient is put under general anesthesia and placed in a slight Trendelenburg position. An incision is made in the same location as in operating for inguinal hernia and carried to the pendulous portion of the scrotum. The vas and epididymis are exposed at this point. A tenaculum or volsellum forceps are placed about the cord at its junction with the epididymis. A silkworm-gut is carried underneath the vas about 3 or 4 inches above the forceps. This is done to fix the cord in order that a clean field may be maintained, and makes the entrance to the vas easier for the operator.

The vas deferens is stripped of its covering for 2 or 3 inches above the epididymis by gauze dissection and Kocher director. Great emphasis is laid on this point as it expedites the operation and prevents any error in getting in its longitudinal axis in the lumen of the vas. An incision is made into the vas about one-half inch long. A fine pointed bistoury is the best instrument for this purpose. The incision is made about $2\frac{1}{2}$ inches above the head of the epididymis. A piece of silkworm-gut is introduced into the lumen of the tube by means of a long hypodermic needle. The thread is put into the proximal end of the needle and pushed in just to the distal margin. The needle is now placed in the incision already made in the vas and pushed into the lumen of the cord above to the incision, and the point of the needle is brought out through the wall about 2 inches above the lower opening. The thread is drawn through the needle at this point, and the needle withdrawn through the lumen of the vas, thus leaving the silkworm-gut extending from the incision below and out through the wall 2 inches above, both ends of the thread being free. I wish to mention here that this is Dr. William Belfield's suggestion, and to him I wish to give all credit. Two sutures of chromicized catgut are placed through the incision already made in the vas and brought down into the opening made in the epididymis. The sutures are tied for permanent fixation, thus making the anastomosis of the vas with the epididymis and out through the skin, the sutures being tied loosely on the outside. These stitches are left in for from ten to fourteen days in order that the lumen of the vas may remain open. The tunica is closed in the regular way, as are the rest of the anatomic structures. The wound is healed and the scrotum put in a well-elevated position. The patient remains in bed from seven to ten days, at which time the skin sutures are removed.

The scrotum is carried in a suspensory from four to five weeks after the operation in order that no pressure be brought to bear on the anastomosed vas. Intercourse should not be allowed until six weeks after the operation.

CONCLUSION

I wish to emphasize the following points:

The vas should be free from infection.

The section of the epididymis used should contain plenty of free sperm, and the tail used for implantation.

108 North State Street.

Vital Statistics and Sanitation.—A nation that does not consider it necessary, or that is not able to provide adequate means for registering the births of its own children, or for officially recording the deaths of its citizens, can hardly be supposed to attach sufficient value to human life to enable sanitary measures for its conservation to be adequately carried out.—C. L. Wilbur, quoted by Irving Fisher, Memorial Relating to the Conservation of Human Life.

New Instruments and Suggestions

A PRACTICAL METHOD OF APPLYING THE WAX-TIPPED CATHETER IN THE DIAGNOSIS OF URETERAL STONE IN THE MALE

FRANK HINMAN, M.D., SAN FRANCISCO

It is barely three years since the valuable wax-tipped catheter method of diagnosis of stone in the ureter, introduced more than twenty years ago by Howard A. Kelly of Baltimore, for use in the female, was adapted by Burton

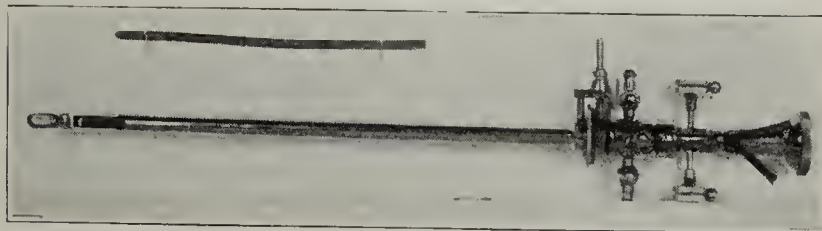


Fig. 1.—Preparation of wax-tipped catheter sheath: A soft rubber urethral catheter which will pass freely through the operating cystoscope (No. 9 or 10 F. for Brown-Buerger instrument) is passed into the cystoscope until the end projects a little beyond the elevator of the instrument. The other end is cut and slit up so that when the two slit portions are turned back over the mouth of the telescope they will hold the catheter in this position.

Harris for use in the male. The adaptation proposed (1912) by Harris has several objections: 1. The difficulty, trauma and pain of passing the cystoscope are increased. In the procedure the wax-tipped bougie is first passed into a full bladder, and the cystoscope, with its catheterizing telescope in place, is then threaded down the urethra over this bougie

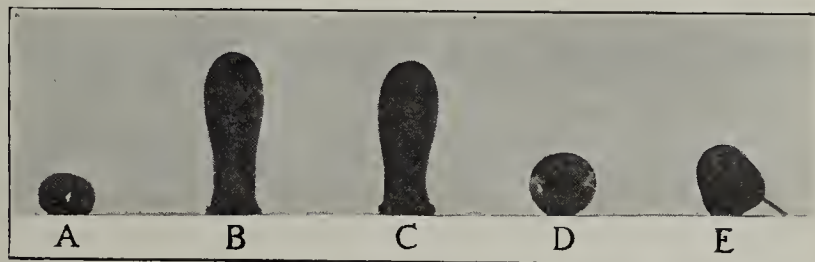


Fig. 2.—Method of making rubber tips for the operating telescope from small pipet bulbs: A, large rubber tip with single perforation on the market. This is too small for use with the rubber sheath; B, plain rubber pipet bulb, 3 cm. in length; C, bulb divided into three equal parts; D, first part placed inside of third and fastened with two silk sutures; E, single perforation in bulb, made with hot needle.

as over a filiform. Naturally the beak of the instrument must scrape along the catheter, and the window of the instrument, having no obturator, adds to the roughness and difficulty. 2. Security against scratching the waxed tip, whose position in the bladder is unknown on the insertion of the cystoscope,

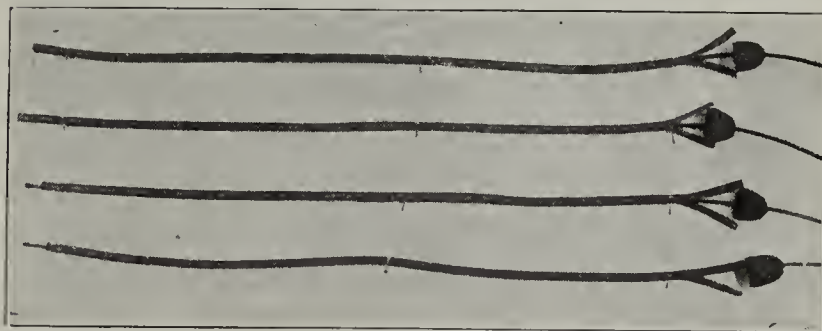


Fig. 3.—Rubber sheaths with wax-tipped catheters: In the upper two the tips are about 1 inch from the end, the position in which they should be, both for insertion of sheath into cystoscope and for withdrawal of sheath and catheter for examination of the waxed end. The rubber tip at the slit end of the sheath serves to mark and hold the catheter in this position. In the lower two the catheters have been pushed through for examination.

is not absolute. 3. The cystoscope must always be withdrawn from the bladder before the catheter is removed from the ureter.

A simple procedure, which overcomes these disadvantages, has been used recently in several cases with entire satisfaction. It eliminates completely the added difficulty and pain

in passing the cystoscope. It gives perfect security against extraneous scratches, and it permits the removal of the wax-tipped catheter for examination without previously withdrawing the cystoscope. The latter is a great advantage. Several control waxed tips may be passed one after the other, thus confirming the findings or accurately measuring the distance of the stone from the ureteral orifice. At the same time, and through the same cystoscope, an ordinary ureteral catheterization followed by functional study, ureteropyelogram or even both may be made, thus obtaining complete information in the case at the one cystoscopy.

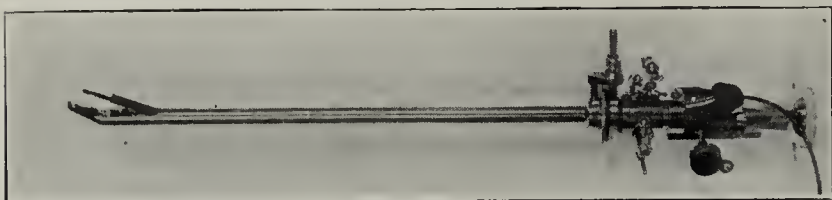


Fig. 4.—Catheter sheath fastened in place by rubber tip. The elevator of the instrument has been raised, showing how the rubber sheath protects the waxed tip.

The operating cystoscope (Brown-Buerger is used, but the method is applicable with any operating instrument) is passed into the bladder as for ordinary cystoscopy, the obturator withdrawn, the bladder washed out (the irrigating fluid should not be too warm, as it may soften or melt the wax), and the operating sheath of the instrument then inserted. The wax-tipped catheter has been provided with a soft rubber sheath, which should easily pass through the operating barrel of the instrument, as shown in Figures 1 and 3. The usual rubber tip (Fig. 2 A) for the irrigating instrument is too small to cover the orifice of the telescope when the slit ends of the rubber sheath are turned back. A very satisfactory tip may be quickly made, as indicated in Figure 2 B, C, D and E. In fact, this tip will be found to be much more satisfactory for all work with the operating cystoscope than the hard, friable tips on the market. The method of passing the wax-tipped catheter is indicated in Figure 4. The sheath with its catheter inside (to within 1 inch of the end) is threaded into the instrument until the end of the sheath appears in the visual field just beyond the end of the elevator of the instrument. The slit portions of the other end of the sheath are then spread to the opposite sides and covered by the rubber tip, which thus securely holds the sheath in place and insures dryness. The waxed tip is now carefully pushed into the field (Fig. 5), the elevator, which strikes the rubber sheath and not the catheter is raised, and the catheter then pushed on up safely by the beak of the instrument into the ureter (Fig. 4).

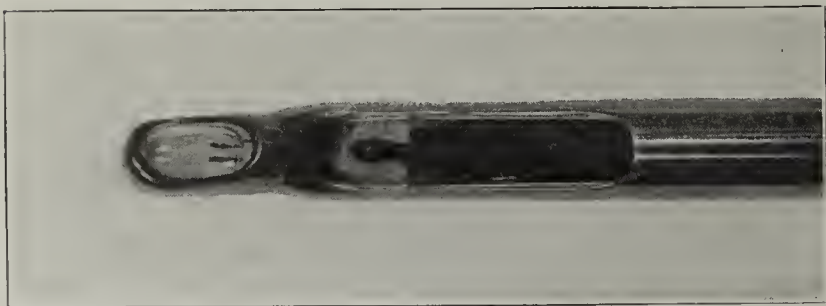


Fig. 5.—Waxed tip and rubber sheath before raising the elevator of the cystoscope.

In removing the wax-tipped catheter, after passing it up the ureter as far as desired, the lever of the instrument should be kept partially elevated; the waxed end can then be withdrawn into its sheath with no danger of striking the beak of the instrument. It is preferable to withdraw the sheath with the catheter in it, rather than to withdraw the catheter through the entire length of the sheath, for examination. In this way the waxed tip will have passed only a very short distance through its sheath, being originally retrograded into it to a distance of about 1 inch, and, before examination and after having passed up the ureter, not being withdrawn into it to a greater distance than this.

Physicians Building.

A NEW LID EVERTER

SIDNEY ISRAEL, M.D., HOUSTON, TEXAS

This small lid everter is the outcome of an endeavor to find an instrument that would give a large exposure of the entire upper lid and culdesac. Its most salient features are simplicity of design, ease of manipulation, and freedom from causing pain in introduction. It has been the means of revealing several cases of trachoma that had been overlooked by ordinary methods.

In introducing the instrument, it is grasped at its distal end between the tips of the thumb and index finger. With the patient looking down, the lashes of the upper lid are held in the tips of the thumb and index finger of the left hand. The knobbed ends of the instrument are then placed gently on the upper lid about one-half inch from the ciliary margin with the instrument in the vertical position. With the fingers of the left hand holding the lashes, the lid is retracted over the knobbed ends, and with gentle pressure on the distal end, the entire under surface of the upper lid, including the culdesac, is freely brought into view. In this position the knobbed ends can be slid from the outer to the

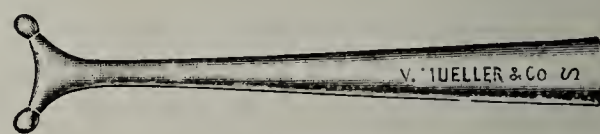


Fig. 1.—New lid everter.

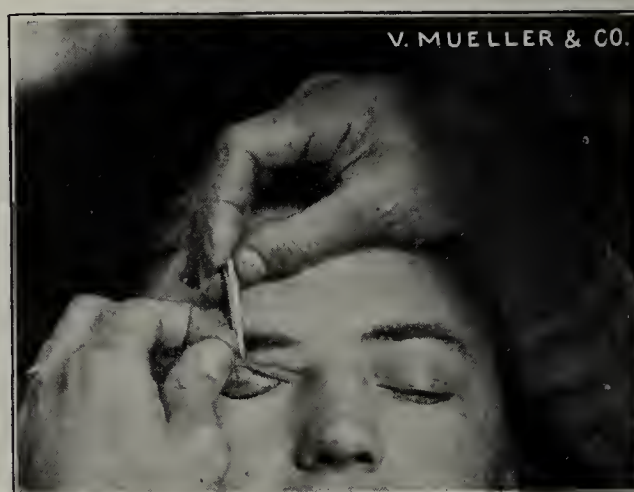


Fig. 2.—Method of using the lid everter.

inner canthus, exposing any part desired. In this position also, with the under surface of the lid exposed, the hold on the eyelashes by the fingers of the left hand can be released, and with the tip of the index finger of the right hand on the distal end still maintaining the position of the instrument in the vertical meridian, the thumb of the right hand can be dropped down to hold the lashes in place to maintain a complete eversion of the lid, while with the left hand free, any foreign body that is present on the under surface of the lid is easily removed.

The instrument can be readily carried in the pocket, and because of facility of introduction, can be used universally by the general practitioner and the ophthalmologist.

IMPROVED FORM OF BRAIN EXPLORER

HAROLD GIFFORD, M.D., OMAHA

In the *Laryngoscope*, January, 1914, I described a brain explorer consisting essentially of two knife blades held together with a spring, to be used in cases of suspected brain abscess in place of the exploring needle or scalpel. As is well known, each of the latter instruments may pass through the wall of an abscess, and either on account of thickness of the wall or thickness of the pus, may not reveal its presence. The practice of passing in dressing forceps and opening them here and there in the brain can hardly be called either accurate or elegant. With this brain explorer,

one passes the instrument into the brain as far as one thinks necessary, and then opens the blades; if no pus escapes, they are closed and passed on, being opened from time to time until they have gone as far as is permissible in any given direction. One can be sure after having done this that no pus in this particular tract will be left undiscovered.

Since my first article was published, I have modified the instrument, because on using it I found there would be a decided advantage in having the spring set off at an angle from the main axis of the blades. This greatly facilitates the introduction of a drainage tube or other drainage apparatus into the cavity of the abscess when the latter has been found. When the abscess has been penetrated and pus found, the instrument is kept in position until the drainage tube or gauze has been introduced into the cavity between the separated blades of the explorer, which have

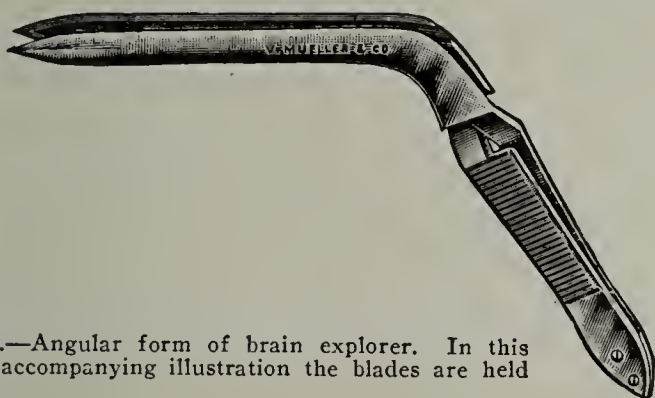


Fig. 1.—Angular form of brain explorer. In this and the accompanying illustration the blades are held apart.

been grooved on the inner side to facilitate the introduction of a glass tube. The opening in the abscess wall can be enlarged to the desired extent by the closed blades of the explorer, or, if preferred, this can be done with a blunt-pointed bistoury introduced between the blades.

Since I first described the explorer, I have had occasion to use it in three cases of brain abscess. In two of these it worked most admirably. In one of them, the abscess was deeply situated in the frontal lobe, and it is a very open question whether the ordinary instruments would have opened it successfully. This patient on account of disagreement with the internist in charge, passed out of my hands to that of another surgeon, and what the final outcome will be, remains to be seen. Another patient with a large temporo-sphenoidal abscess is now, after three months, apparently perfectly well. In the third case, the abscess was a very small one originating apparently from the sphenoid cavity,

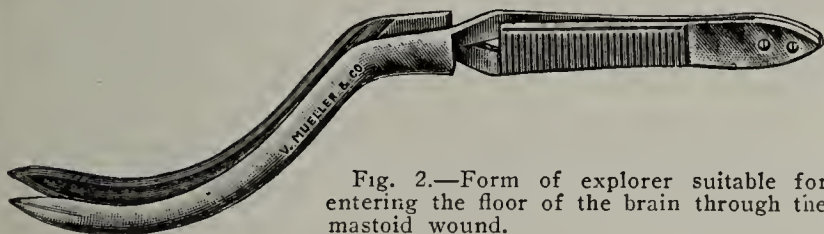


Fig. 2.—Form of explorer suitable for entering the floor of the brain through the mastoid wound.

and was situated so far back, and so close to the median line, that although a careful search was made for it, it was missed, and the patient died.

In speaking of this instrument, which I have had in mind for a number of years, I have always said that the principle of it was so obvious that the idea must certainly have occurred to many operators beside myself, and I have found since my paper was published that West and Scott of London, in their excellent book on aural surgery (Blakiston's Sons & Co., 1909, p. 106), figure an instrument which they call an expanding trocar, which is made to be used in the same way. This, however, has such narrow, short blades that it must be decidedly less effective than the explorer here shown.

Beside the angular form of explorer (Fig. 1), I have had one made with curved blades (Fig. 2) for use on the floor of the brain. This form enables one to enter the temporo-sphenoidal lobe through the mastoid wound much more readily than could be done with the straight blades.

A COMBINED STAINING METHOD FOR MALARIAL PARASITES AND BLOOD SMEARS

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In this country the most popular blood stain is Wright's modification of the Romanowski method; in England and the English colonies, Leishman's stain is used almost exclusively, while in Germany, Giemsa's is the favorite. These stains and their many modifications are all excellent for chromatin, but as ordinarily used they fail to bring out the cytoplasm of the malarial parasite with the sharpness and distinctness obtained with Manson's borax methylene blue. The latter, until the Romanowski was simplified by Leishman, Wright and others, was the best we possessed for malarial parasites; in fact, for routine work it is still used by many.

The advantages of Manson's stain may be briefly stated as follows: 1. Cheapness, permanence and simplicity of preparation. It is made by dissolving 5 gm. of borax in 100 c.c. of boiling water and adding 2 gm. of methylene blue, medicinally pure; when cool the volume is made up to 100 c.c. and the stain is ready for use. 2. The clearness and distinctness with which it brings out the cytoplasm of the malarial parasite. 3. The rapidity and simplicity of the staining technic. The smear is fixed for a few moments in equal parts of alcohol and ether, or methyl alcohol, and allowed to dry; it is then immersed in a very dilute solution of Manson's stain for from ten to thirty seconds, washed in water and dried. 4. It also shows well the basophilic degeneration of the erythrocytes.

Its disadvantages are that: 1. It fails completely to show the nuclear chromatin of protozoal parasites. 2. It fails to bring out the granulations in the leukocytes. Because of these two defects, Manson's stain has fallen into disuse in this country in spite of the fact that it stains the cytoplasm of the malarial parasite better than any other.

The disadvantages of the methyl alcohol stains of Leishman, Wright, Hastings and MacNeil are: 1. Their expense; it requires approximately 1.3 c.c. for each slide, and methyl alcohol of proper quality is costly. 2. The rapid evaporation of the stain on the slide, with resulting precipitation; this is especially troublesome during the windy season in the tropics. In Vera Cruz, for example, it was difficult to obtain clear preparations unless the slide was protected during the staining by a bell jar. 3. Great care and watchfulness are necessary to success in staining. 4. With none of these stains is the cytoplasm of the malarial parasite so clear and distinct as with Manson's stain. The stain of Giemsa belongs to this class, although it is used in aqueous solution; it is slow, expensive, practically impossible to obtain except from Gruebler in Leipzig and while it gives excellent chromatin stains, the cytoplasm is not well brought out.

The advantages of the methyl alcohol stains are: 1. The rapid and perfect fixation. 2. The clear and beautiful staining of the chromatin of the nucleus. 3. The production of Schuffner's dots in the erythrocytes in tertian malaria. 4. The beauty and distinctness of the nucleus, cytoplasm and all classes of granules in the leukocytes. 5. The distinct staining of the blood platelets.

It is evident that an ideal picture would result if the best of the methyl alcohol chromatin stains could be combined with Manson's cytoplasmic stain. After several attempts the following method was found to give the best results and it has been used for the routine of the laboratory for thousands of blood preparations:

1. Fix and stain for two minutes in Wright's or similar methyl alcohol stain. It is most convenient and economical to use about 50 c.c. of stain in a Coplin jar; the top should fit well to prevent evaporation and the stain may be used repeatedly.

2. Without washing, transfer the slide to a glass of tap water for from three to five minutes.

3. Without washing, transfer to diluted Manson's stain for from twenty to forty seconds. One-half c.c. (7 drops) of Manson's stain to 50 c.c. of tap water in a Coplin jar gives

about the proper strength. This staining fluid in concentrated form keeps well, but the diluted stain should be freshly prepared each day.

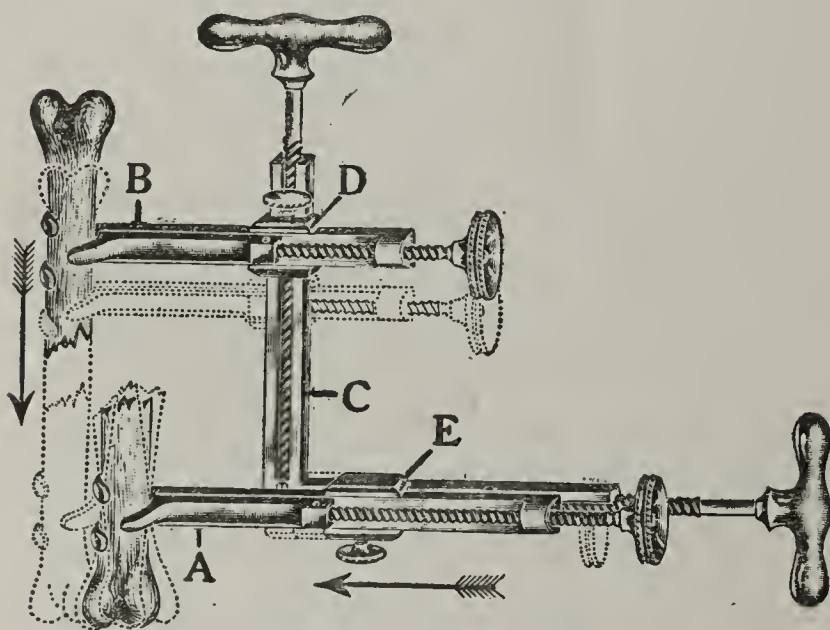
4. Wash quickly in tap water, dry and examine.

With this method, good preparations showing both the nuclear chromatin and the cytoplasm of the malarial parasite are obtained. The method is economical since very little of the methyl alcohol solution is used; and this is important in the tropics and at places far removed from the base of supplies. The slides being always in the vertical position, any precipitate which forms falls immediately to the bottom of the vessel. Soaking the slide in water during Step 2 does not affect the staining of the chromatin in the least, but does dissolve out most of the blue; this is replaced, however, in Step 3 by a better blue than any of the methyl alcohol stains are capable of giving. The whole point of the method, so far as malarial parasites are concerned, is that an intense cytoplasmic stain is added to the excellent chromatin stain obtained with Wright's, Leishman's, MacNeil's and other methyl alcohol stains, making the parasites much more distinct and more easily and quickly recognized in the routine examination of many slides for malaria.

APPARATUS FOR FRACTURED BONES

WILLIAM E. SCHROEDER, M.D., CHICAGO

The instrument consists principally of three parts—an L-shaped arm, *C*, the two branches of which carry two carriages and two bone clamps. The removable carriages, *D* and *E*, are movable in two directions, one laterally



Apparatus for holding and bringing into alignment fractured bones of the extremities, for the purpose of applying bone plates, splints of absorbable material or human bone grafts.

and the other away from or toward the operator, as may be required. Mounted on the two carriages are two strong and adjustable bone clamps which are modifications of the well-known Lowman clamp.

The illustration shows quite clearly the method employed in bringing the bone ends into apposition. The two bones are grasped by the clamps, *A* and *B*, these clamps then being attached to their respective carriages and held fast by means of heavy screws. Numerous anchoring points in the side of the clamps permit the thumb screw of holding the clamps firmly with but little exertion on the part of the operator. By means of a worm gear actuated by hand grips, each carriage with the clamp attached can be moved. Thus the bones can be brought into alignment no matter whether they override or in whatever position they may be. Immense traction can thus be had with very little effort, and once the parts are adjusted, they are held firmly together until plates, splints or grafts are applied or inserted. The instrument is made entirely of steel, and can be easily taken apart for sterilization.

25 East Washington Street.

Special Article

PRACTICAL PHARMACOLOGY*

(Continued from page 2067)

XXV

ANTIEMETICS—GASTRIC SEDATIVES

This heterogeneous group, if it can be called a group, of drugs will be discussed briefly. The physiology of emesis which has been discussed in the preceding pages suggests the nature of those agents which may be used to lessen nausea and vomiting, for it is obvious that if emesis results from irritation of the gastric mucous membrane and from stimulation of the vomiting center in the medulla, emollients, demulcents, and other protective agents will lessen the local gastric irritation, and if relief is urgently demanded depression of the central nervous system may be resorted to, though this is seldom necessary, except as a temporary measure, for example, when it becomes necessary to prevent vomiting while administering a drug by the stomach.

Unfortunately, we have no drug which depresses the vomiting center without causing an undesired depression of other nervous centers.

Occasionally vomiting results from reflexes arising elsewhere than in the stomach and other measures than those just mentioned must be employed, for it is well known that foul odors and other purely psychic influences may cause nausea and vomiting. Psychic influences may contribute to gastric disturbances, or may prolong them even when they are not alone sufficient to induce actual emesis, and attention should be paid to such influences.

Heat and humidity in the atmosphere interfere with digestion and contribute markedly to nausea and vomiting when there may be another exciting cause.

Vomiting occurring after ether anesthesia usually ceases spontaneously after the mucus which has been swallowed is expelled but emesis occurs frequently when food is taken some hours after chloroform anesthesia. Hot water—not tepid—should be sipped, or a glassful may be drunk if small amounts do not give relief. Cracked ice is sometimes more serviceable than hot water. Thirst following chloroform anesthesia may be relieved by drinking hot water, when it is taken easily, but as this causes diuresis, which may or may not be indicated, and since the taking of rather large quantities of water tends to tax the stomach unduly, rectal injections of warm water may be used to avoid gastric irritation, warm water being retained better than cold.

Infants regurgitate milk without indications of gastric disturbance, when more than sufficient is taken, but when vomiting with distress occurs, due to gastric disturbances, it may indicate the need of substituting barley water for the regular food for a day or two.

When vomiting is secondary to diphtheria it is said to indicate cardiac weakness demanding urgent relief for the heart.

Vomiting occurs in nephritis and disturbances of other organs in which the stomach is not irritated directly, and if the emesis is severe and persistent it

* This is the twenty-fifth of a series of articles on useful drugs — on practical pharmacology for the general practitioner. As soon as completed, these articles, elaborated by additional subjects, will be published in book form.

may call for sedatives for the vomiting center, in which case morphin may be injected subcutaneously.

Cyclic vomiting has been described as accompanying a variety of symptoms, and is probably not dependent on a single cause. Its treatment cannot be discussed here as the symptoms are too various and these call for separate treatment.

The vomiting of pregnancy often taxes the resources of the obstetrician, and occasionally it cannot be relieved by any means short of terminating the pregnancy. It would be profitless to enumerate all of the drugs which have been suggested for the relief of this symptom, for such a list would be little less than a catalogue of the *materia medica*. Hygienic and dietary measures appear to be the main dependence in such cases. Psychic influences play an important rôle in this condition. Cerium oxalate gained a certain degree of popularity in the relief of vomiting from this and other causes, but there is no evidence that it has any therapeutic value.

Nausea and vomiting which result from indigestion require rest for the stomach, which should be emptied by washing with a weak alkali if the vomiting does not suffice to remove mucus. A weak solution of sodium bicarbonate may serve the double purpose of dissolving the mucus and causing its removal by vomiting, when there is ineffectual retching.

When there is gastric catarrh, requiring protectives, bismuth subnitrate or subcarbonate may be used; these are preferably administered in the form of powders or mixtures and are not advantageously given in compressed tablets or even in the form of capsules. Acidity may be neutralized by lime-water, magnesia, or by a solution of sodium bicarbonate.

Depressants of the vomiting center include hydrated chloral, morphin and opium and cocain, and in fact, probably all hypnotics and general anesthetics.

EXPECTORANTS

The respiratory passages are lined with ciliated epithelium, and normally the secretions of the mucous glands are moved toward the mouth (or anterior nares) by the movement of the cilia, but when the secretions in the smaller air passages become excessive during inflammation, or when they become thick and tenacious, the cilia are incapable of effecting their removal, and coughing is induced. If the secretions become excessively viscid even coughing may be incapable of effecting their removal and it becomes necessary to liquefy them by increasing the secretion of mucus or by means of alkalies.

As previously stated, all nauseants increase the secretion of mucus, hence in practice we choose an agent which has a persistent nauseant action, with a minimum depressant effect on the central nervous system.

Antimony and potassium tartrate is absorbed very slowly from the gastro-intestinal tract, hence small doses suffice to induce prolonged nausea of slight degree, and it is commonly used in the form of a solution or the compound mixture of glycyrrhiza in the early stages of laryngitis and bronchitis when the secretion is usually scanty and the cough troublesome.

The choice of expectorants is often largely empirical; we do not know whether any of them stimulate the cilia to increased activity or not, and it has been suggested that some of them may act on the smooth muscles of the alveoli and terminal bronchioles in the lungs, increasing their peristaltic movements and forc-

ing mucus accumulations into the bronchi, as the alveoli and the terminal bronchioles are not provided with cilia.

Many salts, including sodium chlorid, ammonium chlorid, and potassium iodid, increase the secretory activity of the mucous glands, effecting the liquefaction of the mucus through the alkalies contained in the secretions, and by diluting these with the increased fluids secreted.

It seems probable that the especial usefulness of ammonium chlorid as an expectorant may depend partly on the formation of very small amounts of ammonium carbonate in the bronchial mucous membrane, which is especially effective in liquefying tenacious mucus.

A cough which is merely sufficient to remove the secretions from the air passages does not call for treatment, but when there is considerable irritation with frequent coughing while the secretion is scanty, sedatives, such as codein, are indicated. In some cases it is desirable to increase the secretion by means of a nauseant while diminishing the irritation with a sedative to the point that the cough will just suffice for the removal of the secretion.

Patients frequently demand relief from cough when free secretion contraindicates interference.¹

Excessive bronchial secretion may be lessened in various ways; atropin depresses the vagus endings in the glands; various volatile oils including the oils of turpentine, of cubebs, and of copaiba are sometimes used, but terpin hydrate has almost completely supplanted the volatile oils for this purpose. Balsam of Peru, benzoin, creosote and other irritants are used in this way.

Syrup of tolu and syrup of wild cherry are little more than vehicles, the hydrocyanic acid in the latter being present in the merest traces and without therapeutic effect.

The compound syrup of white pine of the National Formulary contains chloroform and morphin in addition to extracts of white pine, wild cherry, sanguinaria and other substances—a typical “shot-gun” mixture of nauseants, depressants of the respiratory center and stimulants of the bronchial mucous membrane.

Sore throat is best treated with gargles, sprays, or demulcents in the form of lozenges. A dilute solution of hydrogen peroxid is useful for cleansing the throat, or a hot 5 per cent. solution of potassium chlorate may be used as a gargle; to this may be added a few drops of solution of ferric chlorid. Small ulcers or areas of inflammation in the throat may be swabbed with cotton dipped in a mixture composed of one part of solution of ferric chlorid to ten parts of glycerin.

The official lozenges of ammonium chlorid are useful in treating sore throat but it is not easy to explain the effect of the ammonium chlorid in that case. Lozenges of elm bark allay slight irritation of the throat.

There are few conditions in which self-medication and its unfortunate consequences are more common than in coughs and “colds,” and there is a striking similarity between the composition of nostrums advertised to physicians in numerous medical journals and that

1. The following incident illustrates the unfortunate results of interference in such cases. A patient suffering from a cough with free secretion received a mixture containing morphin, and expressed his satisfaction at the prompt relief afforded. Later he felt greatly discouraged because (as he supposed) he had “caught fresh cold,” which he attributed to his low resistance. In fact, the morphin suppressed the cough while the secretion continued, becoming purulent, and the necessary cough returned when the effects of the morphin had passed away.

of the patent medicines, so-called, which are advertised directly to the public. It is obvious that it matters little, so far as the consequences are concerned, whether the patient doses himself with Ayer's cherry pectoral or Jayne's expectorant, or has compound syrup of cocillana or glyco-heroin (Smith) prescribed for him by a physician.

DOSAGE

The nauseant dose of several of the emetics has been given. The dose of ammonium chlorid is commonly stated as from 0.3 to 1 gm. (5 to 15 grains) but it is much more frequently used in doses of from 0.15 to 0.2 gm. (2 to 3 grains). The troches of ammonium chlorid each containing 0.1 gm. (1½ grains) with extract of glycyrrhiza, tragacanth and sugar, flavored with tolu, afford a convenient form of treatment for sore throat. It may be prescribed for cough (laryngitis or bronchitis) somewhat as follows:

	gm. or c.c.	
Ammonii chloridi	5	+ 3 i
Syrupi acidi citrici	50	+ 3 iss
Aquae	q. s. ad 100	+ 3 iii

M. Sig.: One teaspoonful every two or three hours.

Ammonium chlorid has a disagreeable taste which is disguised somewhat by the acidity of the mixture.

Ammonium carbonate is given in doses of 0.25 gm. (4 grains). Physicians sometimes overlook the acid character of syrup of squill and prescribe it with the strongly alkaline ammonium carbonate.

A nauseant and sedative may be prescribed together somewhat as follows:

	gm. or c.c.	
Codeinae sulphatis	0.5	+ gr. viii
Syrupi ipecacuanhae	30	+ 1 i
Aquae	q. s. ad 100	+ 3 iii

M. Sig.: One teaspoonful every two or three hours.

One should avoid the use of too much of the sedative in such cases, as this will lead to the total suppression of the cough. Terpin hydrate is given in doses of 0.12 gm. (2 grains) in powder, capsules or dissolved in elixir.

Many of the patent medicines, so-called, which are sold directly to the public, as well as those which are advertised directly to physicians, contain saponin derived from sanguinaria or other source, and a sedative such as heroin or morphin. No ready-made mixture is suitable for any considerable number of patients, because the doses of nauseants and sedatives should be adjusted carefully to the needs of each patient.*

ARSENIC

Toxic doses of the strongly ionizable inorganic compounds of arsenic cause gastro-enteritis with vomiting, diarrhea and abdominal pain, these symptoms being commonly delayed for half an hour or more. The first symptom frequently is a feeling of constriction in the throat with difficulty in swallowing. The evacuations are normal in appearance at first but later become watery and contain shreds of desquamated intestinal epithelium closely resembling the "rice-water" stools of Asiatic cholera. The fluid, unlike that of simple diarrhea induced by saline cathartics, consists of the serum of the blood; or it may also contain some blood, and this loss of serum results in a train of symptoms closely resembling those of actual hemorrhage. There is weakness, dizziness, headache, cold sweat and collapse. The features are pale and shrunken, the pulse

weak, the respiration deep, later depressed. The symptoms are intensified until coma and death occur. Convulsions may occur (asphyxial) or they may be absent. The urine is commonly diminished or totally suppressed, because of the increased viscosity of the blood and the lowered blood pressure. Death may result from either circulatory or respiratory failure, that is, either the heart or the respiration may fail first, but when both are affected so profoundly each reacts upon the other, so that one cannot say that either alone is the cause of death.

The gastro-intestinal symptoms have been attributed to the local irritant action of arsenic, but they are now considered as the effects following absorption, and are explained in the following way: Arsenic causes paralysis of the walls of the capillaries, and later those of the arterioles, especially of the splanchnic region, rendering them more permeable than normally, so that there is a copious effusion of serum or even of blood, into the tissues. After the administration of very large doses of arsenic to animals one may observe extravasations of blood beneath large areas of the peritoneum. The escape of serous fluid raises blisters beneath the gastro-intestinal mucous membrane, and this is soon desquamated with the escape of large amounts of serum into the stomach and intestine, causing the "rice-water" diarrhea. The diarrhea and its attendant pain and loss of water cause a great fall in the blood pressure, and this is later augmented by the direct action of the arsenic on the heart, should the patient survive long enough for this action to take place.

Such serious disturbances of the circulation are always attended with corresponding depression of the central nervous system; especially is this true when the circulatory changes are induced suddenly. One has only to recall the frequency of dizziness due to interference with the cerebral circulation when one rises suddenly from a sitting or recumbent position, to appreciate that the great loss of serum in arsenic poisoning and the resulting circulatory disturbance must cause a variety of secondary effects.

If vomiting occurs early the symptoms may be of almost any degree of severity, because much, or comparatively little, of the arsenic may be evacuated thereby, dependent partly on the amount which has passed into the duodenum, or the poisoning may take on an extremely chronic character, even from a single dose.

There should be little difficulty in diagnosing chronic arsenic poisoning following the typical symptoms of acute poisoning, or where it is known that a large dose of arsenic has been taken, but the symptoms resulting from the repeated administration of very small amounts are often obscure and require patience for their recognition.

The symptoms of acute and chronic arsenic poisoning are detailed in almost all text-books of pharmacology and materia medica, and every physician should familiarize himself with these symptoms because of the frequency with which this type of poisoning occurs.

It will suffice for our purposes at present to enumerate some of the symptoms of the chronic type, merely to show the necessity for more careful study than it commonly receives. The symptoms are sometimes divided into three stages; in the first there is lassitude, loss of appetite, and there may be nausea and vomiting. This stage might lead one to suspect the presence of typhoid fever. The intestinal symptoms

* Owing to lack of space the materia medica of this group is omitted from THE JOURNAL. It will be included when this series is issued in book form.

may be present, or they may be absent. In the second stage there may be symptoms resembling those of a "cold" owing to the irritation of the mucous membranes of the larynx and nose and of the conjunctiva. Various affections of the skin are described as occurring in this stage, including a typical discoloration or blackening.

In the third stage there are disturbances of sensation and motion in the hands and feet, and peripheral neuritis, together with numerous other manifestations which require careful consideration. The symptoms are not sharply marked off in the stages mentioned, but many of those commonly described as belonging to the second or third may appear earlier than this classification would indicate.

When vague symptoms lead one to suspect even the possibility of chronic arsenic poisoning the urine should be examined for traces of the metal. Of course one would not expect to obtain evidences of the poison by the grosser tests, but, on the other hand, the most delicate tests enable one to detect the faintest traces of arsenic in the urine. Such traces have comparatively little significance unless this evidence is supported by others of great weight, because traces of arsenic may be derived from foods containing it, either as a natural or as an added ingredient.

Chronic arsenic poisoning is attended with degenerative changes in the walls of the capillaries and later in the intestinal epithelium, and in various organs, including the heart, liver and kidneys.

Icterus results from the changes in the liver, and effusions occur in various tissues, that into the eyelids being usually early and fairly characteristic. The damage to the heart may fail to attract attention in the presence of other symptoms, such as nephritis, to which the attention may be mainly directed if the true cause of the trouble is not suspected.

The toxicology of arsenic is interesting from various standpoints. It played an important rôle in the crimes of professional poisoners in earlier times, and it is still employed occasionally for purposes of murder and suicide. It lends itself, unfortunately, to the poisoning of one member of a household by another when small doses can be administered frequently, because, owing to its tastelessness and lack of odor, it does not arouse suspicion and is all too easily obtained in the form of rat poison. All arsenic preparations which might be used in this way should be colored distinctively by the addition of lamp-black or indigo which cannot be mixed with most foods without attracting attention.

Fortunately, the metal can be detected in the vomitus, urine and feces, and in the cadaver long after death, so that it is probable that few adults die of acute arsenic poisoning without the fact becoming known.

The treatment of acute arsenic poisoning requires further investigation. It was accepted for many years as an established fact that as soon as possible after a poisonous dose of arsenic had been swallowed the patient should receive a large dose of moist ferric hydroxid, or preferably, the hydroxid with magnesia, which can be prepared more conveniently and quickly, when the materials are at hand.

Serious doubt has been thrown on the value of this procedure during the past few years, and the stomach should be washed out as promptly as possible whether the iron antidote be employed or not. Active catharsis should be induced with magnesium sulphate solution in order to remove any of the poison that has passed

into the duodenum. Since prompt purgation is necessary in such cases, a large dose of the dilute solution of magnesium sulphate should be administered—preferably a pint of solution containing about an ounce of the salt. Naturally, purgatives are contraindicated after the intestinal symptoms have developed.

The elimination of arsenic depends somewhat on the way in which it is administered. When a toxic dose has been taken by the mouth the larger part may be evacuated with the vomitus, or with the washings of the stomach, and a large part of the remainder may be evacuated in the feces, especially if prompt purgation is induced. After absorption into the circulation arsenic may be found in almost all the body tissues. Elimination goes on very slowly indeed, so that months may elapse before it ceases to appear in the secretions, and some of it appears to be retained almost indefinitely.

A larger portion of the poison is said to be eliminated by the intestine after its oral administration, and a smaller part of the urine, but after the subcutaneous injection the kidneys eliminate more than the gastrointestinal tract. Diuretics should be administered after the subcutaneous injection of a poisonous dose if the patient is seen early, but caffeine and theobromin will have little or no effect after the appearance of the "rice-water" stools because of circulatory disturbances previously mentioned; hence it would seem probable that the intravenous injection of a 2 per cent. solution of sodium sulphate, as mentioned in connection with strychnin poisoning, might be of benefit, but we are unaware of any experiments bearing on the subject.

The extraordinarily slow elimination of arsenic and its consequent tendency to accumulate in the body and to produce chronic poisoning are of especial interest in connection with the uses of arsenic in fabrics, and food preservatives.

A manufacturer of a food product used anilin to color it, the finished food as eaten containing about one part of arsenic in 20,000 million parts of food. He was probably unaware of the presence of arsenic in the anilin, and it would require about 1,000 tons of the food to furnish an amount of arsenic equal to a toxic dose for a man; nevertheless it was maintained that the practice was unlawful, though it could hardly be held that enough arsenic could be taken in that way to produce any perceptible effect in a life time, especially, as arsenic is frequently taken over long periods for its medicinal effect. Quite a different case was that of a manufacturer whose candy was found to contain six parts of arsenic per million. One pound of the candy contained as much as an average dose of arsenic for an adult, and its continued use in large amounts might very well cause symptoms.

In seeming contradiction to the preceding statement is the well-known fact that the administration of small and increasing doses of arsenic by the mouth leads to a higher degree of tolerance, apparently through an acquired resistance to absorption from the gastrointestinal tract, for such tolerant animals are not more resistant than others to arsenic administered subcutaneously. Remarkable stories of tolerance are commonly told of the arsenic eaters of the Tyrol.

As little as 0.1 gm. ($1\frac{1}{2}$ grains) of arsenic has proved fatal, but very much larger oral doses have been survived, and if vomiting occurs within less than half an hour after a fairly large dose has been swallowed the chances of recovery are fairly good, but of

course one cannot depend on this alone, and other treatment should be instituted, as previously stated. There is an unfortunately widespread belief among the laity that larger doses of arsenic may be safer than smaller, but toxic ones. This is doubtless based on the fact that large doses do occasionally induce emesis in time to save life, while smaller doses may prove fatal.

In view of what has been said of the widespread use of arsenic in the arts, in medicine and in foods, with the consequent frequency with which at least small amounts may be taken without the knowledge of the patient, and the extreme slowness with which elimination takes place, it is obvious that the detection of traces of arsenic in the excreta or in a cadaver does not prove that observed symptoms or death resulted from arsenic in a given case, and one will understand the necessity of a careful study of the actions of arsenic before expressing opinions that may be of far-reaching importance.

The administration of small amounts of arsenic to young animals may cause them to grow more rapidly than other members of the same litter that receive the same food without the arsenic. Several observers found that the bones of the animals that received arsenic were longer and thicker than those of the controls; that their fur was glossier and other evidences of rapid development were also observed, but these effects are not always obtained and other investigators came to different conclusions with regard to the effects of arsenic on metabolism. Poisonous doses cause fatty degeneration in various organs, and other disturbances of metabolism.

Various explanations have been offered to account for the more rapid growth observed as the result of the use of arsenic, but it seems possible that the actions on the capillaries and the effects on the general circulation together with the stimulation of production of red blood corpuscles or of hemoglobin are concerned in the effects on metabolism.

It also seems possible that arsenic may serve to correct some adverse conditions entailed in those feeding experiments in which the greater growth was observed, for it does not seem probable that arsenic would influence growth favorably if the animals were kept under the best conditions of living and exercising in the open air. At least, no one would think of advising the routine administration of arsenic to healthy little children living under hygienic conditions.

Certain of the organic compounds of arsenic which ionize but little are much less active than the inorganic compounds that have been discussed. Cacodylic acid, which differs from arsenic acid by having two methyl groups in place of two hydroxyls of the latter, has long been known, the sodium salt having been introduced about fifty years ago. Sodium arsanilate was introduced into therapeutics in 1902 under the name of atoxyl under the mistaken impression that it was non-toxic. It exerts the arsenic action, though less violently than arsenic trioxid in equal weights, and in addition it is prone to cause blindness through atrophy of the optic nerve. When atoxyl was submitted to the Council on Pharmacy and Chemistry its composition was investigated, and it was shown that the arsenic is not present in the trivalent state as had been supposed, but in the pentavalent.

Following the introduction of organic compounds of arsenic, Ehrlich investigated a large number with the

object of finding one capable of exerting the well-known trypanocidal action of the metal without the toxic action on the host, or at least of finding a compound in which the relative toxicity for the parasite and the host would permit of the administration of a single dose that would at once destroy all the micro-organisms in the blood.

As a result of this search Ehrlich and his co-workers brought out salvarsan, or arseno-benzol, more correctly called arsen-phenol-amine hydrochlorid. It has also been named "606" in reference to the laboratory number given the compound.

From the results of the early studies it was announced that a single dose of salvarsan was capable of destroying all of the micro-organisms of syphilis in the human body in suitable cases. It was also highly extolled in the treatment of various other diseases, including relapsing fever, and at the same time it was said to be relatively harmless to man in the dosage advised.

The literature relating to salvarsan is already enormous, and while it is not feasible to review this even partially, it may be said that a single dose apparently effects a complete cure only when it is given shortly after infection, if at all, and that it is far from being harmless, numerous deaths being undoubtedly attributable to its use even with the most careful technic.

Unfortunately, the spirochetes of syphilis may become more resistant than normal to arsenic after repeated doses, and it is usually necessary to combine the use of arsenic with that of mercury.

Neosalvarsan is a soluble compound of salvarsan thought by some to be tolerated better than the original product.

THERAPEUTIC USES

Arsenic trioxid is applied to ulcerated surfaces as an irritant, but its use is attended with severe pain. It has long been used in domestic practice and occasionally by physicians as a caustic for the removal of malignant growths, in the form of pastes. The action cannot be controlled accurately, it is very painful and there is some danger of the absorption of a poisonous dose when it is applied in this way. Its use is not recommended. It has long been employed and is still used as an application to ulcerated surfaces and by dentists for destroying the nerves in carious teeth.

It is used internally in a variety of disorders in which its mode of action cannot be explained satisfactorily. For example, it is used in neuralgia of a periodic character, and in chorea, in which it is of doubtful value. It is used in anemia, in which it probably stimulates the organs involved (bone marrow) to a more rapid regeneration of the red blood corpuscles or the hemoglobin. It is also used in pernicious anemia, in leukemia and in Hodgkin's disease (malignant lymphoma, or hypertrophic disease of the lymphatic glands of the body, attended with anemia). In these diseases its temporary effects are often markedly beneficial, but relapses almost invariably occur.

It is often used to improve the nutrition when the disturbance results from obscure causes, but, of course, it is not suited for use in all of those cases.

It has been recommended for use in diabetes, but like other drugs, it usually fails in that condition.

Arsenic is said to be useful in various skin diseases, such as psoriasis, lichen planus, chronic eczema, pemphigus, dermatitis herpetiformis, chronic urticaria and disturbances involving the sweat glands. It must

be remembered, however, that the treatment of skin diseases by the general practitioner involves many difficulties because of the obscurity of the etiology in these conditions, hence they should be treated by dermatologists when they present unusual difficulties or conditions with which the practitioner is unfamiliar.

Attention has been called to the fact that the fur of animals used in experiments with arsenic was glossier than that of the controls, and horse dealers have long utilized this action of arsenic in improving the coats of horses. These results suggest the use of arsenic in man when there is faulty nutrition of the skin.

Acute inflammation of the skin contraindicates the use of arsenic.

The organic compounds of arsenic have a distinct field of usefulness in various diseases of protozoal origin, including sleeping sickness (trypanosomiasis), malaria, relapsing fever and syphilis, but the side actions, especially that on the optic nerve (with atoxyl), have greatly interfered with its use.

Arsenic has long been used in malaria, especially in the chronic forms which have resisted quinin, arsenic and quinin being commonly used together in those cases.

The cacodylate attained to some degree of importance many years ago when it was found that it exerts the actions of arsenic over a longer period than the inorganic forms and that it is less toxic.

Sodium arsanilate was used extensively for a time in the treatment of sleeping sickness but numerous cases of blindness resulted, and it has fallen into disuse for that purpose.

Salvarsan is widely used in the treatment of syphilis; it is given alone soon after infection or in combination with mercury in the later stages. It is also employed in the treatment of relapsing fever and in many other conditions, sometimes with good results, sometimes with harmful effects.

The results reported soon after the introduction of salvarsan raised hopes which subsequent experience proved were far too optimistic, but when the early literature has been discounted sufficiently we still have in it a valuable remedy.

Headache, nausea and malaise commonly follow the intravenous injection of salvarsan, the symptoms lasting for from twelve to twenty-four hours. Aside from these after-effects certain nervous effects have been observed. These symptoms — termed nervous relapse — are believed to be due to an increased activity of the spirochetes and they call for another dose of salvarsan or treatment with mercury.

Arsenic is sometimes used in the most diverse conditions including asthma, tuberculosis, bronchitis, leukemia, splenic anemia, and in numerous other diseases, and one is led to suspect that when improvement follows its use in those conditions it is merely a coincidence or that this improvement is attributable to the effects of arsenic on metabolism in general rather than to any direct effect on the diseased organs or the causes of the disease.

All forms of arsenic should be used cautiously or not at all in the presence of disease of the eye, especially of the retina, even if it be of syphilitic origin, because of its tendency to induce optic neuritis and blindness, but salvarsan is said to cause optic neuritis in few instances. Arsenic is contraindicated in severe cardiac and renal disease, and salvarsan cautiously used in syphilitic infants because of the danger from lib-

erated endotoxins when the spirochetes are destroyed.

DOSAGE

For ordinary affections of metabolism or for a tonic influence arsenic trioxid is given in doses of from 0.001 to 0.002 gm. ($\frac{1}{60}$ to $\frac{1}{30}$ grain). In diseases of the blood the dosage should be regulated according to the effect, but it is well to use as large doses as the patient will tolerate.

The various forms of inorganic arsenic are frequently administered in increasing doses until symptoms of mild intoxication appear. One may begin with 0.003 gm. ($\frac{1}{20}$ grain) of arsenic trioxid, three times a day, and increase by 0.001 gm. ($\frac{1}{60}$ grain) three times a day.

Solution of potassium arsenite and solution of arsenous acid may be given in doses of 0.2 c.c. (3 minims) three times a day, and increased by 0.05 c.c. (1 minim) three times a day. A slight toxic effect is indicated by nausea, colicky pains or a puffiness under the eyes. The presence of albumin in the urine may also be observed. Such symptoms may make it advisable to discontinue the administration of the drug for a time.

Solution of arsenous and mercuric iodids is usually administered in doses of 0.1 c.c. ($1\frac{1}{2}$ minims).

Sodium arsenate is given in doses of 0.003 to 0.005 gm. ($\frac{1}{20}$ to $\frac{1}{10}$ grain) three times a day and increased as with other preparations of arsenic.

Of the organic combinations of arsenic, sodium arsanilate, (atoxyl, soamin), is given in doses of 0.02 gm. ($\frac{1}{3}$ grain) gradually increased, and sodium cacodylate may be given in doses of 0.03 gm. ($\frac{1}{2}$ grain). The former of these two products is used only by injection; the latter is frequently administered hypodermically though it may also be administered by mouth.

The dose of salvarsan is 0.5 gm. ($7\frac{1}{2}$ grains). Since it is not suited for oral administration it must be given intravenously, subcutaneously or intramuscularly, but intramuscular injections have been followed in several instances by the toxic effects of arsenic; furthermore, the intramuscular injection is painful and is usually followed by a painful inflammatory nodule which persists for some time. It is seldom employed by those who have mastered the technic of the intravenous injection and no one should undertake to administer salvarsan intravenously without having mastered the somewhat difficult technic.

Salvarsan, being acid, is neutralized and suspended in a neutral fluid for subcutaneous or intramuscular injection. A clear solution in sterile alkaline fluid is used for intravenous injection.

The powder decomposes rapidly on exposure to the air, and suspensions and fluids intended for injection should be used at once. If any part of the contents of a tube remains unused when a dose is administered it should under no circumstances be mixed with a subsequent dose but should be thrown away. Even those tubes that are cracked before being used, permitting the action of the air, should be rejected. The water used for making intravenous injections should be distilled shortly before being used. Various forms of apparatus are advised by different authorities, but most of the apparatus employed for the injection can be had in any first class pharmacy or instrument maker's shop.*

(To be continued)

* Owing to lack of space the materia medica of this group is omitted from THE JOURNAL. It will be included when this series is issued in book form.

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SATURDAY, JUNE 26, 1915

On account of the large amount of space occupied by the Index in this issue of THE JOURNAL, certain departments have been omitted entirely and others abbreviated. The distance from THE JOURNAL office of the place of the annual session, together with the fact that this is the last number of the current volume, makes it desirable to omit the publication in this issue of any of the minutes. An effort will be made, however, to present in the next issue — July 3 — a complete report of the proceedings of the session.

THE INDEX

This issue of THE JOURNAL contains the index to the current, or sixty-fourth volume of THE JOURNAL, including the current medical literature which has been listed from week to week. Original articles in the leading medical journals of the United States and the principal foreign countries are included under the latter head.

In the author index appear the names of all who have contributed articles to THE JOURNAL or to any other journal listed in the current literature department, and the names of those whose papers are abstracted in the medical society reports in THE JOURNAL. In the subject index are complete references to all reading matter in THE JOURNAL, and references to original articles in all the domestic and foreign journals listed. To facilitate the use of the Index, not only are titles arranged under the subject of the article with double entry when necessary, but also there are numerous cross-references. The figures in boldface type refer to reading matter in THE JOURNAL.

The Index appears in pamphlet form¹ under the title "Guide to Current Medical Literature." This pamphlet contains, in addition to the author and subject indexes published in this issue of THE JOURNAL, the titles of the articles listed, arranged chronologically and by journals, as in the Current Medical Literature department. It is issued in separate form for convenience —

1. The Guide to Current Medical Literature may be obtained from the Association office at 50 cents a copy.

to make it unnecessary to handle the bound volume of THE JOURNAL.

Just preceding the Index is a list of the journals indexed during the past six months. Any foreign journal, except those preceded by a star, will be lent by THE JOURNAL to subscribers and Fellows of the American Medical Association in the United States, with the understanding that such journal will not be retained by the borrower over three days. Requests for journals should be addressed to the Library of the American Medical Association, and six cents in stamps should be enclosed to cover the average expense of mailing. No domestic journal will be lent, as these can be obtained direct from the publishers as easily and as quickly as from THE JOURNAL. The addresses of the domestic journals are given.

It will be noted that in the Index in this number of THE JOURNAL there is a marked increase in the number of headings devoted to war subjects. The words "soldiers," "war," "army," "wounded," "wounds," "typhus," "tetanus," etc., are followed by numerous references occupying from three to ten times the amount of space devoted to them in previous indexes.

FOURTH OF JULY ANTICIPATIONS

The conflagration in Europe modifies all American events, and it will be of interest to observe its effect on our annual mimic warfare of July 4. Will the general depression of spirits and resources reduce the amount of explosive exuberance, or will the increased familiarity with gunpowder and bloodshed increase our notorious contempt of human life and suffering? THE JOURNAL has collected statistics on the injuries of the Fourth for twelve years, and the curve is now well enough established to indicate very clearly the annual extent of the old-fashioned celebration. Last year, for some unexplained reason, there was a slight increase in the total number of accidents and deaths, there being 1,506 accidents and forty deaths in 1914 as against 1,163 accidents and thirty-two deaths in 1913. Of the accidents last year, Pennsylvania with 487 and New York with 250 accounted for nearly half the total Independence Day devastation of the country, and it is in these two states especially that improvement must be made. Since THE JOURNAL first began to compile these statistics, Pennsylvania has always led in the number of accidents, usually by a wide margin. It has been suggested, perhaps facetiously, that this is the outcome of the possession of the Liberty Bell and the traditions of the Cradle of Liberty; if so, there is naturally a doubt whether the possession is worth the price. It has been certainly demonstrated that a community which wishes to free itself from this sort of destruction of person and property can do so. Not a few large cities have found it possible to pass through the Fourth without a single accident. It fol-

lows, then, that the number of Fourth of July accidents is the measure of the effort made by a community to rid itself of this long-suffered nuisance.

This year one factor may make for an increased number of accidents — the occurrence of the Fourth on Sunday, which results in two days of celebration in many communities. We must, therefore, be prepared to do our part in reducing the number of fatalities from these accidents. The reduction in the total number of deaths from tetanus to three in 1914, as compared with 150 cases in 1909 and 417 in 1903, is far out of proportion to the reduction in the number of accidents from which tetanus might have resulted. This indicates that the medical profession has learned how to prevent this most frightful sequel of injuries, and is fully alert to the dangers that reside in Fourth of July wounds. The European war has demonstrated on a hideously large scale the frequency of tetanus in unclean wounds and the great value of tetanus antitoxin in prevention, especially when its use supplements adequate surgical cleansing of the wounds. The importance of this point need not be dilated on, as was necessary twelve years ago, when neither the danger of tetanus nor the efficacy of antitoxin as a prophylactic was generally recognized. The same may be said of the intraspinal injection of tetanus antitoxin in developed cases of tetanus. This is now a recognized procedure which unquestionably gives results far superior to those obtained by any other method of treatment. At the recent meeting of the Association of American Physicians in Washington, Nicoll reported that of twenty patients treated in the New York City Department of Health by intraspinal injection of antitoxin, there had been but four deaths.¹ Improved results have also been reported from the military hospitals of Europe from the intraspinal administration of tetanus antitoxin.

It may be well also to repeat the instructions outlined a year ago,² for the prophylaxis of tetanus in Fourth of July injuries:

1. Carefully and thoroughly remove every particle of foreign matter from the wound, laying it open; an anesthetic should be given if necessary.
2. Dry the wound thoroughly, and paint it and the surrounding parts as carefully as possible with iodine, or else cauterize it thoroughly with a 25 per cent. solution of phenol (carbolic acid) in glycerin or alcohol.
3. Apply a loose wet pack, using a solution of some such antiseptic substance as boric acid or alcohol.
4. As soon as possible inject intravenously or subcutaneously 1,500 units of antitetanic serum and continue the injections if indications of possible tetanus arise.
5. In no case close the wound. Allow it to heal by granulation. Remove the dressings and packing each day and apply fresh ones.

1. Nicoll, Matthias: Intraspinal Administration of Antitoxin in Tetanus, *THE JOURNAL A. M. A.*, June 12, 1915, p. 1982.

2. The Prophylaxis of Tetanus, Current Comment, *THE JOURNAL A. M. A.*, June 20, 1914, p. 1971.

VACCINE THERAPY IN TYPHOID FEVER

It is difficult to arrive at a just estimate of the value of vaccines in the treatment of typhoid fever, because the evidence for and against their use is derived from two widely different sources. From a theoretical standpoint, such a procedure has little justification. It is well known that there is an extensive invasion of the blood by the infecting organism early in the course of the disease, and it seems reasonable to assume that these invading organisms furnish sufficient antigenic stimulus to cause the maximum antibody formation. On the other hand, if this antibody formation is delayed early in the course of the infection, vaccines may be of value in stimulating such a response. In the field of clinical medicine, many observers have reported striking results from the use of vaccines, and it is the common opinion of these clinicians that they are efficacious in the treatment of typhoid fever.

The clinical data in the literature pertaining to this phase of the treatment of typhoid fever have recently been reviewed by Krumbhaar and Richardson¹ of Philadelphia. This analysis includes more than 1,800 cases, and in 95 per cent. of these, favorable results were observed. Thirty-five of the thirty-nine observers concluded that the vaccine was useful as a therapeutic measure. In almost all instances, the course of the infection was favorably influenced, and in many series the mortality was reduced. In a series treated by Petrowitch, the mortality was 3.2 per cent., as compared with 8 per cent. in 220 unvaccinated patients. Krumbhaar and Richardson used vaccines in the treatment of ninety-three typhoid patients in the Pennsylvania Hospital during the past three years. Their results were so promising that they consider the use of vaccines an important procedure in the routine treatment of the disease. The symptoms were rarely altered beyond a transitory rise in temperature; but relapses and complications were diminished in frequency, and when vaccine treatment was instituted early in the course, there seemed to be a favorable influence exerted on the intensity of the infection. Since agglutination is often absent during the first two weeks of the attack, these investigators assume that antibody formation is often delayed, and that by the use of vaccines an early activity of this process can be brought about. The experiments of Gay and Claypole also suggest that there may be a hyperleukocytosis following the injection of a vaccine during the course of typhoid fever. Should these experiments receive confirmation, a good theoretical basis would be afforded for vaccine therapy in typhoid.

The type and dosage of the vaccine have had no apparent influence on the results obtained. Sensitized vaccines have been strongly advocated by Besredka,

1. Krumbhaar, E. B., and Richardson, R.: *Am. Jour. Med. Sc.*, 1915, cxlix, 406.

Metchnikoff, Garbat and others, and on theoretical grounds such vaccines would be favored; but the majority of investigators have had good results with suspensions of dead bacteria prepared according to Wright's method. Although autogenous vaccines generally have been preferred, stock vaccines prepared from organisms selected for their high agglutinogenic power have been efficacious in the hands of many. Reports, however, have been so uniformly favorable with all preparations, that it seems as if the type used is of secondary importance. The dosage has also varied widely with different investigators. Semple, Waters, Petrowitch and others used small doses, while Foster, McArthur, Fletcher and Meakins obtained equally good results with large doses. Krumbhaar and Richardson gave 500 million as an initial dose and two or three larger doses at short intervals. They conclude that their results were more favorable in the cases in which large doses were given. The dosage, however, must be gaged by the general condition of the patient. When the patient is very toxic, only small amounts of vaccine can be used with any degree of safety. Previous mention has been made of the remarkable results obtained by Ichikawa from the intravenous injection of sensitized vaccines.² Using this method of inoculation, he was able to produce a rapid drop in the temperature to normal and often an early recovery. In his cases, mild intestinal hemorrhages occurred in a few instances following the injections; but these hemorrhages were no more numerous than in the unvaccinated patients. Subsequent investigators³ also report favorable results from the intravenous method of administration of the vaccine, but they strongly emphasize the danger of a severe general reaction in some instances. Signs of collapse, severe diarrhea and intestinal hemorrhages are complications which have occurred simultaneously with the rapid fall in temperature, and in a few instances there was an unfavorable termination. The ultimate value of this method of administration of vaccines, therefore, is a question which further observations must determine.

Including the recent encouraging reports of Goldscheider and Aust,⁴ Rhein⁵ and others, the clinical evidence now at hand is derived from careful observations on about 3,000 cases of typhoid fever treated with vaccines. In almost all instances, it seems that some degree of favorable influence could be noticed from their use. The observations of Elmer⁶ indicate that vaccines will not prevent the attack, once infec-

tion has begun; but it seems probable that their use early in the course of the disease modifies the duration and intensity of the attack. Furthermore, in complications, especially localized typhoid infections such as periostitis and cholecystitis, and in the treatment of typhoid carriers, vaccines are of limited value. In local infections in which there is a secondary invading organism, as in pneumonia and otitis media, typhoid vaccines are probably contraindicated.

Careful bacteriologic and serologic study is an essential prerequisite to vaccine therapy, which requires an exact etiologic and early diagnosis. Before the question of the efficacy of this form of treatment can be settled fully, the mechanism of the action of vaccines in generalized infections needs to be better understood; obviously, this is a problem in the field of experimental medicine. In the meantime, the results at hand, which indicate that, used with discretion, vaccines not only do no harm, but also may be of benefit, should stimulate to further and careful observations.

THE URINARY PROTEIN OF NEPHRITIS

It is conceivable theoretically that the protein present in albuminous urine is derived from the kidney or from the blood through damage to the capillary wall, or is a specific protein distinct from that derived from either the renal tissue or the blood. According to Fischer's widely discussed views, the urinary protein is derived, in part at least, from the renal cells, from which it has been dissolved under the influence of acids.¹ In connection with a current belief that the urinary protein found in nephritis represents serum protein rather than tissue protein, we referred some time ago² to the experiments of Salus,³ who attempted to solve the question by the use of modern serologic or biologic immunity reactions. The technic in this field has become so refined that different proteins from the same animal may possibly be distinguished, and it therefore seemed likely that the controverted questions of the origin of the proteins of nephritic urine could be reached in the same way. Salus prepared a so-called organ plasma, a solution of tissue proteins obtained after completely removing the blood from various organs by Pohl's method. He found that such an antigen is entirely distinct from the antigens of the blood. More specifically, Salus took up the question of the origin of the protein in nephritic urine, and summarizes his results as follows:⁴ Antiserum for human kidney contained neither precipitins nor complement-binding antibodies for either human serum or nephritic urine; hence the latter does not contain

2. Present Status of the Vaccine Treatment of Typhoid Fever, Current Comment, THE JOURNAL A. M. A., Feb. 6, 1915, p. 518.

3. Biedl: Wien. klin. Wchnschr., 1915, xxviii, 125. Paltauf: Wien. klin. Wchnschr., 1915, xxviii, 125. Sladek and St. Kotlowski: Wien. klin. Wchnschr., 1915, xxviii, 389. Reibmayr: München. med. Wchnschr., 1915, lxii, 610.

4. Goldscheider and Aust: Deutsch. med. Wchnschr., 1915, xli, 361.

5. Rhein, M.: München. med. Wchnschr., 1915, lxii, 427.

6. Elmer, W. P.: Study of a Recent Typhoid Epidemic, with Especial Reference to the Use of Antityphoid Vaccines, THE JOURNAL A. M. A., April 3, 1915, p. 1147.

1. Fischer, M. H.: Oedema and Nephritis, John Wiley & Sons, New York, 1914.

2. A Controverted Theory of Nephritis, Current Comment, THE JOURNAL A. M. A., June 20, 1914, p. 1971.

3. Salus, G.: Biologische Versuche mit Organplasma, Biochem. Ztschr., 1914, lx, 1.

4. We quote from a review by Cameron, A. L., and Wells, H. G.: The Origin of the Proteins of Nephritic Urine, Arch. Int. Med., May, 1915, p. 750.

the antigens characteristic of kidney tissue. Guinea-pigs sensitized with nephritic urine or blood serum did not give anaphylaxis reactions with kidney plasma, and animals sensitized with this plasma were reactive to serum or urine only when the plasma gave distinct reactions for blood. He therefore concludes that the protein of nephritic urine must be serum protein, and not renal tissue protein.

As these biologic reactions seem to offer the greatest promise of success in determining the identity of individual proteins, *THE JOURNAL* stated editorially that they place the burden of proof on those who maintain that the urinary protein of nephritis is merely the dissolved contribution of kidney cells subjected to an abnormal environment, rather than escaped blood components.

In criticism of these comments, Fischer⁵ remarks that Salus concluded correctly from his experiments that the protein in the urines examined by him contained blood proteins. Fischer adds that no one has ever disputed this fact, for hemorrhage through gross rupture of the blood vessels and by diapedesis is common in all types of nephritis. With reference to the failure to obtain reactions indicative of dissolved kidney protein in the urine, Fischer remarks:

In the face of the fact that it is difficult to prepare a specific antiserum even when kidney substance is used directly, such findings are hardly conclusive. The colloid chemists, moreover, know how alterable in consequence of mere laboratory handling are the reactions of proteins, and so some argument will be necessary to make those of solid organs and of organ extracts synonymous in their minds. Salus himself recognizes these difficulties.

A much more trenchant critique, pointing out the meager and variable character of Salus' fundamental experiments, has been published recently by Cameron and Wells.⁶ They are quite unwilling to admit the conclusions of Salus on the basis of what they regard as inadequate proof. In a new attempt to secure further evidence on the disputed points relating to the origin of the urinary protein, these Chicago investigators note that part of the contradiction presumably depends on the difficulties inherent in the available methods for distinguishing, even by the biologic reactions, between different proteins coming from the same animal. A series of experiments by the anaphylaxis method gave no evidence of the existence of antigens in either urine or kidney distinct from each other or from the antigens of human serum. This result, as Cameron and Wells remind us, does not answer the question of the origin of urinary protein, but merely indicates the inadequacy of the anaphylaxis method for the solution of the problem. In fairness, therefore, the questions involved therein must frankly be regarded as still open for review.

DISEASE RESISTANCE IN PLANTS

In matters of health and disease, all living things have intimate relations. The factors that increase resistance to disease in plants can scarcely fail to interest physicians. Probably at least suggestive if not directly valuable hints for the prevention or inhibition of the contagious infections in human beings can be derived from a knowledge of the natural processes by which plant resistive vitality is encouraged. There is, too, a definite assurance that certain serious human diseases—tetanus and the gas-producing bacillary infections—are caused by micro-organisms fostered by plant life, and more than a suspicion that further study may reveal other similar relations.

Dr. Otto Appel¹ has considered the analogies between plant and human diseases, and the problem of resistance. The question of alternation of hosts for certain diseases is a plant as well as a human pathologic feature. The tapeworms and echinococci require an intermediate animal host, and prevention is much easier when the relations between the hosts of the two stages can be regulated. When rust appears in a pear orchard, the danger may be removed by eliminating all juniper trees from the neighborhood, the juniper being the host for the alternate stage of the fungus. The same measure must be adopted to assure prevention in the case of red rust of wheat in countries in which the fungus does not reinfect the wheat directly, but grows in the spring on the barberry. This serious scourge has practically disappeared from Germany since the removal of all barberry and mahonia bushes from districts in which wheat is grown.

Dr. Appel declares, in words familiar to physicians of human maladies, that it is more difficult to cure a plant already diseased than to prevent the disease. Only in rare cases is the method of "cure" known. Plants are not organized like animals, and in most cases it is impossible to influence a central system. Even with that possibility, physicians find "cures" difficult enough. Some of the adjuvants in the treatment of disease in plants are suggestive of phases of our medical problems. The cure of fungous diseases of different trees by giving the roots an abundant water supply is an example of treatment based on the principle that "many fungi are unable to grow in tissues which show a high water pressure. In dry soils the water content is kept on a low basis, and this favors the attacks of the fungus." Observant physicians have found this principle, so useful in limiting plant disease, of great value in the treatment of affections due to the growth of low plant life in the human intestines. A dry diet often seems to favor putrefactive processes, while the free taking of fluids not only affects constipation favorably in a mechanical way, but also lessens the growth of disturbing micro-organisms in the intestines.

5. Fischer, M. H.: *Oedema and Nephritis*, 1914, p. 446.

6. Cameron, A. L., and Wells, H. G.: *The Origin of the Proteins of Nephritic Urine*, *Arch. Int. Med.*, May, 1915, p. 746.

1. Appel, Otto: *Disease Resistance in Plants*, *Science*, May 28, 1915.

More important still is the securing of varieties of disease-resistant plants. The method has long been understood, but the application of the principle is only now being successfully applied. The plant specialists, however, are much farther advanced in the solution of their problems than are the eugenic specialists. Of the different species of wheats, the difference in resistance to various serious affections is very marked. As a rule the Western European varieties are resistant, while many of the Eastern varieties are liable to rust. In both regions, however, there are marked exceptions, and the plant found in Palestine some years ago, which has sometimes been regarded as the ancestor of our common cultivated wheat is, curiously enough, a non-resistant species, showing by its survival that individual vitality may surmount dangers that would seem inevitably to doom a plant variety. The subjection to certain diseases of the plants of a region hitherto spared the special contagion is sometimes followed by serious devastation among crops. The corresponding incident in human beings was well illustrated by the ravages of smallpox, of tuberculosis and even of measles among the American Indians when these diseases were first introduced on this continent by the Europeans. Nature has gradually selected the disease-resisting varieties among human beings, so that a certain immunity has developed among peoples long subjected to the contagion of particular diseases.

From a chemical standpoint, the facts concerning plants are suggestive to the student of human disease and immunity. Dr. Appel says:

A glance at sugars and acids shows that these substances also exert an influence in disease resistance. The presence of benzoic acid in *Vaccinium vitis idaea* is supposed to be the cause of its resistance to fungous diseases. In the same way the tannins have a relation to resistance. This was shown by Behrens in his work on fruit decay, and confirmed by Cook and Taubenhaus. On the other hand, sugar favors the growth of fungi, as is shown clearly in the case of apples and pears. Henneberg even claims immunity for some varieties of potato from certain diseases on account of their high sugar content, but this has not been established beyond doubt.

Finally, the enzymes exert a definite influence on immunity, the oxydases taking the lead. These ferments work directly or indirectly by producing resistant chemical substances.

Everywhere in nature, similar forces are at work, and the same problems must be solved. The outlook for a solution of the involved questions of disease resistance and immunity is more promising when it is seen that many scientific investigators are working from different sides. The most important development of modern biology came when the great principle of the existence of cells was transferred from botany to zoology by Theodor Schwann at the beginning of the nineteenth century. When Virchow took the further step of applying the cell doctrine to pathology, he made perhaps the greatest advance in modern medicine. He used to declare in later life that when these two far-

reaching developments were made by himself and Schwann, the rising generation of scientific investigators in Germany were quite as much interested in botanic problems as in microscopic anatomy. It was this breadth of interest, he declared, that gave them the larger outlook which enabled them to look beyond the bounds of what had been hitherto known to newer phases of knowledge.

SOME FACTS ABOUT INSENSIBLE PERSPIRATION

However varied and important the physiologic activities of the skin may be, they usually receive scant consideration in treatises on the functions of the body or in so-called systems of medicine. This is unfortunate for many reasons, and particularly because it tends to inculcate a sort of disregard for certain properties and performances which are peculiar to the cutaneous surfaces and not without significance in medical practice. The sensory nervous mechanism involved in the covering of the body plays a highly important rôle by rendering us appreciative of our environment and responsive to a variety of influences that are wont to react on us. Much of our life of sensation is bound up with the structure of the skin, and many of our reflexes are initiated in relation to it.

These are only a few incidents in the functions of the skin. Its participation in the regulation of temperature all too often lacks appreciation, if one may judge by many misguided practices which are current in connection with the hygiene of clothing and ventilation. Although the sweat glands were discovered by Malpighi¹ as early as 1687, it required a rediscovery² of them in man in 1834 to direct attention to the functional possibilities which the secretion of water on the external surfaces of the body actually presents. Even then for some time doubt remained as to whether the glands are concerned with a specific output of water rather than with such activities as the sebaceous glands are now known to represent.

Ever since the days of Sanctorius (1614) the expression "perspiratio insensibilis" has been in use. For him it represented essentially the loss of body weight which could not be accounted for by the visible and weighable excreta. In part this loss obviously is due to a removal of water through pulmonary respiration, together with the excess of exhaled carbon dioxide over absorbed oxygen. There remains for consideration the losses through the skin, some of which become apparent in the form of sweat.

Can water be lost through the skin in any way other than by the mechanism of the sudoriferous glands? Is there a true insensible perspiration represented by a purely physical transport of water through the skin

1. Malpighi: De externo tactus organo, in his Opera omnia, 1687, pp. 203, 208.

2. Brechet and Roussel de Vauzeme: Ann. d. sc. nat., 1834, ii.

into the surrounding medium? Of course it has long been recognized that even where no visible drops of sweat collect on the cutaneous surfaces, water may be, and usually is being, vaporized from them. It is quite conceivable, however, that in such cases evaporation may keep pace with sweat production and thus give an impression of insensible perspiration without the intermediation of the cutaneous glands.

The longstanding uncertainty respecting the origin of water imperceptibly eliminated from the skin was dispelled by a series of observations on human individuals in whom an unusual anomaly of this organ exists. Loewy and Wechselsmann³ have had the exceptional opportunity of studying subjects in whom a defective development has resulted in complete absence of skin glands, so that both sweat and sebaceous secretion were lacking. Here, then, it became possible to investigate the occurrence of loss of water from the skin independently of sweat formation. It was found that such sweat-free persons may experience considerable output of water through the skin. The variations of such a process of elimination are considerable. The quantity may reach 600 grams of water per day for the entire body. This represents a true insensible perspiration — a diffusion of water vapor — following definite physical laws.

The observations made in these unique cases representing, it may be noted, persons having ties of blood relationship and thus exhibiting a hereditary factor in their common skin defect, supplement the facts learned from normal individuals. As a result of the different investigations,⁴ it is concluded that the physical loss of water varies greatly in different parts of the body — a fact only recently verified by Galeotti and Macri⁵ at the University of Naples. They found the insensible perspiration to be greatest from the surfaces of the hand, somewhat less from the neck and cheeks, and still smaller in relation to the chest and back. According to Galeotti and Macri there is a correspondence, in some parts of the bodies of normal individuals, between the number of the sweat glands and the extent of evaporation from the skin. The parallelism in this respect is, however, by no means complete, so that there is no justification for assuming that the water evaporated is derived solely from sweat glands. Loss of water evidently also takes place through the epidermal layers of the skin, precisely as in the case of the sweat-free subjects of Loewy.

The temperature of the environment often exerts an influence on the evaporation from the cutaneous surfaces in the sense that with increased external temperature the degree of insensible perspiration is aug-

mented. This is, however, not uniformly the case, according to Loewy.⁴ He regards the condition of the skin as decisive for the extent of loss of water. With the same external temperature the output will vary with the momentary make-up of the skin, so that it is not regarded as extreme to attribute any influence of the external temperature to its more immediate effect on the cutaneous organ as a whole. In febrile patients the output of water is always greater than in the case of healthy persons.

So far as the loss of water by purely physical processes is concerned, the temperature of the surface layers of the body is the factor of chief importance.

Current Comment

HOW DOES URIC ACID EXIST IN THE BLOOD?

Novelties in the domain of uric acid chemistry and physiology continue to attract attention. Some recent studies by S. R. Benedict¹ of the Cornell University Medical College, New York, he believes, indicate the existence of uric acid in at least two forms of combination in the circulating blood. One part is "free" and represents the quota ordinarily determined by the current procedures for the estimation and separation of uric acid in the blood. In addition to this, Benedict has shown that vigorous treatment, such as is represented by hydrolysis with strong hydrochloric acid, makes it possible to obtain a decidedly larger yield of uric acid. This is taken as an indication of a "combined" uric acid. When ox blood, which has been the chief object of study, is allowed to stand in the presence of a preservative, it shows a marked and rapid increase in the "free" uric acid, with a corresponding decrease in the "combined" uric acid. This strongly suggests the possibility of enzyme action leading to a liberation of uric acid from some more complex combination. The magnitude of the different types is indicated by the figures obtained for ox blood, namely a "free" uric acid content of 0.5 mg. per hundred c.c., and a "total" uric acid content of about 7 mg. Perhaps even more surprising is the report by Benedict¹ regarding the distribution of uric acid between the serum and corpuscles. The results show that it is contained quantitatively in these formed elements. The serum seems to be devoid of traces even, in the case of the ox. This is not true in the case of birds, in which, on the contrary, it is present in the serum alone. One must remember, however, that uric acid plays an entirely different rôle in the metabolism of birds, in which it functions as the characteristic and preponderant end-product of nitrogenous metabolism. The facts alone deserve to be cited. According to Benedict, in ox blood the uric acid is for the most part, if not wholly, in combination and within the corpuscles; while in chicken blood, the uric acid circulates free and is contained in the serum. These findings, if

3. Loewy, A., and Wechselsmann, W.: Zur Physiologie und Pathologie des Wasserwechsels und Wärmeregulation seitens des Hautorgans, *Virchows Arch. f. path. Anat.*, 1911, ccvi, 79.

4. Loewy, A.: Untersuchungen über die physikalische Hautwasserabgabe, *Biochem. Ztschr.*, 1914, lxxvii, 243.

5. Galeotti, G., and Macri, N. M.: Ueber die Perspiratio insensibilis unter normalen und pathologischen Bedingungen, *Biochem. Ztschr.*, 1914, lxxvii, 472.

1. Benedict, S. R.: Studies in Uric Acid Metabolism, I, On the Uric Acid in Ox and in Chicken Blood, *Jour. Biol. Chem.*, 1915, xx, 633.

they do not represent some subtle perversity of analytic procedure, call for extensive investigation. Concerning the nature of the alleged combination, the statement is made that it is certainly not protein in nature. If we repeat Benedict's very tentative hypothesis that uric acid, which can be further catabolized, exists in combination in the organism, while that which is to be eliminated as such circulates in the blood in the free state, it must be done with circumspect reserve. This has long been a favorite field for theorizing; and speculation should be subservient to experiment.

FACTS ABOUT RATTLESNAKE VENOM

Although rattlesnake poisoning has lost most of its former prominence as a cause of death in the United States, the toxic agent itself continues to be a source of scientific interest. Certain points in regard to its action have been debated. Thus it has been asserted¹ that the venom of the rattlesnake is toxic to this species itself. Recently, however, Welker and Marshall² of the Robert Hare Chemical Laboratory at the University of Pennsylvania, Philadelphia, have injected the fresh poison obtained directly from the living animal intramuscularly into the same species, *Crotalus adamanteus*, without detecting any untoward effects on the snakes. Rattlesnake serum may be somewhat toxic to certain laboratory animals, but not more so than is the serum of other species. It is said that snake venom exhibits little if any toxicity when it is administered by way of the alimentary canal. This has led to the assumption that the bile exerts antitoxic properties on it. Fraser,³ for example, believed that snake bile had a marked antitoxic action on the venom—an effect exhibited likewise by ox bile in a less marked degree. Welker and Marshall² have found that the bile of the rattlesnake is not highly toxic for pigeons, with which they experimented; but they failed to demonstrate the slightest antitoxic power in this secretion.

COAL-MINE FATALITIES

Nearly three quarters of a million men are at present engaged in the work of coal mining in the United States. The hazards of their occupation are familiar to every newspaper reader. Many persons fail to realize, however, that aside from the shocking accidents which come prominently into the public notice there are numerous causes of death which are not so often brought to the attention of the world at large. The loss of life in the coal mines is largely due to accidents underground, nine tenths of all the deaths being located there. Most of these are occasioned by falls of roof; many by mine cars and locomotives, by gas explosions and burning gas, and by coal-dust explosions; in lesser number are the underground fatalities by explosives, electricity and diverse other

causes. About one tenth of the deaths occur in connection with the shafts and on the surface. In recently published statistics¹ the Bureau of Mines notes that the fatalities in coal mines in the United States in 1914 were 334 less than during the preceding year, the total fatalities being 2,451 as compared with 2,785 for 1913. The saving of one life every day in the year in any industry deserves more than passing notice. The principal causes of fatal accidents that show a material decrease were coal-dust explosions, 96 per cent., haulage 11 per cent., and falls of roof and pillar coal 10.6 per cent. These lower rates cannot be attributed to any single influence. They may, however, be assigned in part to any of the following agencies: closer and more careful inspection by the state inspector; better enforcement of laws and regulations by the operators; the miner's realization of the dangers attending his daily work, and his efforts to reduce accidents, because of the educational campaign conducted in his behalf; the more general use of safety lamps in doubtful mines; the use of permissible explosives; humidifying dusty mines; first-aid and rescue training in accidents which saves lives that might otherwise be lost; the enactment of industrial accident compensation laws and, last but not least, the spirit of cooperation on the part of all concerned. The growing evidence of the progress being made by modern industrial hygiene, even in fields in which inroads have been difficult, is a gratifying sign of the times.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

GEORGIA

Hospital Incorporated.—A petition has been made to the superior court of Screven County for the incorporation of the Screven County Hospital in Sylvania. The capital stock of the institution is to be \$15,000.—The superior court of Tift County has received a petition for the incorporation of the Tift County Hospital at Tifton. The purpose of the corporation is charitable and is not organized for individual pecuniary gain.

Hospitals Dedicated.—The hospitals of the University of Georgia, Augusta, were dedicated June 1. The buildings, three in number, have been erected at an expenditure of about half a million dollars. The dedication exercises, which were held in the building, consisted of the presentation of the hospital by the mayor, the acceptance on behalf of the faculty by Dr. William H. Doughty, Jr., dean of the medical college, and an address by the Hon. J. C. C. Black, who paid an eloquent tribute to the physicians and nurses.

Hookworm Campaign.—The state is conducting a systematic campaign against hookworm, with the assistance of the Rockefeller Foundation. It has been decided to carry on the work in future by county organizations and already a number of counties have begun the work. Free examination and free treatment have been provided in a number of counties, and already a large number of persons have taken advantage of this arrangement. That hookworm is not the only parasitic disease prevalent is shown by the examinations of Dr. Charles R. Henry, Atlanta, and J. R. Webb, an assistant, in Gatoosa County, where among 550 persons examined forty-

1. Noguchi, H.: Snake Venoms, 1909, p. 264.

2. Welker, W. H., and Marshall, J.: The Toxicity of Rattlesnake Serum and Bile, with a Note on the Effect of Bile on the Toxicity of Venom, Jour. Pharmacol. and Exper. Therap., 1915, vi, 563.

3. Fraser: Brit. Med. Jour., 1897, ii, 125.

1. Fay, Albert H.: Coal-Mine Fatalities in the United States, During the Calendar Year 1914, Bureau of Mines, March, 1915.

one were found to have hookworm, forty-two ascaris and thirteen pinworm.

Personal.—Dr. Harry Rubin, Savannah, has been appointed house physician of the Fresh Air Home, Tybee.—The faculty and adjunct faculty of the Atlanta Medical College, which is to be merged next fall with the Emory University, gave a dinner, June 7, in honor of Dr. William S. Elkin, for many years dean of the college, at which a silver loving cup was presented to Dr. Elkin as a testimonial of his services to the college, the presentation address being made by Dr. Stewart R. Roberts, Atlanta.—Dr. George L. Loden, Atlanta, has been placed in charge of the Atlanta Municipal Tuberculosis Sanatorium, Battle Hill, vice Dr. Louis Hollander, Atlanta.—Dr. John C. White, Atlanta, has been appointed surgeon of the North Georgia Brigade, United Confederate Veterans.—Dr. Walpole C. Brewer, Atlanta, sailed for Europe on the *Canopic*, May 8, for the Mediterranean. Dr. Brewer expects to join the American Red Cross unit in Vienna.

ILLINOIS

New Hospital.—The new Belvidere Public Hospital, although not formally opened, is in operation. The institution is located in the Warren Rowan homestead. The president of the association is Dr. Alden Alguire, and the secretary, Dr. H. Eugene Delavergne.

Scarlet Fever at Joliet.—Under date of June 18 more than 200 cases of scarlet fever had occurred in Joliet with two deaths. The town was under strict quarantine and the schools with their 14,000 children were idle. Churches, theaters and other public places were closed and travel to and from the city restricted.

Personal.—Dr. Louis F. Morse, Cobden, is said to have suffered a slight cerebral hemorrhage, June 4.—Drs. John L. Taylor, Libertyville, and John C. Foley, Waukegan, with their families, started on an automobile trip to the Pacific Coast, June 15.—Friends of Dr. William J. Uppendahl, Peoria, gave a dinner in his honor at the Creve Coeur Club, June 7, over which Dr. George A. Zeller presided as toastmaster. Dr. Uppendahl sailed for Europe with the Chicago unit for service abroad.

Health Day in the Legislature.—The secretary of the State Board of Health has named June 16 as Health Day in the Illinois Legislature. On this day in addition to giving final passage to the vital statistics bill and the bill restoring jurisdiction over old licentiates practicing medicine or midwifery, two measures which will have an important bearing on the abortion evil in this state, the following were sent to the governor for signature: a bill for prevention of blindness from infections at birth; a bill relating to garbage disposal in small cities. A drainage bill and one relating to creation of small parks on behalf of the State Board of Health.

Chicago

Rush Graduation.—At the annual graduating exercises of Rush Medical College, June 16, a class of seventy-five was graduated and Dr. Edward Carl Rosenow delivered an address on "Recent Advances in Medical Research."

Alienists and Neurologists Will Meet Next Month.—The fourth annual meeting of the Alienists and Neurologists of the United States, under the auspices of the Chicago Medical Society, will be held July 12 to 17. About sixty papers are already on the program and in addition, there will be a half-day clinic at the city psychopathic laboratory on the morning of July 14, and on the next day an all-day meeting at the Chicago State Hospital, Dunning.

Medical Society Election.—At the annual meeting of the Chicago Medical Society, June 15, the following officers were elected: Dr. A. Augustus O'Neill, president-elect; Dr. Charles E. Humiston, secretary (reelected); Drs. Charles H. Miller, Charles C. O'Byrne, Douglas A. Payne, Fred L. Glenn and Jacob C. Krafft, councilors-at-large; and Drs. John J. Toeller, Edward J. Devine, Rachelle S. Yarros, Sadie Bay Adair and Louis H. Friedrich, alternate councilors-at-large.

Meeting of Rush Alumni.—The annual faculty banquet of Rush Medical College, to the graduating class and alumni, was given June 16. Addresses were made by Dr. J. B. Herrick and President Judson of the University of Chicago in which the development of Rush College as a part of the university was forecasted. Prof. L. Hektoen, acting for the faculty, presented a watch to Dr. E. C. Rosenow, who leaves the faculty to become a member of the Mayo foundation. Dr. B. McPherson Linnell has been elected president of the Rush

Medical College Alumni Association; Dr. C. A. Parker, secretary; Dr. Elmer E. Kenyon, treasurer.

Upholds Milk Ordinance.—The provision of the milk ordinance, passed Aug. 14, 1912, requiring that milk must be cooled immediately after production and kept at a temperature not exceeding 55 F. from the cow to the dealer in Chicago, has been upheld in the suit of the city against the Northwestern Railroad Company. The railroad resisted the requirement that the milk must be kept cool while in transit on the ground that the city of Chicago had no power to regulate its traffic, but that such powers were reserved to the State Utilities Commission. The municipal court, Judge Trude, held that this department was a valid exercise of the police power of the city concerning an important food product.

Against Quackery in Advertising.—June 21, in the meeting of the Associated Advertising Clubs of the World, the chairman of the vigilance committee following the lead of the president, William Woodhead, recommended that henceforth quackery and fraud in advertising be held to "strict accountability"; and further that the associated clubs engage a salaried force of lawyers, detectives, physicians, chemists and other specialists to put suspicious advertising through relentless tests for the elimination of unsound factors. The recommendations were endorsed by the executive committee and the national commission and then unanimously by the convention. Subscriptions of over \$2,000 were made on the floor of the convention for carrying out the purposes of the recommendations, and will be increased during the meeting.

INDIANA

Philanthropic Physician Dies.—News has just been received of the death on June 18 of Dr. Robert W. Long, Indianapolis, whose benefactions to the state have amounted to \$245,000.

Advance in Sanitary Welfare.—The cities of Gary, Valparaiso and Indiana Harbor have appointed all-time health officers and Peru will soon follow their example.—Michigan City has recently established a municipal laboratory.

Personal.—Dr. Edwin G. Kyte, Seymour, has been commissioned as first lieutenant, M. C., Ind. N. G.—A banquet and reception was given at Evansville, June 11, for Dr. George W. Buckner, Evansville, United States minister at Iberia.

Sanatorium Site Bought.—The board of commissioners of Marion County has purchased a tract of ground of 25 acres near Oaklandon, about twelve miles from Indianapolis, as a site for a tuberculosis sanatorium. The cost of the land is \$9,228.

MAINE

Meeting of Maine State Medical Association.—The sixty-third meeting of the Maine Medical Association was held at Poland Springs, June 9 and 10, under the presidency of Dr. Herman L. Bartlett, Norway. Portland was selected as the next place of meeting and the following officers were elected: president, Dr. Erastus E. Holt, Portland; vice presidents, Drs. Herbert B. Mason, Calais, and Harry A. Snow, Milo; and secretary treasurer, Dr. John B. Thompson, Bangor.

MARYLAND

Patients Transferred.—The Supervisors of City Charities transferred on May 21, one hundred patients from the City Detention Hospital at Bay View, Baltimore, to the Springfield State Hospital, Sykesville, thus reducing the number of patients at the Detention Hospital. Later a large number of negro patients will be transferred to the Crownsville State Hospital.

Clinic Dedicated.—The John Hubner Psychopathic Building and the Springfield State Hospital, Sykesville, was formally dedicated June 9. The speakers included Drs. Henry M. Hurd, Hugh H. Young and Lewellys F. Barker, Baltimore; Edward N. Brush, Towson, and Dr. Elmer E. Southard, director of the Boston Psychopathic Hospital. Mr. Hubner was presented by his fellow members of the board with a gold-lined silver loving cup.

Personal.—Dr. Thomas S. Cullen, Baltimore, who was operated on three weeks ago for gallstones at the Johns Hopkins Hospital has recovered and left for a Canadian island to recuperate fully.—Dr. John S. Davis of Baltimore, who was operated on for appendicitis by Dr. Richard H. Follis, Baltimore, at the Union Protestant Infirmary, has left the hospital.—Dr. William S. Thayer, Baltimore, who was operated on for appendicitis in the Johns Hopkins Hospital, June 4, left the hospital a week later and will recuperate in the north.

MASSACHUSETTS

Medico-Legal Society Meeting.—The annual meeting of the Massachusetts Medico-Legal Medical Society was held in Boston, June 8, and the following officers were elected: president, Dr. Frederick H. Baker, Worcester; vice-president, Dr. Oliver H. Howe, Cohasset; corresponding secretary, Dr. Frederick H. Thompson, Fitchburg; recording secretary, Dr. Harry M. Cutts, Brookline; treasurer, Dr. A. Elliot Paine, Brockton.

New Health Division.—The commissioner of health has established a new department to be known as the Division of Hygiene and has appointed Prof. Selskar M. Gunn of the Massachusetts Institute of Technology, as its chief. Among the duties of this department will be the direction of child welfare work, public health nursing, the promotion of traveling exhibits, the arrangement of public lectures and the distribution of health bulletins and pamphlets.

Personal.—Dr. Samuel H. Hurwitz, Boston, has been appointed instructor in research medicine in the George William Hooper Foundation for Medical Research of the University of California.—Alexander Swanson Begg has been reappointed secretary of the graduate school of medicine of Harvard University.—Dr. Richard C. Cabot has been appointed medical advisor to Radcliffe College.—Dr. George S. Graham has been appointed second assistant pathologist and Dr. Edgar M. Medler research assistant in pathology, at the Boston City Hospital.

State Society Meeting.—The Massachusetts Medical Society held its one hundred and thirty-fourth annual meeting in Boston, June 8 and 9, under the presidency of Dr. Charles F. Withington, Boston. The Shadduck lecture was delivered by Dr. Joel E. Goldthwaite, Boston, on "The Anatomic and Mechanistic Theory of Disease"; the annual discourse was delivered by Dr. Everett A. Bates, Springfield, on "Perplexities in Modern Medicine." The annual dinner and business meeting was held at the Copley-Plaza Hotel on June 9, and the following officers were elected: president, Dr. Charles F. Withington, Boston, (reelected); vice-president, Dr. Edmond F. Cody, New Bedford; secretary, Dr. Walter L. Burrage, Boston, (reelected); treasurer, Dr. Edward M. Buckingham, Boston, (reelected); and librarian, Dr. Edwin H. Brigham, Boston.

Changes in Massachusetts State Board of Insanity.—According to the Bulletin of the State Board of Insanity, the following changes occurred in the board and various state institutions under the supervision of the board in May: Col. Stanhope E. Blunt, Springfield, trustee of the Monson State Hospital, resigned. The following have also resigned: Dr. Arthur C. Zuck from the Taunton State Hospital, and Dr. Ernest J. Clifford from the same institution; Dr. Egbert W. Fell, first assistant physician, from the Psychopathic Hospital, and Dr. Edward T. Gibson as junior assistant from the same institution; Dr. George E. McPherson from the Foxborough State Hospital; Dr. William T. Hanson as medical inspector of the State Board of Insanity, May 20, to accept the position of physician in charge of the mental wards of the State Infirmity. Dr. Dora W. Faxon was appointed second assistant physician at the Foxborough State Hospital.

MONTANA

Banquet to Medical Society.—The annual banquet of the Fergus County Medical Association occurred May 15 at Lewiston. The dominant topic of discussion was "Unity in the Profession."

Personal.—Dr. Clarke S. Smith, Butte, has started for England for war service.—Dr. Robert E. Hathaway, Glendive, had a narrow escape from death by drowning, May 27, when the automobile in which he was driving plunged into a flooded creek.—Dr. William D. Madden has succeeded Dr. Thomas E. Murray as health officer of Great Falls.

Spotted Fever.—A case of Rocky Mountain spotted fever was reported May 15, from Carbon County, in the person of a farm hand who had been bitten by ticks while getting out timber in the mountains of Wyoming.—Another case was that of a real estate man of Great Falls, who was said to have contracted the infection while in Idaho.—The secretary of the State Board of Health announced, May 15, that there had been reported eighteen cases in the state. The disease is being observed in localities other than the Bitter Root Valley, to which the disease has been confined almost entirely in previous years. Ticks are said to be more plentiful this year than ever.

NEBRASKA

Will Organize Field Hospital.—Dr. Herbert H. Smith, Fremont, has organized at Fremont, a field hospital for the National Guard of Nebraska.

Correction.—Dr. Irving S. Cutter, Omaha, secretary of the College of Medicine of the University of Nebraska, advises that the appropriation made by the legislature for the new state hospital building to be erected on the campus of the college, was \$150,000 and not \$50,000, as stated in THE JOURNAL of May 22 and May 29.

Personal.—Dr. James D. Case, Dorchester, has been appointed secretary of the State Board of Health and state health inspector, vice Dr. William H. Wilson, Lincoln.—Dr. Hal C. Smith, Franklin, is reported to be seriously ill in a hospital in Lincoln.—Dr. Arthur C. Bunce, Omaha, who suffered amputation of the leg on account of septicemia, has recovered and resumed practice.

NEW HAMPSHIRE

New Officers.—Manchester Medical Society, June 11: president, Dr. Daniel C. Norton; secretary-treasurer, Dr. Melvin P. Badger.

Personal.—Dr. Charles P. Bancroft, Concord, resumed his position as superintendent of the State Hospital, May 17.—Dr. Daniel F. Wells, Exeter, celebrated his seventy-fifth birthday, May 28.

NEW YORK

Diphtheria in Home for Convalescents.—The Caroline Rest in Hartsdale has an outbreak of diphtheria which drove 100 convalescent mothers and their babies back to New York City.

Personal.—Dr. Elmer H. Ormsby, formerly lecturer in anatomy in Albany Medical College, has opened an office in Amsterdam.—Dr. Edmund C. Boddy, Rochester, sailed from New York, June 18, to take service with the Serbian Red Cross.

Memorial Meeting.—The meeting of the Medical Society of the County of Albany, June 10, was devoted to the payment of tribute to the memory of Drs. Samuel Baldwin Ward and George Gustav Lempe, and the adoption of resolutions regarding the death of these two members.

Joint Society Meeting.—A joint meeting of the medical societies of the counties of Allegany, Genesee, Livingston and Wyoming, will be held at Letchworth Park, Portage, Falls, July 15. Papers will be read by Drs. Louis F. Bishop and William S. Bainbridge, New York City. Members of all county societies of western New York are invited to be present.

Field Secretary Appointed.—The National Association for the Study and Prevention of Tuberculosis has appointed Mr. Frederick D. Hopkins field secretary, and he will begin work August 1. He is a graduate of Syracuse University and has had experience in publicity and promotion work. He has recently been employed as an inspector by the New York State Board of Charities.

Interesting Number of Health News.—The May number of the *Monthly Bulletin* of the New York State Department of Health is devoted largely to the subject of the diseases of adult life and the increasing mortality at ages over 45. It is said that the statistics show that while the death rate in the periods of early life is decreasing, the rate after 45 is increasing steadily, due almost wholly to the degenerative diseases of the heart, blood vessels and kidneys. It is found that diseases of the heart at present are exceeded only by tuberculosis as a cause of death, and in one or two years the latter was exceeded by the former. Cancer is also on the increase as a cause of death in adult life. Papers by E. L. Fisk of the Life Extension Institute, and on cancer by Curtis E. Lakeman of the American Society for the Control of Cancer, call attention to these facts and emphasize the required measures of prophylaxis, as is also done editorially in the pamphlet and by graphic charts.

New York City

Hospital Physicians Organize.—The assistant attending physicians of the Willard Parker, Riverside and Kingston Avenue hospitals have organized a society for the study of infectious diseases. The first meeting was held at the Willard Parker Hospital May 4.

Hospital Service for Medical Inspectors.—The Municipal Civil Service Commission has agreed to require as a condition of eligibility for the position of medical inspector in the Department of Health twelve months of hospital experi-

ence. An examination for inspectors will be held at an early date.

Dog Muzzling Law Upheld.—The Appellate Division of the Supreme Court in March unanimously sustained the validity of the section of the sanitary code which provides for the muzzling of dogs on any public highway or in any park or place in the city of New York. The test case was known as the Knoblauch case.

Hospital Staff House.—The contract has been let for the erection of the medical staff house and nurses home for the Willard Parker Hospital and the building has been started. The building will be 100 by 83 feet, of concrete fire proof construction and will furnish quarters for thirty-five doctors and 115 nurses, each group being provided a separate entrance, halls, dining room, etc., complete. Swimming pools and gymnasiums will be features of the new building.

Wood Alcohol in Toilet Preparations.—Investigation by the inspectors of the New York City Health Department last year showed that more than one-third of the toilet preparations sold in the city contained wood alcohol, which is forbidden by the Sanitary Code. During the past two months more than 300 preparations taken from barber shops and manicuring establishments and supply houses showed only a small proportion containing this deadly poison. Systematic inspections will be continued.

Personal.—Dr. Benjamin Schwartz has been appointed Coroners' Physician to fill the vacancy caused by the resignation of Dr. Otto H. Schultze.—Dr. William S. Magill returned from Russia June 15.—Dr. William B. Giles sailed June 15 on the *Nieuw Amsterdam* for Falmouth en route for northern France where he is to be surgeon in chief of a British contingent supervised by Dr. Foster Kennedy, New York.—Dr. Frederick Tilney, Brooklyn, has been appointed professor of neurology in the College of Physicians and Surgeons in the city of New York, succeeding Dr. Moses Allen Star, who resigned last month after twenty years of service.—Dr. Ward J. MacNeal has been appointed director of laboratories of the New York Postgraduate Medical School and Hospital, succeeding Dr. Jonathan Wright, resigned.—Dr. Morris Fine has been promoted to adjunct professor of pathologic chemistry; Dr. Richard M. Taylor, to adjunct professor of pathology and Paul A. Schule, to lectureship of bacteriology.

PENNSYLVANIA

Laboratory Installed.—Dr. Francis M. B. Schramm, city bacteriologist of Johnstown, has installed a laboratory on the second floor of the city hall.

Hospital Enlarged.—Plans are well advanced for the enlargement of the capacity of Palmerton Hospital, from fifty to eighty beds. Dr. John W. Luther, surgeon in chief of the institution, is also burgess of Palmerton.

Personal.—Dr. James C. Gray, Cressona, is reported to be seriously ill at his home.—Drs. Louis T. Kennedy and Merchant C. Householder, Pottsville, who have been ill in Chicago, are improving and will soon return home.—Dr. Frederick P. Steck, Shamokin, is taking a trip to the Pacific Coast.

Prize Awarded State Health Department.—A grand prize has been awarded by the International Jury of Awards of the Panama-Pacific Exposition to the Pennsylvania State Department of Health, and Dr. Samuel G. Dixon, commissioner of health, who planned the exhibit, has been given honorable mention.

Philadelphia

Personal.—Dr. S. Lewis Ziegler, director of the Department of Health and Charities, has named Edward A. Lees as assistant director of that department.—Dr. S. Lewis Rubinsohn was operated on at Bushil Sanatorium, June 10.—Dr. William H. E. Wehner has been appointed medical director of the Fidelity Mutual Life Insurance Company, succeeding Dr. William H. King, resigned.

Graduation Exercises.—At the ninetieth annual commencement exercises of Jefferson Medical College, held in the Academy of Music, June 5, the valedictory address was delivered by Dr. Victor Clarence Vaughan of the University of Michigan on the subject, "A Doctor's Ideals."—At the annual meeting of the General Alumni Association of the Medico-Chirurgical College of Philadelphia, June 3, the principal address was delivered by Dr. Ernest LaPlace. Dr. William McNeary was elected president and Dr. Charles B. Reynolds, secretary-treasurer.

Fourth of July Precautions.—The safe and sane Fourth committee has planned the distribution of 50,000 pieces of literature to householders and to various schools and institutions, calling on parents and guardians to avoid fireworks. The committee will also have posters placed throughout the city calling attention to the danger attached to the use of explosives. The pamphlet will be illustrated showing a child injured by an explosive and will contain the words, "Will This Happen to Your Child?" Other posters will contain the words, "For Safety's Sake be Sane."

Post-Graduate Teaching Association Organized.—The Cooperative Association for Post-Graduate Teaching of Medicine in Philadelphia has recently been organized by more than 100 practitioners of Philadelphia, with Dr. David Riesman as chairman and Dr. George P. Ruller as temporary secretary. The objects of the association are stated to be to investigate and ascertain the resources for postgraduate teaching that exist in Philadelphia; so to arrange the courses offered by each hospital and college as to enable the students to spend each day in solid study or laboratory work, and the establishment of a central office in charge of the permanent secretary, where rosters of courses may be made and where all information will be listed.

OHIO

Medical Society Revived.—The Preble County Medical Society, which has been quiescent for about two years, has been revived and a meeting was held in Eaton, May 26, to elect new officers and recommence active work.

Health Surveys.—A health survey of Springfield has been commenced by Asst. Surg. L. R. Thompson, and Sanitary Engineer R. E. Tarbett, U. S. P. H. S.—Surg. Carroll Fox, U. S. P. H. S., has completed his health survey of Toledo and returned to Washington.

Room Quarantine Adopted.—After a successful test of the method by Health Officer Daniel W. Iford, Toledo, the city health board has adopted the plan of room quarantine in infectious diseases, and an order has been issued giving detailed quarantine instructions under this method of handling infections. This places the afflicted person in charge of a nurse or other member of the family who must be completely isolated from the other members. The latter are allowed to pursue their usual occupations.

Philadelphians Address Academies.—On May 21, Dr. Richard M. Pearce, Jr., professor of research medicine in the University of Pennsylvania, delivered an address before the Academy of Medicine of Cleveland, on "The Relation of the Spleen to Blood Destruction and Regeneration and to Hemolytic Jaundice." After the lecture a smoker was given at the University Club by the heads of the department of medical research and of the various laboratories of the School of Medicine of Western Reserve University.—Dr. John A. Kolmer, director of the Research Laboratory of Pathology of the University of Pennsylvania, was the guest of the Academy of Medicine of Toledo and Lucas County, May 14, and delivered an address on "The Mechanism and Diagnostic Value of Anaphylactic Skin Reaction."

Personal.—Dr. Thomas G. Farr, the oldest practitioner of South Charleston, was the guest of honor at a banquet before the Clark County Medical Society in Springfield, June 9. After the dinner Dr. Farr was presented by the Society with a leather covered easy chair.—Dr. Harry E. Welch, Youngstown, was elected a vice president, and Dr. Louis H. Frechtling, Hamilton, a trustee of the Ohio Society for the Prevention of Tuberculosis at its meeting in Columbus, June 7.—Dr. Chelsea A. Coleman, Dayton, has filed suit in the common pleas court for \$5,000 damages on account of injuries to his legs and damages to his automobile, said to have been suffered May 4, last.—Dr. James H. Lowe, Piqua, has been elected president of the Miami Valley Health Officers Association.—Dr. Louis L. Syman, Springfield, who was operated on for appendicitis at the Springfield City Hospital, June 3, is reported to be doing well.—Dr. Reginald L. Cameron, Cleveland, has been appointed chief surgeon of the Republic Rubber Company and also placed in charge of the welfare department.—Drs. Lucian G. Locke and Charles W. Wendelken, Portsmouth, have been elected trustees of the Antituberculosis Society of Scioto County.

Cincinnati

Portrait Presented.—A portrait of Dr. Joseph Aub, prominent as an eye, ear, nose and throat specialist of Cincinnati, who died in 1888, was hung in the reception room of the

Cincinnati General Hospital, May 28. The painting was presented by the widow of the physician.

New Home for Academy.—Plans for the erection of a new home for the Cincinnati Academy of Medicine to cost \$250,000 were discussed at a meeting, June 7. A building committee of five was appointed and it is planned to erect a building on Seventh, Eighth or Ninth streets with one floor for stores, the second, third and fourth floors for offices of physicians and dentists and the upper floors for meeting rooms, library, lecture rooms and laboratories for the Academy of Medicine.

Personal.—Dr. John H. Perry, assistant superintendent of Longview Hospital, has resigned his position to accept a similar post at the Hospital for Criminal Insane at Lima, Ohio.—Dr. Horace F. Tangeman has been appointed otolaryngologist to the Branch Tuberculosis Hospital.—Dr. John A. Caldwell, Jr., has been appointed junior surgeon and Dr. Edgar C. Steinharter, junior gynecologist to the Cincinnati Hospital.—Dr. Albert H. Freiberg has had conferred on him the honorary degree of LL.D. by Cedarville College, Cedarville, Ohio, on account of his distinguished services to humanity in the field of orthopedic surgery.

Emery Gift to the University.—Mrs. Mary M. Emery has made a provisional gift of \$250,000 for the construction of a new building for the Ohio-Miami Medical College of the University of Cincinnati, conditional on the raising of a like sum to equip the new building. Mrs. Emery's munificent gift is in gratitude to the profession of medicine and with a desire to further its powers of alleviating the ills of humanity. The new building will be located immediately adjoining the new Cincinnati General Hospital on the north and close to the pathologic building of that institution. The new medical school will consist of a central four-story building and two three-story wings conforming in general architectural plan to the Cincinnati General Hospital. Active work is commenced on the raising of the additional \$250,000, on the securing of which, Mrs. Emery's offer becomes available. Mr. Harry M. Levy has already given \$50,000 toward this fund.

OKLAHOMA

Health Department Moved to Guthrie.—Permission having been granted by the governor, Dr. John W. Duke, Guthrie, state health commissioner, has moved the office of the State Health Department to Guthrie.

New State Board of Medical Examiners.—Governor Williams has appointed the following board of medical examiners: Dr. Ralph V. Smith, Tulsa, secretary; and Drs. Le Roy Long, McAlester; B. L. Denison, Garvin; Ernest B. Dunlap, Lawton; William T. Ray, Gould; Melvin Gray, Mountain View; and William L. Bonnell, Chickasha.

State Association Election.—At the annual meeting of the Oklahoma State Medical Association held in Bartlesville, May 11 to 13, under the presidency of Dr. John W. Riley, Oklahoma City, the following officers were elected: president, Dr. J. Hutchings White, Muskogee; vice presidents, Drs. Walter Penquite, Chickasha; John P. Sudderth, Nowata, and W. Albert Cook, Tulsa; and delegate to the American Medical Association, Dr. John W. Riley, Oklahoma City. Oklahoma City was selected as the next place of meeting.

Personal.—Dr. David A. Myers, Lawton, is recovering from injuries received when his automobile ran over him while he was cranking it when in gear.—Dr. Henry Cone, Maud, was acquitted on the plea of self-defense at his trial recently for shooting and killing a tenant on his farm.—Dr. Leander M. Overton, Fitzhugh, was struck by an automobile and sustained a fracture of the skull, clavicle and a Colles fracture.—Dr. Clarence C. Shaw, Tishomingo, has been appointed state prison physician, succeeding Dr. John W. Echols, McAlester.—Dr. Joel R. Holliday, Oklahoma, has been appointed a member of the Board on Sanitary, succeeding Dr. Ross D. Long, Oklahoma, who has been given an indefinite leave of absence by county commissioners, and has sailed for Europe.

OREGON

Personal.—Dr. Richard A. Nunn, Portland, sailed for Europe, May 8, and expects to be placed on duty in one of the English hospitals.—Dr. Charles J. Smith, Portland, was elected chairman of the State Board of Higher Curricula at its meeting for organization.—Dr. Shelly Saurman, director

of the bacteriologic laboratory of the State Board of Health, has resigned and will locate in Burns.

College Adopts Higher Requirements.—The announcement of the University of Oregon, department of medicine, just received states that after Jan. 1, 1916, two years of collegiate work, including courses in physics, chemistry, biology and French or German, will be required for admission. There are now forty-three colleges and nine state licensing boards which have adopted this higher requirement.

Physicians Win Suit.—The suit brought by Iris W. T. Oliver against Drs. James P. and Brice R. Wallace, Albany, for alleged malpractice in setting a fracture of the shoulder, in which \$25,000 damages were asked, was decided May 4, in favor of the physicians. The testimony showed that the treatment of the case was thoroughly scientific and in accordance with the latest and most approved method.

VIRGINIA

Hospital Notes.—The committee on plans for the new Alexandria Hospital has made a contract with an architect of Washington, for the preparation of plans for the building.—Clergymen of Norfolk have united in a campaign to raise \$25,000 to make up the deficit of the Protestant Hospital, Norfolk.

Health Association Meeting.—At the annual meeting of the Virginia Public Health Association, held in Lexington, May 10, to 12, the following officers were elected: president, Dr. John W. H. Pollard, of Washington and Lee University, Lexington; vice presidents, Drs. C. Curtis Hudson, Danville, and Thomas J. Pretlow, Newport News; secretary-treasurer, Dr. W. B. Brownley Foster, Roanoke, and assistant secretary-treasurer, Dr. Roy K. Flannagan, Richmond.

Alumni Election.—At the annual meeting of the Alumni Association of the Medical College of Virginia, Richmond, June 1, the following officers were elected: president, Dr. Lewis C. Boshier, Richmond; vice presidents, Drs. Achilles L. Tynes, Staunton; Thomas S. Henning, Jefferson; William K. McCoy, Gum Spring, and Richard C. Waldon; secretary, Nathaniel T. Ennett, Richmond; assistant secretary, Dr. James H. Smith, Richmond, and treasurer, Dr. Frank H. Beadles, Richmond.

Personal.—Dr. Allen W. Freeman, Richmond, assistant state health commissioner, has resigned to become epidemiologist in the United States Public Health Service.—Dr. Ennion G. Williams, state health commissioner of Richmond, was elected president of the Conference of State and Provincial Boards of Health of North America, at its meeting in Washington, recently.—Dr. William L. Dunn, Abingdon, has been elected surgeon of the William Jones Camp, United Confederate Veterans.—Dr. Harry T. Marshall, Charlottesville, of the University of Virginia, has been appointed a member of the state tuberculosis commission. This commission is to serve without pay and is to consider the question of tuberculosis in all its phases and to report to the next general assembly a comprehensive plan for the control of the disease.

WISCONSIN

Physicians' Building in Green Bay.—Contracts have been awarded for the construction of the Bellin-Buchanan Building, Green Bay. The contract calls for a building 66 by 105 feet and six stories in height, which is to be devoted especially to the use of physicians and dentists.

Hospital Notes.—Dr. Christian U. Senn, Ripon, has associated with him Dr. U. Senn, Milwaukee, and will establish a hospital in the near future. The building at the corner of Ransom and Blossom streets is to be remodeled for this purpose.—A permit has been issued for the construction of an addition to the Milwaukee Hospital for Contagious Diseases, which is to be erected at a cost of \$90,000.

Sanatorium Notes.—Ground for a new tuberculosis sanatorium for Kenosha County was broken, May 19, and it is hoped that the construction of the building will be carried on without delay.—The trustees of the Milwaukee County Tuberculosis Sanatorium have asked the people of Milwaukee to suggest a name for the new institution. Suggestions are to be sent to Dr. Hoyt E. Dearholt, Milwaukee.

Personal.—Dr. Urban J. Durner, Milwaukee, has received an appointment as house surgeon in the Eye, Ear, Nose and Throat Infirmary of Middlesex Hospital, London.—Dr. Gustav Windersheim has been reappointed chairman of the Board of Health of Kenosha.—Dr. Frank I. Drake, head physician at the State Prison, Waupun, has succeeded Dr.

Charles Gorst, as superintendent of the Mendota State Hospital.—Dr. Norman Hoffman has been reappointed superintendent of the State Open Air Sanatorium for Tuberculosis, Wales.—Dr. Alfonse F. Kalkhoff, Milwaukee, fell on a sidewalk, recently, fracturing his left arm.—Dr. Gustavus I. Hogue, Milwaukee, has been elected president of the Northwestern Alumni Association of the Southwestern District of Wisconsin.

WYOMING

Personal.—Dr. Henry W. Greist, Casper, is suffering from complete paralysis of the left facial nerve, probably due to exposure.

Tick Fever.—Five fatal cases of Rocky Mountain spotted fever have occurred in Montana this year, to June 4, and there has been a great increase in the number of cases. Ticks are unusually plentiful on account, it is believed, of the extraordinary amount of rain throughout the spring months.

New Quarantine Order.—A new quarantine order, superseding that of April 1, has been issued by the governor. By this order it is permitted to ship into Wyoming, cattle, hogs, sheep and horses from the states of Washington, Oregon, California, Idaho, Nevada, Arizona, Utah, Montana, Colorado, New Mexico and Texas, if accompanied by a health certificate, and from North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, Louisiana, Arkansas, Missouri, Iowa and western Minnesota, on special permit issued by the state veterinarian.

CANADA

Anatomy Professorship Endowed.—Dalhousie University, Halifax, N. S., has received a gift of \$30,000 toward the endowment of a chair of anatomy. An announcement is made that this sum will be doubled in the near future.

Sanitary Corps Organized.—Dr. Thomas A. Starkey, Montreal, has organized a sanitary corps for overseas service, of which he will be in command. It will be composed of students of McGill University and will number twenty-eight men. They expect to leave for England shortly.

Ambulance Donated.—The telephone girls of Toronto have presented a motor ambulance valued at \$1,800, fully equipped and ready for service to the Canadian Red Cross Society.—The Hon. Charles Dalton of Charlottetown, P. E. I., has offered to provide a motor ambulance for Red Cross work at the front.

More Surgeons Needed.—The British War Office is asking for more doctors. Candidates must be British subjects, under 40 years of age and graduates of some Canadian medical college. They must pass the regular military service examinations, be members of the Army Medical Corps and vouched for by the authorities of that corps.

Ontario's Offer Accepted.—The War Office has accepted the offer of the Ontario Government to provide a hospital of 1,040 beds in England for wounded soldiers. There have been many applications for positions on this hospital. The following names have been mentioned as likely to receive commissions: Drs. Rowland B. Orr, Herbert A. Bruce, Herbert J. Hamilton and Harry B. Anderson, all of Toronto.

Personal.—Dr. Thomas P. Bradley, Sarnia, Ont., has volunteered for special service overseas with the Royal Army Medical Corps.—Drs. F. W. Manning and Charles R. Totton, Windsor, have been accepted by the Canadian Government for service with the Army Medical Corps in France.—Dr. Irving Heward Cameron, professor of surgery in the University of Toronto, has left for England to accept the position of honorary visiting surgeon on the staff of King George Hospital, an institution with 1,600 beds, recently founded. Professor Cameron will be associated with Sir Frederick Treves, Sir Arbuthnot Lane and other distinguished English surgeons.—Dr. Michel Lefevre, Maisonneuve, Que., has left on an extended trip to California.—Dr. E. Vincent Sullivan, St. Stephen, N. B., has left for Montreal to sail at an early date with the Army Medical Corps for Europe.—Dr. Harris C. Mersereau, Montreal, is going to the front in command of a field ambulance.—Dr. Alfred B. Atherton, Fredericton, N. B., has returned from an extensive trip to California.—Dr. Lorne D. MacIntosh, Hartland, N. B., has sailed for England to act as surgeon in the Imperial Army Medical Corps.—The Hon. Dr. Henri S. Beland, St. Joseph, Que., one time member of the Laurier Government in Canada, has been interned from Belgium where he was when the war broke out. He is now in Germany as a prisoner of war. Dr. Beland had been attend-

ing wounded Belgian soldiers in the castle of Capellan.—Dr. James E. M. Carnwarth, Riverside, Hopewell Hill, N. B., had an unusual experience on a recent professional trip returning from a night visit. His motor car ran into two moose lying on the road.—Dr. Harry B. Lawson, Rolling Dam Station, N. B., has departed for Montreal to sail for the war.—Dr. Alan H. N. Kennedy, Macleod, Alta., has been appointed medical referee for the province of Alberta under the Workmen's Compensation Act.

GENERAL

Red Cross Seals.—The American National Red Cross has placed an order for 125,000,000 Red Cross seals for 1915. New regulations in regard to procuring and selling these seals will soon be published in the Bulletin of the Red Cross.

American Surgeons Meet in Minnesota.—At the annual meeting of the American Surgical Association held in Rochester, Minn., June 9 to 11, the following officers were elected: president, Dr. Robert G. LeConte, Philadelphia; vice presidents, Drs. Charles L. Gibson, New York City, and Archibald MacLaren, St. Paul; secretary, Dr. John H. Gibbon, Philadelphia; recorder, Dr. John F. Binnie, Kansas City, Mo.; and treasurer, Dr. Charles H. Peek, New York City. The 1916 meeting will be held in Washington.

Throat, Nose and Ear Specialists Hold Meeting.—At the twenty-first annual meeting of the American Laryngological, Rhinological and Otolological Society, held in Chicago, June 16, the following officers were elected: president, Dr. Seth MacCuen Smith, Philadelphia; vice presidents, Drs. William B. Chamberlain, Cleveland; John B. Rac, New York City; Robert C. Lynch, New Orleans, and Thomas E. Carmody, Denver; secretary, Dr. Thomas J. Harris, New York; and treasurer, Dr. Ewing W. Day, Pittsburgh. The gold medal of the society offered for research work was awarded to Dr. G. H. Cox, New York City.

Congress Postponed.—Dr. J. Riddle Goffe, New York City, president of the Seventh International Congress of Obstetrics and Gynecology, announces that the meeting scheduled for September of this year will be postponed until September, 1917. This decision was reached at a meeting of the American Executive Council of the Congress recently held in St. Louis. It was decided that the expenses thus far incurred to the congress should be deducted from the subscriptions of the members of the American Executive Council of America and that the subscriptions of all other members of the organization committee should be returned to them until money is again needed in the preparation for the congress.

New Regulation Under the Harrison Narcotic Law.—The following bulletin has just been issued by the Commissioner of Internal Revenue, interpreting Regulations No. 35, Supplement No. 2, of the Harrison Narcotic Law, requiring a separate application for registry and payment of special tax if the applicant has more than one place of business, with no exception.

Art. 1. The second paragraph of this article is hereby amended, effective on and after this date, to read as follows:

If the applicant has more than one place of business, or if, in any case, the applicant is engaged in more than one profession or business where any of the drugs above described are made, stored, or dispensed, a separate application for registry must be made, and a special tax must be paid, in each such case.

Bequests and Donations.—The following bequests and donations have recently been announced:

For the establishment of a hospital in Bluffton, Ind., \$1,000, by the will of Herman Wicking, Ridgewood, N. J.

Chicago Lying-In Hospital, \$100,000, from Mrs. Julius Rosenthal, Maine General Hospital and Maine Eye and Ear Infirmary, Portland, each \$50,000, contingent bequests by the will of John E. Martin.

St. Louis Skin and Cancer Hospital, the income of the estate of George D. Barnard, appraised at \$2,000,000.

Montefiori Home and Mount Sinai Hospital, New York City, each \$10,000; United Hebrew Charities, Guild for Crippled Children and New York Skin and Cancer Hospital, each \$2,500, by the will of Mrs. Amelia Laycnburg.

St. John's Hospital, Brooklyn, N. Y., \$2,000, by the will of Mrs. Julia E. Beals.

Episcopal Hospital, Philadelphia, \$5,000, for the endowment of a free bed to be known as the William H. Richardson free bed, by the will of Alice H. Richardson.

St. Joseph's Hospital, Philadelphia, \$5,000, for the endowment of a free bed in memory of the late Rear Admiral Jackson McElmell, U. S. N.; St. Agnes' Hospital, Philadelphia, \$5,000, to endow a free bed in the name of the testator by the will of Thomas A. McElmell.

West Philadelphia Hospital for Women, donations of \$5,000 each, from Miss Mary Burnham and Miss Elizabeth Shippens, and \$1,000 by the will of Mrs. Theodore Lewis, all to be devoted to the Maternity Building fund.

Presbyterian Hospital, New York City, \$30,000, by the will of Mrs. Evelina A. Meserole.

Red Cross Work in Mexico.—Two carloads of food sent by the American Red Cross to Monterey, Mexico, have been received and greatly appreciated by the starving people. More than 20,000 have already been fed.—Corn for 7,000 was supplied at the American Hospital at Monterey, on June 5.—Corn, beans and rice are the most urgent needs.—General C. A. Duval, general manager of the American Red Cross, has been conferring with Major-General Frederick Funston, regarding the direction of the Mexican relief campaign. He also visited the various border points to expedite and safeguard the handling of relief stores.—Consular agents throughout Mexico will cooperate with the Red Cross and the military authorities on the border in the forwarding of supplies.—Two additional cars of corn have been sent to Monterey.—The American Red Cross shipped on June 10, twenty-five cases of drugs and hospital supplies to the United States consul at Vera Cruz, to be forwarded to the Spanish, American and French hospitals in Mexico City.—Famine conditions are said to prevail at Vera Cruz and in the surrounding country.—At Jalapa conditions are said to be appalling. More than 2,500 women stood in line for the distribution of rations.—Acapulco, on the west coast, is practically without food supplies and the inhabitants are reported to be starving.—Shortage in all cereals is reported all over Mexico and in Mexico City, thousands are said to be in danger of perishing from hunger and epidemic diseases.—Smallpox and typhus fever are reported to prevail in the city of Mexico.

The Campaign Against Cancer.—The American Society for the Control of Cancer urges every state medical society to take an active part in arranging meetings for the spread of the latest knowledge among members and the public of malignant disease. The Pennsylvania State Medical Society has suggested that medical journals help in the propaganda and many of them will devote their July issues to the cancer problem. The American Society has recently restated its relation to the cancer campaign and to the various other organizations working along the same line. The national society has endeavored to work in harmony with other agencies and so to arrange its work and organization as not to duplicate efforts in cancer prevention. It organizes no local societies where existing agencies cover the field, and will not attempt to enter the field of biologic research already so well covered under the auspices of the leading universities. The society expects, however, to expand that feature of its work relating to the collection and collation of statistical data, which need to be improved both as regards their collection and publication. At the suggestion of the society the United States Census Bureau immediately began the preparation of a report on the cancer mortality in the United States registration area in 1914. In this report the deaths will be stated in detail under some thirty titles of organs and parts of the body affected, rather than, as hitherto, under the six general groups of the international list. This will conform to the plan of the Imperial Cancer Research Fund, making the data available in the same form as those of England and Wales. The bureau will also attempt to make a distinction between returns based on certain and on doubtful diagnoses, and to establish this is making inquiry of physicians reporting cancer cases as to whether the diagnosis was based on clinical findings alone or was established by surgical operation, microscopic examination or necropsy. Much of this work, it is believed, should be done in the first instance by registration officers or the boards of health of the various states where the original certificates of death are filed. The society urges on the various state officials the need of doing this work in order to insure the permanence of the improvement in the statistical study of cancer which has been inaugurated by the census bureau. The society is further interested in and will give special attention to special statistical studies of the geographic, racial and occupational distribution of cancer, and endeavor to collate on a uniform plan the records of the surgical treatment of the disease in the leading hospitals so that an authoritative answer may be available to inquiries as to what percentage of success is to be expected in the treatment of cancer in each of its phases and stages.

WAR NOTES

Swedish Hospital at Paris.—The Swedish colony in Paris has established a hospital within the premises of the Swedish church in the rue Guyot. The *British Medical Journal* states that the hospital makes a specialty of Swedish massage by experts. Dr. Périer is in charge of the hospital.

Typhus Conquered in Serbia.—Advices to the *British Medical Journal* of June 5 confirm the news that the epidemic of typhus in Serbia is now virtually extinct. On April 5, there were 8,198 cases of typhus at Nish and by April 18, only 948. The number of cases of relapsing fever had dropped from 7,693 to 4,861.

Philadelphia Unit Leaves for War.—The University of Pennsylvania expedition composed of doctors and nurses led by Dr. J. William White, sailed from New York, June 12, on the *St. Louis* for work in the American Ambulance, Paris. The medical members of the party are Drs. James P. Hutchinson, chief surgeon; Daniel J. McCarthy, neurologist; Drs. Edmund B. Piper, Arthur E. Billings and Peter M. Keating, assistant surgeons; Dr. Samuel Goldschmidt, bacteriologist; Drs. Thomas Galler and D. M. Davis, assistants, and four nurses.

Armenian Red Cross Fund.—Armenia joins Russia in the eastern part of Asia Minor, and 10,000 Armenian volunteers are now fighting in the Russian army. This number will soon be doubled, but they have no medical men except a few medical students from Kieff. Armenians all over the world have equipped and maintain the soldiers, but there are no Red Cross appliances of any kind. Thousands of refugees have crossed the border into Turkestan, 12,000 are known to be at one point. An appeal for a Red Cross and Refugee fund for the Armenians is published in the *Lancet*; the treasurer is Mr. H. A. Godson Bohn, 17 Holland Villas Road, Kensington, England.

New Motion Picture on Tuberculosis.—It is announced in the Bulletin of the National Association for the Study and Prevention of Tuberculosis that after several months of work the association, in cooperation with the Universal Film Co., has produced a new four-reel film called the "White Terror." It is said to be a production with "dramatic punch," carrying several lessons concerning the use of fake cures for consumption, the danger of bad housing and working conditions and the evils of political corruption as it relates to public health. As this film will be distributed in the regular service of the film company, which supplies half the theaters in the United States, it will be seen by a large number of persons.

The Touring Club and the War.—The efforts in recent years of the organized automobilists of western Europe to improve the roads have proved of signal service in the military operations in the last few months. The headquarters of the Touring Club of France are in the magnificent premises where was kept the safe supposed to contain the fabulous fortune of the Humberts. The members of the club are mostly fighting at the front, and the building has been devoted to the preparation of packets of gifts to be sent to the men on the firing line. Souvenir postcards, medals and little flags were sold to add to the funds for this purpose, all commemorating the big gun, "the seventy-fiver." They were sold by the thousands of members of the Touring Club for a few pennies each, and the *Lancet* states that special arrangements had to be made with the banks to deal with the huge amounts of small coins thus turned into the treasury of the club. Far over a million dollars had been realized by the first of June, and the reports are not all in.

Aid for Belgian Physicians.—The report of the treasurer of the committee of American physicians for the aid of the Belgian profession, for the week ending June 19, 1915, lists the following contributions:

Dr. L. O. Tarleton, 1st Lieut. U. S. A., Manila, P. I.....	\$ 5.00
Norwich Medical Association, Norwich, Conn.....	25.00
Westmoreland County Medical Society, Mount Pleasant, Pa...	25.00
Elmira Academy of Medicine, Elmira, N. Y.....	50.00
Dr. Angus McLean, Detroit, Mich.....	30.00

Receipts for the week ending June 19.....	\$ 135.00
Previously reported receipts.....	7,312.00

Total receipts	\$7,447.00
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Previously reported disbursements:	
1,625 standard boxes of food at \$2.20.....	\$3,575.00
1,274 standard boxes of food at 2.30.....	2,930.20
353 standard boxes of food at 2.28.....	804.84

Total disbursements	7,310.04
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Balance	\$ 136.96
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F. F. SIMPSON, M.D., Treasurer,
5 Jenkins Arcade Bldg., Pittsburgh, Pa.

Repair after Wounds of the Jaws.—The *Lancet* reproduces an account of a visit to the Strassburg hospital where a

staff of specialists is striving to reduce to the minimum the ravages caused by wounds of the mouth and face. It is said to be the first that has ever been organized in any war for the treatment of wounds of the face and jaw. "The staff numbers fifty-five, and all the work (including the cooking), which is done by the wives and daughters of the professors, is performed without fee. The hospital itself is divided into two sections. In the first a dozen dentists examine the teeth of the soldiers, extract, and make plates. This work is carried out at the cost of the military authorities, who adopt the very reasonable point of view that a soldier with defective teeth cannot be thoroughly efficient. The remaining section of the hospital itself comprises two subdivisions—the operating theater and the department in which are made the prosthetic molds destined to replace the bones or sections of bone sacrificed in the operation, and the surgical work is entirely done by dentists, most of whom have taken their medical degree. The wounded are photographed and roentgenographed on their arrival and photographed before departure, and these photographs and roentgenograms will constitute a collection of the highest scientific interest." At the moment of the visit more than 200 soldiers were undergoing treatment there, and the results already obtained are said to be almost marvelous.

BERLIN LETTER

BERLIN, May 26, 1915.

Visit to Camp of Prisoners of War

A party of 400 Berlin physicians, May 25, visited the camp of war prisoners installed near Berlin on the large parade ground at Döberitz. About 9,500 prisoners are quartered there, housed in new wooden barracks, partitioned off. The camp is laid out in blocks, and the prisoners are quartered by nationalities.

Although the requirements as to food differ according to the nationality, the profession and other individual peculiarities, yet nowhere were visible signs of insufficient nourishment. Not a few of the captives appeared excellently well nourished. As is easily understood, the living rooms and especially the sleeping quarters are primitive. The governments now have to care for 1,400,000 prisoners in the various concentration camps. The prisoners keep in the open air almost all day long, and the open windows and doors provide for ample ventilation. Everywhere we found good air in the barracks.

All the prisoners are obliged to keep themselves clean. Each one is compelled to take a shower-bath every day, a simple but well-working shower-bath arrangement being installed in each barracks. Every three weeks the clothing of each of the prisoners is sterilized with hot air. There is a huge central establishment for washing the body linen, and in each block there is a separate wash-house where the captives can clean their clothes and linen.

Each captive receives daily 300 gm. of bread, with coffee, tea or soup in the morning; at noon, one-fourth liter soup, with vegetables, potatoes and 100 gm. meat; for supper, soup, with sometimes tea or chocolate. There is a cook-room in each block, where the meals are prepared in four large kettles. Near the cook-room there is a bar or canteen where articles of food and clothing and sewing materials are for sale at fixed, very low prices. Most of the captives are able to supplement the regular ration served out to them as they receive donations forwarded to them from their homes. A special pavilion is devoted to this package service, eight officials receiving and carefully examining the parcels and handing them over to the prisoners.

There are four latrines to each block. The cement floors of the closets are flushed with a perpetual flow of water sweeping the excreta at once into the sewer, so that there are no disagreeable odors in or around the latrines.

ARRANGEMENTS FOR THE SICK

Three pavilions in the camp shelter the sick, one for internal medicine, one for surgery and one for contagious diseases. Besides these there is an isolation pavilion, fifteen minutes' walk from the camp. The health of the Döberitz camp is very good; there were only nine inmates in the medical ward and ten in the surgical, none very sick, and the contagious pavilion was empty. In the isolation pavilion there were a few tuberculous French prisoners. Two Russian and two English army surgeons have charge of the sanitary and hygienic care of the prisoners.

HOW THE PRISONERS PASS THE TIME

At present there are only 3,500 captives in the camp, as 6,000 are being utilized in farm work in the neighborhood. The captives still in camp are also occupied in farm or road work or called on for service inside the camp. In special cases more freedom is allowed, as, for instance, in one small building where several artists are at work, painting portraits and other pictures, paints having been supplied them by gifts from friends at home. A large tent has been set up for a Russian theater, the stage setting artistically adorned by some of the Russian prisoners. There is a similar institution also for the English, and we had the peculiar pleasure of hearing an orchestra of English prisoners render the overture to Don Giovanni. The orchestra is only partly composed of professional musicians.

PARIS LETTER

PARIS, June 3, 1915.

The War

A NEW IMPROVEMENT IN THE TRANSPORTATION OF THE WOUNDED

The transportation of the wounded, which was the weakest side of the organization of the medical service at the beginning of the war, has since then been considerably improved. The removal of the wounded has been so far accelerated that at noon, April 29, soldiers who had been wounded at the Yser on the 28th were received at the station of La Chapelle, which is the distributing point for the entrenched camp of Paris. This progress is due in part to the greater number of medical service trains. There are at present more than 200 of these. It is also partly due to a change in method. For many months wounded men were transported like ordinary passengers, being fed and their wound dressed at the station infirmaries. Now there are three kinds of medical service trains: (1) trains called permanent, which are composed of special coaches for the exclusive use of the wounded; (2) trains called semipermanent, which are composed either of baggage cars arranged for reclining wounded men or of passenger cars with a side aisle (these coaches are arranged to receive both seated and reclining wounded men); (3) trains called improvised, made up of coaches or of baggage cars fitted up with apparatus for suspending litters and intended to receive wounded men who are unable to sit up (these last trains are utilized only for intensive evacuations).

To make of each train the hospital on wheels demanded by the medical service, however, certain indispensable features must be provided. The departmental instructions prescribe only the addition to the train of a restaurant car, which is to serve as an office, a pharmacy, a dressing room, a diet kitchen and a dining room for the staff. This solution, which answered as a makeshift during a period of transition, is really unsatisfactory. It is impossible to adapt to such various uses a single restaurant car. Moreover, each one of these cars weighs 37 tons. To carry one of them three coaches of wounded men must be omitted. Something better, therefore, is required. Commandant Carcenat, commissary officer of one of our stations, has endeavored to solve the problem. He has devised the transformation of an ordinary baggage car 9.5 or 10 meters (31 or 33 feet) long into either a dining car or a hospital car. The dining car comprises the kitchen, with stove, coffee urn, cupboard and pantry, and a dining room for sixteen men. The cost of fitting it up is about 800 francs (\$160). The hospital car comprises three rooms: (1) a diet kitchen with a very small water heater surrounded by asbestos, capable of boiling 200 liters of water in an hour (this permits the preparation of hot drinks and of aseptic dressings at any hour of the day or night); (2) the pharmacy, containing indispensable remedies such as morphin and caffeine, ampules of cocaine and ether and antitetanic and antidiphtheric serums; (3) a very simple dressing room, but arranged according to all hygienic rules with an operating table composed of two tripods connected by a cross bar on which the litter is placed. Every soiled object is thrown into the furnace of the locomotive at the first stop. The cost of fitting up a baggage car as a hospital is about 1,100 francs (\$220).

To increase the number of these moving hospitals as much as is desirable outside assistance is permitted. The city of Paris has just fitted up, at its own expense, seven baggage cars as kitchen and dining cars. The city of Lyons has done the same. Societies and private persons can easily collect the amount necessary for such refittings.

RESULTS OBTAINED AT THE SCHOOL FOR CRIPPLES AT LYONS

I mentioned in my previous letters (*THE JOURNAL*, March 13, 1915, p. 923, and May 15, 1915, p. 1671) various endeavors which have been made to reeducate cripples for vocations. M. Edouard Herriot, mayor of the city of Lyons and senator of the department of the Rhone, has just reported the results already obtained in the first *Ecole professionnelle de blessés* at Lyons. The school has at present ninety-three pupils, eighty-five resident and eight nonresident. It gives instruction in the following subjects: (1) bookkeeping, stenography, typewriting, etc.; (2) shoemaking; (3) sewing; (4) carpentry and joinery, and (5) bookbinding. It is also proposed to lay out extensive grounds for the instruction of some of the war cripples in horticulture.

All the pupils employed in manual labor are obliged to give their evenings to courses of general instruction graded according to the previous education of the pupils.

The purpose of the school is to produce not merely passable workmen but model workmen, and to combat the tendency of crippled soldiers to seek for wretched little government jobs. In order to keep the pensioners as long as may be necessary to teach them the complete technic of their trade and permit them to become teachers, employers or foremen, they are given substantial inducements; that is, they are given free board, no claim being made on the allowance made them by the government, and at the same time they are permitted to receive the returns from their daily work.

IMMEDIATE TREATMENT OF WOUNDS OF WAR BY
CONCENTRATED SOLUTIONS OF SEA SALT

At a recent session of the *Société de chirurgie de Paris*, Dr. Abadie of Oran reported good results obtained by treating wounds with concentrated solutions of sea salt which, being hypertonic, produced an exosmosis, thus bathing the tissues while promoting diapedesis. These solutions, unlike antiseptics, are not toxic for the cellular elements. After the wounds have been freely laid open and carefully cleansed, removing the dead and suspected tissues, Abadie irrigates freely with a 0.7 per cent. solution of sea salt and then packs the wound with gauze wet in the mother solution of from 14 to 28 per cent. A thick dressing is necessary because of the abundant serous effusion. This mode of treatment gives red and healthy wounds, in which infections are aborted at the start. Old wounds are deodorized and the general condition is not comparable to that ordinarily presented by severe wounds.

Dr. Morestin, surgeon of the hospitals of Paris and agrégé, has also made much use of salt but not in precisely the same conditions as those reported by Abadie. He has used it especially in the treatment of old wounds and particularly of varicose ulcers. The salt rapidly modifies wounds which are atonic or covered with exuberant granulated tissue. It gives them a healthy appearance and hastens repair. This treatment, however, has the disadvantage of being painful.

THE DANGER OF PUTTING TYPHOID AND PARATYPHOID
PATIENTS IN THE SAME WARD

At a recent session of the *Société médicale des hôpitaux de Paris*, Drs. Jeanselme and E. Agasse-Lafont reported a case of successive infection first by the paratyphoid B bacillus and then by the Eberth bacillus, which raises an important problem of prophylaxis. A soldier brought back from the front who had been infected with paratyphoid B was placed in an isolation ward in which there were both typhoid and paratyphoid patients. The case first ran a normal course and then seemed to have a relapse, which was followed by a second relapse. The possibility was then considered of the complication being not a relapse but a new infection. Serodiagnosis with the Eberth bacillus, which had been negative during the first attack, was now found distinctly positive.

This fact seems to indicate that typhoid and paratyphoid patients should be separated, the two groups of patients being dangerous to each other, since the two diseases are absolutely distinct and neither immunizes against the other, as has been proved by vaccination. Prudence is all the more desirable since cases of paratyphoid are now extremely frequent, being even more numerous in certain regions than cases of true typhoid.

AN AMERICAN FIELD HOSPITAL

A field hospital of the type used in the American army has just been exhibited in Paris. It is due to the generosity of

the Fahnestock family of New York. It consists of twenty-two khaki-colored canvas tents. Eight conical tents are for the use of the staff. Six oblong tents are to be used for the wounded; each tent can receive eighteen so that there is a capacity of 108 wounded. Five hospital tents have a double covering, a circulation of air between the two layers of canvas maintaining an even temperature within the tents. Three of these five are for operation rooms; the fourth is used as a pharmacy and the fifth is for the reserve medical appliances. Three tents are intended each to accommodate two officers. These twenty-two tents and their contents are placed on four trucks furnished by the French government. To this unit, which is about to go to the front, are attached ten large automobiles belonging to the American hospital of Neuilly. Each of these cars can carry four or five wounded men sitting and three who are unable to sit up. The great utility of this ambulance will be in seeking out the wounded at the first aid post behind the line of fire and transporting them rapidly after the first dressings to the stations.

PHYSICIANS WHO HAVE RECEIVED THE DECORATION OF
THE LEGION OF HONOR

Among the physicians serving in the army whose names have been inscribed on the roll of the Legion of Honor are a certain number of professors and agrégés of our medical schools. Two of these nominations deserve particular mention. Dr. Chavannaz, professor of clinical surgery at the *Faculté de médecine de Bordeaux*, head physician of the ambulance of the army corps "has insisted, in spite of his age, on performing campaign duty; he has rendered the greatest services to the wounded by his operative skill and his organizing talent." Dr. Paviot, professor of pathologic anatomy at the *Faculté de médecine de Lyon*, "has, since the beginning of hostilities, directed an evacuation hospital under difficult circumstances with a technical competence and an initiative which are equalled only by his absolute devotion to the service."

LONDON LETTER

LONDON, June 4, 1915.

The War

GERMAN AIR RAIDS

German airships have dropped incendiary bombs on South-end, on the estuary of the Thames, causing fires which were promptly extinguished, but not without the loss of lives of several women and children. They also reached some of the outlying parts of London with a similar result. Four adults—three women and one old man—and two children have perished. The incendiary material used is "thermit," which was originally a mixture of equal parts of iron oxid and finely divided aluminum. This mixture may be ignited by a match of magnesium wire ending in a small quantity. When started in this manner, the ignition spreads through the whole of the mixture, reducing the iron oxid to metallic iron, with formation of aluminum oxid, and evolution of an amount of heat sufficient to melt the iron. Thermit has been largely used to weld wrought and cast-iron objects and to mend fractures in machinery, the operation being carried out by surrounding the point to be welded with a metallic box filled with thermit. Better results have been obtained by modifications of the original formula, in which powdered aluminum and calcium, or a powdered alloy of these two metals, are used instead of aluminum alone.

THE WAR MEDICAL SERVICE

In his presidential address to the General Medical Council, Sir Donald MacAlister reviewed the position created by the great demand for surgeons of the new armies. He pointed out that our professional reserves, at no time large, have been drawn on to the full. Throughout the kingdom, organized efforts are in progress for such readjustments of civil practice as will liberate all who can possibly be spared for the medical service of the navy and army. In these efforts, the Scottish Emergency Committee and local committees of the British Medical Association, with the effective cooperation of members of this council, have taken a leading part. The services of qualified women have been freely offered and accepted for many of the places that are now vacant at home. Senior students enrolled in the combatant ranks have been recalled by the War Office and directed to complete their curriculum with a view to qualification for the Royal Army Medical Corps. From overseas have come

large numbers of our colonial colleagues, who are possessed of qualifications registerable in this country, and so are eligible for commissions in our army. Owing to a special regulation of the council, about sixty Belgian doctors of medicine have become legally qualified to practice in Britain and to occupy professional positions in public and other institutions. From all these sources we have obtained timely and valuable help, but they must be supplemented. If we are to make good the losses in the Army Medical Service we must accumulate larger reserves. The casualty lists and the lists also of awards for conspicuous gallantry testify to the magnitude of these losses. Inquiries as to the number of students actually in attendance on courses of medical study at the several schools show that, at the end of 1914, there were considerably over 1,000 fewer than in 1913. The recall of senior students from active service has had a favorable effect on the year now drawing to a close, but we must expect during the next few years a falling off of about 250 per annum in the number who become qualified as medical practitioners. Surgeons in Canada have been desirous of coming to the aid of the mother country, but have been hindered by difficulties connected with their local registration laws. Sir Donald MacAlister communicated with the various medical authorities concerned, and the response has exceeded all his expectations. From Ontario, British Columbia, Saskatchewan, Manitoba and Alberta came messages stating that legislation had already been initiated for the removal of existing provincial restrictions, and that the provinces desired that reciprocity with this country might be established at the earliest possible date. When the necessary steps are completed—and he has reason to think that no obstacles need be apprehended on this side of the Atlantic—all the provinces of Canada will have severally entered into reciprocal relations with the United Kingdom, the way will be open for the application of the medical act to the dominion as a whole, and the medical federation of the empire will be accomplished.

THE INCREASE OF WOMEN PHYSICIANS

The great increase in the number of women physicians in this country—from two, forty years ago, to over 1,000 at present—is reflected by the enlargement of the London School of Medicine for Women, at a cost of \$100,000. Sixty new students will join the school in October, and the pressure on the space in the laboratory at which 220 are working is already very great. The increase in the number of women physicians was in progress before the war, but has been greatly accelerated by the shortage of men physicians produced by it.

INCREASE OF CANCER

The annual report for 1913 of the registrar-general, which has recently been published, unfortunately confirms the view that cancer is increasing. The deaths from this cause were greater in 1913 than in any previous year on record. The mortality among males was equal to 947 per million living, and among females to 1,155 per million, compared with rates of 913 and 117, respectively, in the year 1912. The tables show a constantly increasing mortality in proportion to urbanization, which is more serious in the case of males than females. According to the registrar-general, Dr. Stevenson, differences of the dimensions shown may be due to the better facilities for diagnosis in the urban areas, where a much larger proportion of the deaths occur in institutions in which postmortem examination is the rule, than, as in private practice, the exception. The considerable increase of mortality now recorded is very uniform, being common to the two sexes in every class of area. It is also widely spread over the different age periods, the chief exception being in the case of women at very advanced ages. The excess of female mortality over that of males is concentrated mainly on the ages from 25 to 55. At other ages there is either practical equality or a male excess, as at ages from 60 to 85 in the country generally. The increase of mortality from cancer of various organs differs. In both sexes the most rapid rates of increase are furnished by cancer of the alimentary tract, especially the intestines and stomach. Diseases of the female breasts also claim a rapidly increasing number of victims, while mortality from uterine cancer is diminishing. Child-bearing appears to increase the risk of uterine and diminishes that of mammary cancer. The mortality from cancer of the liver remains stationary. Secondary growths are mentioned with especial frequency in cases of breast cancer. Deaths thus certified amount to 33 per cent. in the case of the breast, whereas in the case of most other important sites the proportion falls short of 10 per cent.

Marriages

WILBURN H. SMITH, M.D., to Mrs. Clara Rood Royce Akeley, both of Long Beach, Cal., at Santa Barbara, Calif., June 10.

FRANK HARMAN SMITH, M.D., Clintonville, Ky., to Miss Maude Hooser of Crowder, Okla., at Jeffersonville, Ind., June 2.

EDGAR FLOYD SEWELL, M.D., Somerville, Mass., to Miss Edna Florence Gordon of West Somerville, Mass., June 9.

MATTHEW HAMMOND GRISWOLD, M.D., Kensington, Conn., to Miss Vermadel Rodgers of Burlington, Vt., June 24.

JEREMIAH MILTON NEWMAN, M.D., Philadelphia, to Miss Ora Arnetta Johnson of Richmond, Va., Dec. 2, 1914.

CLARKE JACKSON STALLWORTH, M.D., Thomaston, Ala., to Miss Mary Carter Adams, at Consul, Ala., May 19.

THOMAS GRIER MILLER, M.D., Philadelphia, to Miss Sarah H. George of Baltimore, in Philadelphia, June 3.

JOSEPH FRANCIS MELOAN, M.D., Media, Ill., to Miss Josephine Michael Block of Elsberry, Mo., June 1.

IRVING GEORGE WILTROUT, M.D., Swanville, Minn., to Miss Louise Schaefer of Two Rivers, Wis., June 5.

CHARLES MORGAN WILLIAMS, M.D., to Miss Jane Little Willison, both of Washington, N. J., June 8.

LEO ALBERT GOODMAN, M.D., Dubuque, Ia., to Miss Mary Cecelia Downey of Hammond, Ind., June 12.

THOMAS JEROME HENNEBERRY, M.D., Cheyenne, Wyo., to Miss Fredrika Dolcater, at Denver, June 2.

NORBERT CHARLES NITSCH, M.D., to Miss Ethel Marie Katzenberger, both of Baltimore, June 23.

CONSTANTINE J. MCGUIRE, JR., M.D., to Miss Alicc M. Cordier, both of New York City, June 10.

CHARLES TAYLOR MOSS, M.D., Champaign, Ill., to Miss Lillian K. Christoph of Chicago, June 14.

CLYDE LE GRANDE SEITZ, M.D., to Miss Florence Elizabeth Heitshue, both of Glen Rock, Pa., June 2.

LOUIS F. MOLLEUR, M.D., to Mrs. Frank Reynolds, both of Melrose, Mont., in Butte, Mont., recently.

ELMER D. MADDUX, M.D., LaCrosse, Ind., to Miss Ethyle Schriver of York, Pa., in Chicago, June 3.

JAMES RUSSELL STEWART, M.D., to Miss Belle Williams, both of Colorado Springs, Colo., June 17.

THOMAS EDWARD CONLEY, M.D., Park Ridge, Ill., to Miss Ellen May Raynor of Chicago, June 21.

GEORGE TRAYLOR EDWARDS, M.D., Elba, Ala., to Miss Annie Lou Dudley of Mulberry, Ala., June 2.

FRANK MONTGOMERY, M.D., Denver, to Miss Claire Le Wallen of Manhattan, Kan., April 29.

JOSEPH IRVING LIND, M.D., New Haven, Conn., to Miss Stella A. Mann of Baltimore, June 7.

CHARLES CLEVELAND ADAMS, M.D., to Miss Madge Campbell, both of Longview, Tex., June 5.

JOHN WESLEY CLAYTON, M.D., Johnston City, Ill., to Miss Agnes Doty of Marion, Ill., June 2.

PAUL CLEMENTS, M.D., Culion, P. I., to Miss Trinidad Munoz, at Manila, P. I., April 11.

RUDOLPH E. J. ODEN, M.D., Cadillac, Mich., to Miss Olga Wahlquist of Minneapolis, June 8.

BURGOYNE H. GIBSON, M.D., Richmond, Ky., to Miss Mattie E. Lewis of Hyden, Ky., recently.

ANDREW SARGENT, M.D., Hopkinsville, Ky., to Miss Isabelle D. King of Philadelphia, May 5.

ROY ALVIN SCHNACKE, M.D., to Miss Thursnelda Abetmeyer, both of St. Paul, June 22.

GEORGE STANLEY BARBER, M.D., to Miss Alma Lucile Fain, both of Lawton, Okla., June 9.

CHARLES OTTO MOORE, M.D., to Miss Josephine Durkee, both of Salt Lake City, June 3.

WALTER SAULSBURY NIBLETT, M.D., to Miss Ethel Wolfe, both of Baltimore, June 9.

WILLIAM H. MARTIN, M.D., to Mrs. Anna P. Doyle, both of Houston, Tex., June 1.

HENRY JAMES, M.D., to Miss Rosalie O'Brien, both of New York City, June 8.

Deaths

Charles Edward Woodruff, M.D. Jefferson Medical College, 1886; lieutenant-colonel, U. S. Army (retired); who entered the Navy as assistant surgeon in 1866 and a year later transferred to the Medical Corps of the Army; an officer of distinguished service and awarded two medals for war service; author of several books and monographs, the best known of which are probably his work on, "The Effects of Tropical Light on White People," which appeared ten years ago, and his treatise on "Medical Ethnology," which appeared last month; a Fellow of the American Medical Association; assistant editor of *Modern Medicine*; died at his home in New Rochelle, N. Y., June 15, aged 54.

Charles Elihu Slocum, M.D. College of Physicians and Surgeons in the City of New York, 1869; Bellevue Hospital Medical College, 1876; Jefferson Medical College, 1876; at one time president of the Defiance County (Ohio) Medical Association and vice president of the District Medical Society; for several years professor of psychology and ethics in the Cleveland College of Physicians and Surgeons; at one time vice president of the Merchants' and First National banks at Defiance, Ohio; for many years a resident of Toledo; died in the Flower Hospital in that city, June 7, aged 74.

Jacob Michaux, M.D. Medical College of Virginia, Richmond, 1876; a member and once president of the Medical Society of Virginia and also president of the Richmond Academy of Medicine and Surgery; professor of materia medica and therapeutics in the University College of Medicine, Richmond, from its foundation in 1893 until 1912; assistant surgeon and later surgeon of the First Infantry, Virginia Volunteers; in 1889 appointed a member of the State Medical Board; one of the most prominent practitioners of Richmond; died at his home in that city, June 7, after a long illness, aged 63.

Abraham Barker Cates, M.D. Harvard Medical School, 1880; a Fellow of the American Medical Association and professor of obstetrics in the College of Medicine and Surgery of the University of Minnesota, Minneapolis; one of the leaders in the efforts in behalf of the Elliott Memorial University and the Trast Endowment; obstetrician to the Northwestern, Asbury and Swedish hospitals, Minneapolis, and attending physician to the Bethany Home; died at his summer home in Clearwater Lake, Minn., June 10, aged 61.

John Hildreth McCollom, M.D. Harvard Medical School, 1869; formerly a Fellow of the American Medical Association; a member of the Massachusetts Medical Society and American Society of Pathology and Bacteriology, and American Pediatric Society; emeritus professor of contagious diseases in his alma mater, and medical director of the Boston City Hospital; died at his home in Boston, June 13, aged 71.

Arthur Worrall Palmer, M.D. New York Homeopathic Medical College, New York City, 1883; surgeon and professor of laryngology at the New York Ophthalmic Hospital; laryngologist to the Metropolitan Hospital, New York City; formerly editor and publisher of the *Journal of Ophthalmology, Otology and Laryngology*; died at his home in New York City, June 10, aged 52.

Joseph Walker Floyd, M.D. Medical College of the State of South Carolina, Charleston, 1900; a member of the South Carolina Medical Association and Medical Society of the State of North Carolina; chairman of the board of trustees of the Tabor (N. C.) Graded School; a veteran of the Spanish-American War; died at his home in Tabor, June 4, from cerebral hemorrhage, aged 41.

Henry Janes, M.D. College of Physicians and Surgeons in the City of New York, 1855; a Fellow of the American Medical Association; surgeon of Volunteers during the Civil War in which he served as brevet lieutenant-colonel; at one time in command of the hospital ship *Maine*; and surgeon-general of the state of Vermont; died at his home in Waterbury, Vt., June 10, aged 82.

Henry Osborn Hanawalt, M.D. Medical College of Ohio, Cincinnati, 1873; professor of organic nervous diseases in the University of Kansas, School of Medicine; a veteran of the Civil War; at one time president of the Kansas Medical

Society and the Jackson County (Mo.) Medical Society; died at his home in Kansas City, June 5, aged 70.

George B. Graves, M.D. University of the South, Sewanee, Tenn., 1903; formerly a member of the State Medical Association of Texas; formerly surgeon to the Virginia Pocahontas Coal Company, Coalwood, W. Va., and a member of the West Virginia State Medical Association; died at his home in Valentine, Tex., June 7, aged 34.

William Wabash Kneale, M.D. University of Virginia, Charlottesville, 1889; a member of the Indiana State Medical Association; for four years a member of the common council of Anderson, Ind.; physician to the American Steel and Wire Company; died at his home in Anderson, June 7, from cerebral hemorrhage, aged 54.

Lee Whitfield Staton, M.D. Kentucky School of Medicine, Louisville, 1879; of Richmond, Va.; acting assistant surgeon, U. S. P. H. S., for eighteen years; aged 58; a member of the Association of Military Surgeons of the United States; was thrown from his buggy, June 7, fracturing his skull and died fifteen minutes later.

James Small, M.D. American Medical College, Eclectic, St. Louis, 1880; resident physician to the Nuyaka Mission School, I. T., in 1890-1891; for many years a practitioner of north Arkansas, south Missouri and eastern Oklahoma; died at his home in Steedman, Okla., April 18, from pneumonia, aged 73.

Hal Laureston Speedy, M.D. Western Pennsylvania Medical College, Pittsburgh, 1911; formerly intern in St. John's Hospital, Pittsburgh, but for the last six months, assistant superintendent of the Santa Fe System hospital at Albuquerque, N. M.; died in Albuquerque, June 3, aged 29.

Maurice J. O'Connor, M.D. Northwestern University Medical School, Chicago, 1903; of Williams, Ia.; was crushed under his overturned automobile, near his home, June 7, and died a few hours later in St. Joseph's Mercy Hospital in Webster City, Ia., from his injuries, aged 38.

Powhattan Green Trent, M.D. Jefferson Medical College, 1867; a member of the Medical Association of the State of Alabama; formerly president of the Randolph County (Ala.) Board of Censors; died at his home in Roanoke, Ala., May 31, from heart disease, aged 70.

Amos T. Davis, M.D. Cincinnati College of Medicine and Surgery, 1859; formerly of Flat Rock, Ind.; died in his barrack at the National Home for Disabled Volunteer Soldiers, National Military Home, Ind., April 5, from acute dilatation of the heart, aged 79.

Edward Eilerslie Goodman, M.D. Jefferson Medical College, 1874; for forty years a practitioner of Altoona and at one time physician of Blair County; died at his home in Altoona, June 1, from cerebral hemorrhage, aged 65.

Thomas B. Ross, M.D. Washington University, St. Louis, 1866; a veteran of the Civil War and for thirty years a practitioner of Saline County, Mo.; died at his home in Slater, Mo., March 11, from sclerosis of the brain, aged 81.

James Edward Rankin, M.D. Keokuk (Ia.) Medical College, 1891; of Watertown, Ill.; died in the Watertown State Hospital, June 6, from the effects of poison, self-administered, it is believed, with suicidal intent, aged 46.

Ianthus G. Johnson, M.D. Albany (N. Y.) Medical College, 1853; for more than sixty years a practitioner of Greenfield Center, N. Y.; supervisor of the town of Greenfield for two years; died at his home, June 1, aged 85.

John Werton Hampton, M.D. Rush Medical College, 1912; of Norway, Mich.; physician for the Loretto (Mich.) Mining Company; died in St. Joseph's Hospital, Chicago, June 3, from lymphatic leukemia, aged 26.

Karl A. Norderling, M.D. College of Physicians and Surgeons, Chicago, 1887; formerly of Chicago, but since 1908 a resident of Paxton, Ill.; died at his home in that city, June 9, after a long illness, aged 58.

John Fullilove Taylor, M.D. Vermont Medical College, Woodstock, 1853; of Holly Grove, Ark.; a Confederate veteran; died at the home of his daughter in Little Rock, Ark., May 29, aged 81.

Edward F. Lake, M.D. Syracuse (N. Y.) University, 1882; of Denver; died at his home in that city, June 10, from malignant disease of the throat after an illness of more than two years, aged 55.

Daniel G. Allinder, M.D. University of Pennsylvania, Philadelphia, 1869; a veteran of the Civil War and formerly a practitioner of Pittsburgh; died in Washington, D. C., May 28.

William Henry Stettler, M.D. Bellevue Hospital Medical College, 1891; of Spinnerstown, Pa.; died in the German Hospital, Philadelphia, June 8, from strangulated hernia, aged 45.

Ross V. Dickey, M.D. Eclectic Medical Institute, Cincinnati, 1899; county physician of Allen County, Ohio; died at his home in Lima, June 9, from cerebral hemorrhage, aged 46.

John Tinsley Harrison, M.D. Atlanta (Ga.) Medical College, 1881; a member of the Medical Association of the State of Alabama; died at his home in Talladega, Ala., May 27, aged 81.

George Henry Hutchings, M.D. Eclectic Medical College of the City of New York, 1884; a practitioner for more than fifty years; died at his home in Woburn, Mass., May 30, aged 74.

Matthew Joseph McKenna, M.D. Long Island College Hospital, Brooklyn, 1912; Bay Ridge, Brooklyn; died at the home of his uncle in Brooklyn, June 4, from nephritis, aged 24.

George W. Loar, M.D. Physio-Medical Institute, Cincinnati, 1863; for nearly half a century a resident of Monroe, Ia.; died at his home, March 23, from pneumonia, aged 69.

William Webster Small, M.D. Ohio Medical College, Cincinnati, 1873; formerly of Indianapolis; died in Loomis, Calif., May 5, from chronic inflammation of the spleen, aged 64.

Alfred H. Metts (license, Indiana, 1897) of Fort Wayne, Ind.; a practitioner for nearly half a century; died suddenly in Ossian, Ind., June 4, from heart disease, aged 77.

Roy Earl Mauldin, M.D. Mississippi Medical College, Meridian, 1912; of Artesia, Miss.; aged 27, was shot and instantly killed by a druggist of that place, June 3.

John Blair Guthrie, M.D. University of Toronto, 1889; an advertising specialist of Illinois; died at his home in Evanston, Ill., June 5, from tuberculosis, aged 45.

Benedict Jones Wetherby, M.D. Rush Medical College, 1884; a Fellow of the American Medical Association; died at his home in Wilkes-Barre, Pa., May 28, aged 55.

John Gants, M.D. Eclectic Medical Institute, Cincinnati, 1872; for fifty-nine years a practitioner of Cromwell, Ind.; died at his home in that place, June 2, aged 82.

Orlando C. Stewart, M.D. University of Maryland, Baltimore, 1878; formerly of Cookport, Pa.; died at his home in Toledo, Ohio, June 2, from heart disease.

Samuel Elliott McCreary, M.D. Miami Medical College, Cincinnati, 1880; died in his office in Keokuk, Iowa, May 28, from cerebral hemorrhage, aged 58.

John Frederick Harrington, M.D. Keokuk (Iowa) Medical College, 1895; of Stacyville, Ia.; died in St. Francis' Hospital, Waterloo, Iowa, June 2, aged 53.

William P. Parr, M.D. Jefferson Medical College, 1859; died at his home in Wichita, Kan., April 6, from chronic diarrhoea and rheumatism, aged 82.

M. D. Dunham, M.D. Chattanooga (Tenn.) Medical College, 1903; died at his home in Georgetown, Tenn., June 6, from heart disease, aged 60.

Thomas Burke Walsh, M.D. University of Illinois, Chicago, 1912; died at his home in Artesian, S. D., June 3, from heart disease, aged 30.

Franklin J. Clay Griffith, M.D. Cincinnati College of Medicine and Surgery, 1874; died at his home in Annapolis, Ill., May 27, aged 71.

Jesse Dwight Bacon, M.D. American Medical College, Cincinnati, 1856; died at his home in Cannelton, Ind., June 9, aged 83.

Isaac R. Landis, M.D. Jefferson Medical College, 1865; died at his home in Philadelphia, May 29, from nephritis, aged 74.

Isaac H. Kelly, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1880; died at his home in Stone Fort, Ill., May 27.

Joseph Prevett (license, Massachusetts, 1904), an Italian practitioner of Boston; died in Derry, N. H., June 6, aged 34.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

ARTICLES REFUSED RECOGNITION

Report of the Council on Pharmacy and Chemistry

Below appear abstracts of the Council's action on articles refused recognition which were not deemed of sufficient importance to require a lengthy report.

Venodine

Venodine (The Intravenous Products Co., Denver), according to information sent to the Council, is "an Intravenous Iodine Compound" put up in ampules each of which contains "28 grains of Sodium Iodide, $\frac{1}{8}$ grain each of Beechwood Creosote and Guaiacol in a suitable vehicle, and excipients to enhance its compatibility with the circulating blood."

The "Therapeutic Indications" include "infectious diseases, such as syphilis, tuberculosis, bronchitis, bacteraemias associated with chronic and acute nephritis (Bright's disease), and other infections." The Council held as unwarranted and grossly exaggerated the following therapeutic claims: (1) that the full therapeutic value of iodine medication cannot be readily obtained except by intravenous injection; (2) that Venodine is "of exceptional value in tuberculosis"; (3) that in pneumonia Venodine "combines the anaesthetic properties of creosote and guaiacol with the germicidal value of iodine"; (4) that "Venodine (or its iodine component) has long enjoyed an exceptional reputation" as of great value in many infectious diseases including bacteremias. The facts on these points are the following:

1. Since iodids are easily absorbed from the mucous membrane of the gastro-intestinal tract and are usually well tolerated by the stomach, there is no reason for resorting to intravenous injection in their administration.

2. The indiscriminate administration of iodids for pulmonary tuberculosis is strongly to be condemned. The cases in which they can be given to tuberculous patients without doing harm must be very carefully selected.

3. There is no evidence either that creosote is excreted by the lungs in sufficient quantity to exert an anesthetic influence or that iodine is present in the circulation of the lungs or in the bronchial secretions in a form which is capable of exerting any germicidal action whatever.

4. It is generally held that the systemic administration of iodine compounds in bacteremias is useless.

The Council also held the name "Venodine" objectionable in that it fails to indicate the chief ingredient (sodium iodide) of this simple pharmaceutical mixture. The statement in a circular that "Venodine is a sterile solution representing 1.54 Gm. (24 grains) of iodine in chemical combination together with creosote and guaiacol" is likely to lead physicians to use the preparation without considering that its chief constituent is the well-known substance sodium iodide, particularly so since no reference to sodium iodide is made in the circular.

Furthermore, the Council held that the combination of two such similar substances as creosote and guaiacol (the second a constituent of the first) as given in the published formula, stamps Venodine as unscientific; it adds mystery to the preparation, but does not increase its efficiency, and is therefore against the best interests of the public.

The Council voted that Venodine be held ineligible for conflict with Rules 6, 8 and 10.

This report having been submitted to the manufacturers, in accordance with the Council's custom, and the reply affording no reason for modifying the findings, its publication has now been authorized.

Calcreose

In response to inquiries and in view of the extensive advertising propaganda, the Council, on Dec. 19, 1913, took up for consideration Calcreose (Maltbie Chemical Company, Newark, N. J.). Examination showed that the preparation contained, in loose combination, approximately equal weights of creosote and lime. The claims made in the advertising

"literature" were extravagant and uncritical, and the Council therefore held Calcreose ineligible for New and Nonofficial Remedies.

In June, 1914, at the request of the Maltbie Chemical Company, the Council undertook a reconsideration of the preparation. The advertising claims were now found more conservative. Before the existing claims could be judged, however, the Council deemed it necessary to require from the company satisfactory proof (1) that the large doses of Calcreose recommended and administered actually furnish large amounts of creosote to the blood, and (2) that patients taking these large doses do not suffer from digestive disturbances, loss of nutrition, albumin in the urine or phenol urine, as claimed. The Council accordingly advised the company of this requirement, at the same time stipulating that nothing in the report should be interpreted as indicating a belief on the part of the Council that enormous doses of creosote are necessary for, or will promote a cure of tuberculosis.

The Maltbie Chemical Company has not up to the present date furnished this proof, but has evinced a disposition to make the Council's holding Calcreose under advisement appear in the guise of a quasi-approval. It is therefore recommended that Calcreose be refused recognition for conflict with Rule 6.

Standard Radium Solution for Intravenous Use

Standard Radium Solution for Intravenous Use (Radium Chemical Co., Pittsburgh) is sold in ampules each containing radium bromid equivalent to 0.05 microgram radium element and 0.0002 gm. or less of barium bromid dissolved in 2 c.c. sterile normal physiologic salt solution.

While the Council has confirmed the claimed composition of Standard Radium Solution for Intravenous Use so far as concerns the radium content, it refused recognition to the preparation because there is no clear evidence that intravenous injection has any advantage over the other methods of administering radium. The Council holds that radium for internal medical use is in an experimental stage, that, on the basis of our present knowledge, this substance should be used intravenously only by those in a position to study its effect carefully, and in an institution equipped with the necessary facilities for such study. For these reasons and on account of the risk involved with any form of intravenous medication, the Council voted not to accept Standard Radium Solution for Intravenous Use for inclusion with New and Nonofficial Remedies.

In accordance with the Council's regular procedure this report was submitted to the Radium Chemical Company for comment. The Council, after considering the new evidence offered, decided that its previous action should be allowed to stand and accordingly authorized publication.

Rheumalgine

Rheumalgine (Eli Lilly & Co., Indianapolis) is put up both in tablet form and as a liquid. Each tablet, or teaspoonful of the liquid, is said to contain:

Strontium salicylate from Natural Oil.....	5 gr.
Hexamethylenamin	2 gr.
Colchicine	$\frac{1}{200}$ gr."

The advertising matter contains several statements regarding the individual ingredients to which objection must be made.

It is claimed (quoting from Hare) that strontium salicylate

"... is not so disagreeable to the taste as the corresponding sodium salts, and more important still, it is far less apt to disorder the stomach."

"Taste" is a difficult subject to dispute; but in the experience of the referee patients object more to the strontium than to the sodium salt. No evidence is submitted to prove that the strontium salt is less apt to disorder the stomach. In observations made under the direction of the referee, the nauseant and emetic doses are about the same as, or even less than, those of sodium salicylate.

Under hexamethylenamin, the recommendations are not confined to its recognized use as a urinary antiseptic; it is also said to be "unexcelled" as a "germicide," and to prevent the formation of urate and phosphate deposits. These statements are contrary to facts.

"Rheumalgine ... may be used in all cases where the salicylates are indicated. It is superior to preparations containing sodium salicylate, in that it does not cause nausea or disturb the digestion."

Both the preceding statements are misleading. The necessity of giving $\frac{1}{200}$ grain of colchicin for each 5 grains of salicylate would certainly interfere with the use of adequate doses of the latter. The colchicin would produce digestive disturbance quite apart from the salicylate.

The mixture is described as:

"... ANTIRHEUMATIC, ANTIPYRETIC, URINARY ANTI-SEPTIC, AND URIC ACID ELIMINANT. Useful in Acute Articular and Chronic Rheumatism, Muscular Pains, Lumbago, Sciatica, Migraine of the Rheumatic, Gout, and in Nervous Irritability of the Gouty or Lithemic."

The facts are: Salicylates are useful in some of these conditions, colchicin occasionally in a few, hexamethylenamin in none. The combination is conducive to uncritical prescribing. For instance, salicylates are effective in acute articular rheumatism; hexamethylenamin and colchicin are useless; salicylates are of very little use in chronic rheumatism, sciatica and nervous irritability, while hexamethylenamin and colchicin are useless in these conditions; colchicin is sometimes effective in gout, salicylates perhaps also; hexamethylenamin is not.

Attention should also be called to the high dosage of colchicin, namely, $\frac{1}{100}$ to $\frac{1}{50}$ of a grain of the alkaloid, every three or four hours, the dose then to be "slightly reduced," but continued for several days; or in chronic cases, $\frac{1}{100}$ to $\frac{1}{30}$ grain per day, continued indefinitely. This dosage appears high, if a really active preparation is used.

Finally, the name "Rheumalgine" encourages thoughtless and unscientific prescribing. If a mixture is used at all, the prescriber should be constantly reminded of its composition.

It is therefore recommended that Rheumalgine be held in conflict with Rules 6 (unwarranted therapeutic claims), 8 (non-descriptive name) and 10 (unscientific composition).

Correspondence

Cancer and Heredity

To the Editor:—In Dr. Slye's recent communication (The Incidence and Inheritability of Spontaneous Cancer in Mice. *Jour. Med. Research*, 1915, xxxii, 159) concerning the inheritance of cancer, reference is made by way of illustration to a type-color inheritance which, since it is quite contrary to the more generally accepted principles of mendelian inheritance, requires critical comment.

On page 160 she says, "Let me at this point recall some of the basic facts of heredity." She then proceeds, using the customary mendelian terms "dominant" and "recessive," to describe a cross between *gray and albino mice*, and indicates results which are incompatible with those of other investigators. She furthermore furnishes no data in support of this more or less revolutionary hypothesis.

As Castle, Allen, Bateson, Durham, Cuenot, Plate, Davenport, and many others have carried on investigations on this particular problem in genetics and have reached results contrary to those predicted by Slye, it seems reasonable to demand a full presentation of her data on the inheritance of *albinism* in mice. In fact, a careful repetition of such work should be expected before her claims are to be accepted.

To those unfamiliar with the work of the geneticists above mentioned, Slye's paper might be taken as presenting the well-known principles of mendelian inheritance. With a knowledge of the facts, however, it is obvious that the type of inheritance which she outlines has not been observed in similar material by any of the investigators above mentioned. That this discrepancy is not based on an oversight on the part of Miss Slye has been determined by personal correspondence.

C. C. LITTLE, Boston.

Cancer Commission of Harvard University.

[The foregoing letter was referred to Dr. Slye who writes:]

To the Editor:—Dr. Little's criticism is of course concerned wholly with a dispute on questions of mendelian interpretation. Such a dispute in no way affects the validity of my

results in cancer. Unfortunately, at the present time there is so much difference of opinion on almost every point in the mendelian doctrines that one could scarcely put out any results which would satisfy all the adherents of the different hypotheses.

The production of about a thousand spontaneous cancers in specified strains, and the nonoccurrence among this entire number of any cancer in certain other specified strains, no matter what test is applied to them, demonstrates to every reasonable probability the inheritability of cancer, and when these results are characteristically and systematically obtained in such an immense stock as to furnish over 10,000 necropsies and a living stock of about 11,000 mice, with a steady production of between seventy-five and a hundred cancer patients all the time and almost without exception within proved cancer strains, this reasonable probability is raised to an almost indisputable fact; and whether or not my strains of house mice have behaved in hybrid crosses in accordance with the established canon has no bearing whatever on the behavior of cancer. This question lies in quite another field.

In regard to my use of the terms "dominant" and "recessive" with respect to cancer behavior: It is almost the established conviction today that these terms are descriptive and not dynamic, and they furnish in the description of the behavior of cancer in heredity a graphic and convenient tool. That is probably all they furnish in the exposition of any problem in heredity. They may be discarded for even that service within the next few years.

The chief value in the study of cancer of the use of a partial mendelian background of comparison (although the details may be under dispute) is to show to those most interested how far back in a strain cancer may lie and still be transmitted, and by what sorts of crosses this can be done; and to make it plain that in deciding on the inheritability of human cancer and of the method of elimination of cancer from a family, one cannot take as a criterion of judgment whether or not the immediate parents exhibited cancer.

I do not desire or make a strict mendelian interpretation of my results; indeed, I should deplore such an interpretation. I have used mendelian comparisons (1) to make clear the influence of a more or less remote ancestry on later generations of progeny; (2) to show how cancer, like albinism, has been transmitted in my strains through generation after generation *by individuals who did not exhibit it*; and (3) to demonstrate how cancer thus transmitted finally leaps into expression in the offspring of a pair neither of whom expresses cancer, but both of whom bear it potentially.

The approximation even to conservative mendelian results is strikingly close for such a characteristic as cancer.

MAUD SLYE, Chicago.

The Otho S. A. Sprague Memorial Institute.

The Notary Fee in Applications for License Under the Harrison Narcotic Law

To the Editor:—I have just received notice from the collector of internal revenue that my application for a license, under the Harrison Narcotic Law, must be sworn to before a notary before it is sent to him.

It seems to me that we ought to make a strong protest against this very unjust rule. The fee for this service is from twenty-five to fifty cents, depending on the location. Usually it is fifty cents, which is not a very large sum; but in the aggregate it will amount to many thousands of dollars, and for what good? Absolutely none, except for the notary.

We have all complied with the law, and our licenses were duly paid for and issued for the four remaining months of the fiscal year. No notary fees were required for that. Every physician in the country entitled to use, prescribe or dispense any drug coming under the law is on record at his respective collector's office. The penalty for violation of the law in any way is very severe; therefore, why this unjust fee?

HENRY F. HOYT, M.D., Long Beach, Calif.

Kaolin, Clay Eaters and Clay-Containing Streams

To the Editor:—Noting in THE JOURNAL of June 12 editorial and other reference to the subject of the adsorption, perhaps by virtue of colloidal states of solution, by kaolin, I write to suggest that, in light of the work on its effect on the intestinal bacteria, investigations of the peculiar physiologic or pathologic state of the "clay eaters," numerous in some localities (North Carolina mountains) would be interesting. Especially would this be interesting in connection with the thought and the slight amount of experimental evidence of the possibility of life without the ingestion or the presence in the intestinal canal of micro-organisms.

Entirely aside from all but its physicochemical bearing is the curious condition of the river waters in many of the Southern streams. Even when practically motionless, they seem to hold in suspension indefinitely the whole or a considerable part of the finely divided clay particles of the soil of the territories which they drain. Much attention has for years been devoted to the fluvial waters and drinking water generally by the Italians, lately especially in connection with the etiology of pellagra. It might be that a study of the questions involved would result in considerable advance in our knowledge of many obscure problems of intestinal metabolism.

JONATHAN WRIGHT, M.D., Pleasantville, N. Y.

A "Twilight Sleep" Exhibit

To the Editor:—We have recently had presented in our city films representing "twilight sleep," accompanied by a lecture by a "German doctor." It purports to be under the auspices of the "Motherhood Educational Society." A committee of the Civic League of Saginaw, after seeing it in Bay City, protested against its presentation here—vainly, however, as the mayor found nothing objectionable in either pictures or lecture, and rebuked the women who objected to the commercial exploitation of maternity.

The lecturer subtly attacked the medical profession throughout. At the close, he invites questions from the audience. A good opportunity to test the reaction of the production is thus afforded. Some of the questions were offensive; on these the lecturer waxed witty, and there was hilarity in a considerable part of the audience. Aside from the question of bad taste, his statements were absolutely untrue. He claimed that twilight sleep was successful in 90 per cent. of all maternity cases.

What can be done to prevent such mischievous presentations to mixed audiences?

I have read with interest THE JOURNAL of May 22 with its reports of scopolamin-morphin treatment. In the light of such reports, a production such as was presented here is misleading and harmful in every way.

MRS. ELIZABETH S. CURTIS,
The Civic League, Saginaw, Mich.

Possibility of Failure in Prophylactic Typhoid Vaccination

To the Editor:—The following case is instructive from the standpoint of surgical diagnosis:

Miss X, aged 21 years, a nurse in Hahnemann Hospital, complained of anorexia and malaise for three days, at the end of which time she was suddenly taken with general abdominal pains. There was neither nausea nor vomiting. Her temperature was 102.4 F., pulse 120 and respirations 20. The white cell count was 12,000. The next morning, Dec. 27, 1914, the temperature was 103 F., the pulse 118, and pain and tenderness were localized in the right iliac fossa. Inquiry developed the fact that she had previously received immunizing injections of typhoid vaccine in another hospital as follows: Oct. 12, 1914, 500 million; Oct. 22, 1914, 1,000 million; Nov. 2, 1914, 1,000 million. The first dose was administered by the resident physician, the second by the supervising nurse and the third by a nurse in training. No ill effects whatever were experienced from the injections. In view of

these past facts and present symptoms, the case was diagnosed appendicitis, and operation performed. The findings in the appendix did not satisfy the diagnosis, and the case was closely watched. The temperature continued between 103 and 104 F. and the pulse above 110. December 28, the leukocytes were 11,600. December 29, a blood culture in glucose bouillon was negative. December 31, the Widal reaction, as was anticipated from the previous immunization, was positive. December 31, a second blood culture in bile was positive for the typhoid bacillus. Jan. 4, 1915, the leukocytes were 5,400, and rose spots appeared. The patient ran an average typhoid course, without complications, to recovery.

While the value and efficacy of typhoid immunization are undisputed and difficult to overrate, and while occurrences as cited are probably very rare, the foregoing experience may be timely and valuable in emphasizing the fallacy which seems to prevail in medical circles, namely, that recent typhoid immunization entirely eliminates typhoid fever in questions of abdominal diagnosis. The great mass of conclusive figures in favor of prophylactic typhoid vaccination are apt to blind us to the possibility of its failure in a certain very small percentage of cases for reasons which should be carefully inquired into.

S. W. SAPPINGTON, M.D., Philadelphia.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

POSTSACRAL SINUS

To the Editor:—As I have been unable to find anything in the books at my disposal, I should consider it a favor if you would give me some information on postsacral sinus, its etiology, pathology, prognosis and treatment.
C. C. I.

ANSWER.—The term "postsacral sinus" has no specific meaning, as a sinus in the postsacral region may be due to a variety of causes as, for instance, osteomyelitis of the sacrum or coccyx of tuberculous or other origin; tuberculosis of the sacro-iliac joint, or of the hip, etc. Excluding bone or joint trouble of this kind, the most frequent cause of a sinus in this region is a persistence of the blastopore, or neurenteric canal, one of the earliest fetal canals extending from the surface of the embryo near the caudal end to the notochord.

This canal usually entirely disappears at a very early period of fetal life. There is almost always a small dimple in the lower sacral or coccygeal region which marks the point of the blastopore. Occasionally the blastopore fails to disappear entirely, a small tract of varying length remaining lined with epithelium. This little tract may be closed on the surface, in which case a small cyst may develop filled with sebaceous material. The cyst may become inflamed, open and discharge the sebaceous material, when a little sinus will persist.

Again, the blastopore may fail to close, in which case an epithelial-lined sinus of congenital origin may be present; or the tract may open on the surface at some later time of life, and a sinus persist. A similar condition is occasionally found at the umbilicus, because of a persistence of the omphalo-mesenteric duct.

The proper treatment of these sinuses is simply to remove the epithelium-lined tract.

BURNS OF THE EYE FROM LIME

To the Editor:—Please give the most approved method of treatment for the common and serious accident of getting lime in the eye. I have known several persons who have lost their eyesight completely from this accident, and I have been unable to find a book that even touches the treatment in a case of this kind.
F. E. P.

ANSWER.—This form of accident occurs quite frequently, and is apt to be followed by very grave results. The most serious and important sequel is the adherence of the lid to the globe (symblepharon) when there are two opposing raw

surfaces. If the patient is seen immediately after the accident, the first step in the treatment is to drop into the conjunctival sac a few drops of a 1 per cent. solution of holocain, or of a 4 per cent. solution of cocain, in order to relieve the pain, which is usually intense, and then to remove all the remaining particles of lime as quickly as possible. The irrigating fluid should be a weak solution of vinegar, to neutralize the caustic effect of the lime. Subsequently cold applications should be applied to the closed lids, and a mild antiseptic, such as a 3 per cent. boric acid solution, dropped into the eye every two or three hours. If the burn is at all extensive, the conjunctival sac should be filled with an antiseptic ointment, which not only relieves the pain, but also prevents adhesion of the opposing surfaces. One of the best preparations for this purpose is a mercuric chlorid ointment which consists of mercuric chlorid (1:10,000) in petrolatum. Severe burns from lime, resulting in complete opacity of the cornea, have been treated—in addition to the usual local treatment—by subcutaneous injections of sodium cacodylate (from 3 to 7 grains at a dose) with perfect results. For the general practitioner who, in emergencies like this, should be prepared to treat conditions which ordinarily belong to the ophthalmic surgeon, a practical book is "The Commoner Diseases of the Eye," by Wood and Woodruff. It takes up only the diseases of the eye most frequently seen, and how to detect and treat them, without technical discussion.

REFERENCES ON DISEASE OF THE PITUITARY GLAND

To the Editor:—I want to find out all I can concerning the effect of disease of the pituitary gland. Does this gland have any effect on the growth of the body? I am particularly interested in the case of a boy, aged 17, who weighs 217 pounds, and is 6 feet 5 inches tall. The parents for three generations have been normal, and average 5 feet 8 inches in height.

J. T. GRAY, M.D., Stillwater, Okla.

ANSWER.—The following is a list of references concerning disease of the pituitary gland:

- Cushing, Harvey W.: *Pituitary Body and Its Disorders*, Philadelphia, J. B. Lippincott Company, 1912, \$4.
Pfister, F.: Two Cases with Tumors Originating from Region of Hypophysis, *Wisconsin Med. Jour.*, May 1913.
Grinker, J.: Tumor of Hypophysis in Case of Acromegaly, *THE JOURNAL*, July 26, 1913, p. 235.
Luger, A.: Some Features of Roentgenographic Changes in Pituitary Diseases, *THE JOURNAL*, Sept. 6, 1913, p. 752.
Lewis, D. D., and Miller, J. L.: Relation of Hypophysis to Growth and Effect of Feeding Anterior and Posterior Lobe, *Arch. Int. Med.*, August, 1913; abstr., *THE JOURNAL*, Sept. 13, 1913, p. 896.
Barnabo, V.: Relations Between Hypophysis and Ovaries or Testicles, *Polichinico* (Surgical), August, 1913.
Frazier, C. H. and Lloyd, J. H.: A Case of Tumor of Hypophysis, Partially Removed by Transfrontal Method of Approach, *THE JOURNAL*, Nov. 1, 1913, p. 1626.
Taylor, A. L.: Case of Tumor of Pituitary Body, *Lancet*, London, Nov. 22, 1913.
Mamrot, A.: Hypophysis Tumor Syndrome in Young Man, *Arch. de méd. d. enf.*, December, 1913.
Lunghetti, B.: Tumor in Hypophysis Region, *Tumori*, February, 1914.
Finch, L. H.: Tumor of Hypophysis Cerebri, *New York State Jour. Med.*, March, 1914.
Gilmour, A.: Hypertrophic Pulmonary Osteo-Arthropathy (Marie's Disease), *Edinburgh Med. Jour.*, June, 1914.
Johnson, W.: Pathologic Investigation of Four Cases of Pituitary Tumor, *Lancet*, London, July 4, 1914.
Eltester: Acromegaly Plus Splanchnomegaly with Hypophysis Tumor in Male Cadaver of 32, *Med. Klin.*, Aug. 2, 1914.
Viscontini, C.: Infantilism, Fat Deposits and Genital Dystrophy with Tumor of Hypophysis, *Gazz. d. Osp.*, July 26, 1914; abstr., *THE JOURNAL*, Sept. 5, 1914, p. 898.
Bergeim, O.; Stewart, F. T., and Hawk, P. B.: Metabolism of Calcium, Magnesium, Sulphur, Phosphorus and Nitrogen in Acromegaly, *Jour. Exper. Med.*, September, 1914; abstr., *THE JOURNAL*, Sept. 26, 1914, p. 1135.
Halsted, T. H.: Intranasal Operation in Tumor of Hypophysis, *New York Med. Jour.*, Oct. 31, 1914.
Williams, T. A.: Case of Pituitary Disease Showing Both Acromegaly and Adiposis, *Washington Med. Ann.*, March, 1915.

DENTAL CLINICS

To the Editor:—In the *Washington Medical Annals*, January, 1915, there was published an article on school clinics, which I wrote, based on information gathered by the U. S. Bureau of Education. This article contains the names of all communities having school clinics, and shows that at the time when the statistics were gathered (up to October, 1914) forty-six communities had clinics for treating the teeth of schoolchildren; since that time Pittsburgh has also established school clinics for the eyes and teeth. This is in reply to the inquiry of R. B. (*THE JOURNAL*, May 22, 1915, p. 1782).

GEORGE H. HEITMULLER, M.D., Washington, D. C.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALABAMA: Montgomery, July 6. Chairman, Dr. W. H. Sanders, Montgomery.

ALASKA: Juneau, July 6. Sec., Dr. Harry C. DeVighne, Juneau.

ARIZONA: Phoenix, July 6-7. Sec., Dr. John Wix Thomas, Phoenix.

COLORADO: Denver, July 6. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

CONNECTICUT: New Haven, July 13. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven; Eclectic: New Haven, July 13. Sec., Dr. T. S. Hodge, 19 Main St., Torrington; Homeopathic: New Haven, July 13. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

DISTRICT OF COLUMBIA: Washington, July 13. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

INDIANA: Indianapolis, July 13-15. Sec., Dr. W. T. Gott, 120 State House, Indianapolis.

MAINE: Augusta, July 6-7. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

MASSACHUSETTS: Boston, July 13-15. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

NEW HAMPSHIRE: Concord, July 6-7. Regent, Mr. H. C. Morrison, Concord.

NEW MEXICO: Santa Fe, July 12. Sec., Dr. W. E. Kaser, East Las Vegas.

NEW YORK: Albany, Buffalo, New York and Syracuse, June 29-July 2. Mr. Harlan H. Horner, Chief, Examination Division, State Education Bldg., Albany.

NORTH DAKOTA: Grand Forks, July 6-9. Sec., Dr. G. M. Williamson, Grand Forks.

OKLAHOMA: Oklahoma City, July 13. Sec., Dr. Ralph B. Smith, 502 Daniel Bldg., Tulsa.

OREGON: Portland, July 5. Sec., Dr. L. H. Hamilton, Medical Bldg., Portland.

RHODE ISLAND: Providence, July 1. Sec., Dr. Gardner T. Swarts, State House, Providence.

SOUTH DAKOTA: Pierre, July 12. Sec., Dr. Park B. Jenkins, Waubay.

UTAH: Salt Lake City, July 5. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

VERMONT: Burlington, July 1-3. Sec., Dr. W. Scott Nay, Underhill.

WASHINGTON: Seattle, July 6. Sec., Dr. G. N. Suttner, Baker Bldg., Walla Walla.

WISCONSIN: Milwaukee, June 29-July 1. Sec., Dr. J. M. Beffel, 3200 Clybourn St., Milwaukee.

WYOMING: Laramie, June 28-30. Sec., Dr. H. E. McCollum, Laramie.

Missouri March Report

Dr. J. A. B. Adcock, secretary of the Missouri State Board of Health, reports the oral and written examination held at St. Louis, March 22-24, 1915. The total number of subjects examined in was 14; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 26, of whom 20 passed and 6 failed. Five candidates were granted reregistration licenses. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Arkansas.....	(1913)		84.2
Bennett Medical College.....	(1914)		85.6
College of Physicians and Surgeons, Chicago.....	(1893)		75
Rush Medical College.....	(1913) 90.7; (1914)	87.5,	85.2
Tufts College Medical School.....	(1905)		80.2
American Medical College.....	(1914)	77.9, 82.4,	90
St. Louis College of Phys. and Surgs....	(1908) 77.5; (1914)	75.8, 76.6	
Washington University.....	(1904)		83.7
University and Bellevue Hospital Medical College....	(1914)		88.8
Meharry Medical College.....	(1904)		75
University of West Tennessee.....	(1914)	76, 78.9,	82.1
Fort Worth School of Medicine.....	(1906)		75
FAILED			
American Medical College.....	(1914)		72.3
St. Louis College of Phys. and Surgs....	(1910) 69.1; (1914)		71.5
University of West Tennessee.....	(1914)	70.8, 73.2,	73.5

Colorado April Report

Dr. David A. Strickler, secretary of the Colorado State Board of Medical Examiners, reports the oral and written examination held at Denver, April 6, 1915. The total number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 4, of whom 3 passed, including 1 osteopath, and 1 failed. Eleven candidates were licensed

through reciprocity. One candidate was granted a reregistration license. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Louisville.....	(1914)		88.1
John A. Creighton Medical College.....	(1914)		81.6

FAILED

Tokyo Charity Hosp. College, Japan*.....	(1911)		58.5
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* Not included in the official list of foreign medical colleges prepared by the Council on Medical Education.

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
College of Phys. and Surgs., Chicago.....	(1907)		Illinois
Northwestern University.....	(1912)		Illinois
Indiana University.....	(1913)		Indiana
Medical College of Indiana.....	(1901)		Indiana
University of Louisville.....	(1912)		Tennessee
University of Maryland.....	(1902)		Maryland
Harvard Medical College.....	(1898)		Mass.
Northwestern Medical College of St. Joseph.....	(1890)		Missouri
New York Homeopathic Medical College.....	(1881)		Missouri
Meharry Medical College.....	(1904)		Oklahoma
Memphis Hospital Medical College.....	(1898)		Mississippi

Idaho April Report

Dr. Charles A. Dettman, secretary of the Idaho State Board of Medical Examiners, reports the written examination held at Lewiston, April 6-7, 1915. The total number of subjects examined in was 11; total number of questions asked, 110; percentage required to pass, 75. The total number of candidates examined was 17, of whom 16 passed and 1 failed. One candidate was licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Colorado.....	(1914)		83
College of Physicians and Surgeons, Chicago.....	(1912)		86
Illinois Medical College.....	(1905)		84
Rush Medical College.....	(1912)		87
University of Illinois.....	(1913)		80
Indiana University.....	(1909)		83
State University of Iowa, College of Medicine.....	(1897)		84
Southern Homeopathic Medical College.....	(1904)		79
St. Louis University.....	(1906)		75
Jefferson Medical College.....	(1896) 90; (1912)		87
Medico-Chirurgical College of Philadelphia.....	(1906)		81
College of Physicians and Surgeons, Memphis.....	(1910)		82
University of Vermont.....	(1908) 80; (1914)		84
Marquette University.....	(1913)		78

FAILED

University of the South.....	(1909)		70
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College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Denver and Gross College of Medicine.....	(1908)		Utah

Minnesota April Report

Dr. Thomas S. McDavitt, secretary of the Minnesota State Board of Medical Examiners, reports the oral, practical and written examination held at Minneapolis, April 6-8, 1915. The total number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 7, of whom 6 passed and 1 failed. Twelve candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Rush Medical College.....	(1914)		87
Johns Hopkins University.....	(1914)		90
Boston University.....	(1909)		80
University of Minnesota.....	(1909)		88
Cornell University.....	(1913)		85
University of St. Joseph, Beirut.....	(1914)		82

FAILED

Hamline University.....	(1904)		69
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College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Coll. of Phys. and Surgs., Chicago..	(1907)		S. Dakota
Hahnemann Med. Coll. and Hosp., Chicago.....	(1908)		Illinois
Rush Medical College.....	(1908)		Illinois
Indiana Medical College.....	(1906)		Indiana
State Univ. of Iowa, Coll. of Homeo. Med.....	(1908)		Iowa
University of Louisville.....	(1911)		N. Dakota
Hamline University.....	(1907)		N. Dakota
John A. Creighton Medical College.....	(1913)		Nebraska
Marquette University.....	(1914, 2)		Wisconsin
University of Toronto.....	(1906)		N. Dakota

Nevada May Report

Dr. S. L. Lee, secretary of the Nevada Board of Medical Examiners, reports the written examination held at Carson City, May 3-5, 1915. The total number of subjects examined in was 13; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 7, all of whom passed, including 1 osteopath. Five candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
California Eclectic Medical College....	(1913)	87.7;	(1914) 83.3
Coll. of Phys. and Surgs., San Francisco....	(1911)	77.3;	(1914) 80.1
Tulane University of Louisiana.....	(1914)		95.3
Medico-Chirurgical College of Philadelphia.....	(1912)		86.4

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Chicago College of Medicine and Surgery.....	(1913)		Nebraska
State University of Iowa College of Medicine....	(1911)		Iowa
University of Michigan, Dept. of Med. and Surg....	(1903)		N. Carolina
St. Louis University.....	(1913)		Missouri
Omaha Medical College.....	(1896)		Nebraska

Book Notices

DIRECTIONS FOR A PRACTICAL COURSE IN CHEMICAL PHYSIOLOGY. By W. Cramer, Ph.D., D.Sc. Second Edition. Paper. Price, \$1 net. Pp. 102. New York: Longmans, Green & Co., 1915.

This is one of the best guides for a general course in chemical physiology which we have seen. It is intended for the use of the medical student, and has just enough material to enable the worker to grasp the fundamental facts of physiologic chemistry, which are of such importance in the proper understanding of the clinical phenomena. The subject-matter is divided into three parts. Part I deals with animal and vegetable tissues and fluids; Part II treats of digestion, and Part III covers, in a general way, normal and pathologic metabolism. No attempt is made to present the subject in an exhaustive way, as this is necessary only for the specialist, for whom the book is not intended. The text, which is limited to experiments and deductions from these experiments, is presented in a clear and instructive manner. This work is recommended both to the teacher who may wish a brief and practical guide for his students, and to the worker who may desire to familiarize himself with the basic principles of chemical physiology.

PYELOGRAPHY (PYELO-URETEROGRAPHY). A Study of the Normal and Pathologic Anatomy of the Renal Pelvis and Ureter. By William F. Braasch, M.D. Cloth. Price, \$5 net. Pp. 323, with 296 illustrations. Philadelphia: W. B. Saunders Company, 1915.

This is the first systematic presentation in any language of a method of diagnosis of kidney and ureteral affections, to which Voelker first called attention ten years ago. The author deplores the unjust condemnation of the method because of the deaths following its employment in a few cases. The majority of these ill effects were due to the use of too much force in injecting the solutions into the upper urinary tract. The book is based on the experience of the author in 2,000 cases, and the absence of any complication in this large number of pyelograms is the strongest argument for the gravity method which he employs. The numerous excellent roentgenograms show that pyelography is an almost indispensable diagnostic aid in renal and ureteral lesions. A careful study of the book is recommended to those interested in urology as well as in general abdominal conditions.

EVOLUTION AND DISEASE. By J. T. C. Nash, Captain, R. A. M. C., T. F., S. S. Cloth. Price, \$1.40 net. Pp. 73. New York: William Wood & Co., 1915.

This book consists of the Chadwick Public Lectures for 1913. The author traces in simple language the growth of our modern knowledge regarding the spread of disease, and shows the remedy in public education.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, SAN FRANCISCO, JUNE 21-25.

American Ophthalmological Society, New London, Conn., July 6-7.
Montana State Medical Association, Bozeman, July 14-15.
Washington State Medical Association, Tacoma, July 20-22.

MISSOURI STATE MEDICAL ASSOCIATION

Fifty-Eighth Annual Meeting, held at St. Joseph, May 10-12, 1915

The President, DR. H. C. SHUTTEE, in the Chair

Pneumonia Treated with Rosenow and Hektoen's Antigen

DR. OLA PUTMAN, Marceline: Sixteen patients received the treatment without a fatality. The average time of crisis from the onset was four and one-quarter days.

DISCUSSION

DR. C. L. WOOLSEY, St. Joseph: I recently treated a patient, aged 62, who had developed the disease two days before he called for the doctor. His symptoms, therefore, were quite grave, including a bad mitral lesion. I gave him sensitized pneumococci, four injections, the last two containing 500 million germs. He made a speedy recovery.

Essential Hemorrhage from the Uterus

DR. C. H. WALLACE, St. Joseph: In essential hemorrhage from the uterus, the flow may occur without physical signs and symptoms, except the bleeding. This flow is never intramenstrual, generally is most excessive at the menstrual epoch, and may run from one period into another. The uterus may be slightly larger than normal, but perfectly mobile and with no other physical signs of disease. It occurs in the young or middle aged. The condition seems to be allied to uterine fibrosis. The hemorrhage may extend over a period of several years, the patient's general health being impaired from loss of blood.

DISCUSSION

DR. CARYL POTTER, St. Joseph: I do not believe in the conception of essential hemorrhage. There are several constitutional causes of hemorrhage. I should hesitate long before performing hysterectomy on a patient under 35 or before the menopause.

DR. JOHN J. SHELDON, Kansas City: Hysterectomy may be the only means of relief, but it is a great injury to the patient if done unnecessarily. The number of cases, however, demanding this extreme measure is exceedingly small.

DR. C. H. WALLACE, St. Joseph: In all my cases the ovary was left. Hysterectomy should be resorted to only after every other measure of relief has failed.

Renal Tuberculosis

DR. JAMES P. HENDERSON, Kansas City: Postmortem statistics show that from 50 to 60 per cent. of the cases are bilateral. It is of great importance to know whether one or both kidneys are involved and with what degree of destruction. Early tuberculosis affects but one kidney in from 90 to 95 per cent. of cases. It is my opinion that in cases of uremic anuria or acute suppression following surgical operation on one kidney, the other is found tuberculous in from 25 to 30 per cent., and that the destruction of the kidney is either primary or secondary in 95 per cent. of cases, and is secondary to tuberculosis elsewhere in the body. Tuberculosis of the bladder and ureter occurs in from 10 to 20 per cent., and is always secondary. In the acute miliary type there is no symptom to make the physician suspect the tuberculosis, all symptoms pointing to the systemic affection. In the caseating form there may be only constitutional symptoms, no local ones.

DISCUSSION

DR. E. G. MARK, Kansas City: No urine should be taken for diagnosis or accepted for that purpose except urine withdrawn by the catheter.

DR. J. I. BYRNE, St. Joseph: If persistent irritability of the bladder, frequent diurnal and nocturnal urination which does not respond to treatment, general systemic decline, blood pressure below normal, pus or blood in the urine, exists, you have reason to suspect renal tuberculosis.

DR. J. P. HENDERSON, Kansas City: The majority of general practitioners can make the diagnosis without difficulty, but they fail in the treatment. Too often the bladder is held responsible, and treatment is given for a long period until the patient is completely "washed out."

DR. C. R. BURFORD, St. Louis: Every general practitioner should be able to diagnose renal tuberculosis. There are two points to bear in mind: First, never examine voided urine for tubercle bacilli. Second, the initial complaint of the patient generally is of bladder irritability and lessened capacity of the bladder.

Unilateral Renal Hematuria

DR. C. M. NICHOLSON, St. Louis, gave a description of the causes, varieties and pathology of renal hematuria with report of cases and the results of treatment.

DISCUSSION

DR. W. J. FRICK, Kansas City: With the various methods at our command, I believe we can usually make out the cause of this condition. The cystoscope is probably the most important of all the diagnostic methods we have, as it will show which kidney is bleeding and at the time tell us the condition of the other kidney. Next in importance is the Roentgen ray, by which we can ascertain whether the cause of the bleeding is a stone, which is the common cause for renal hemorrhage, or whether there is a tumor present, and sometimes we can obtain an idea of what kind of tumor it is if present. In tuberculosis of the kidney, the Roentgen ray may show caseation. Other methods are the microscopic examination of the urine and ureteral examination. Many cases present no symptoms except the hemorrhage, and these make up the so-called cases of essential hematuria, the diagnosis of which is made only by exploratory operation.

DR. L. T. DUNAWAY, Eldorado Springs: I had a case of renal hematuria with which I worked for eighteen months. Finally I put the patient on nitric acid, 3 drops, three times a day, and in about four weeks she was well. Another woman had suffered for fourteen months, and was weak and anemic. Then she saw a boy fall from a table and was severely shocked. From that day on the hemorrhage ceased.

DR. L. F. BODY, St. Joseph: About twelve years ago, Steinwerk first discovered that renal hematuria was sometimes due to varix in the veins and papillae of the kidney. He curetted the bleeding points, and this was followed by relief of the condition. Others have made similar cures. Renal varix, however, is not the only cause of the trouble. Other pathologic conditions give rise to hemorrhage.

DR. JACOB GEIGER, St. Joseph: In the last few weeks I have operated in three cases which had been treated medically by competent physicians. I exposed the kidneys, but careful examination failed to disclose any pathologic condition. After splitting the kidneys and suturing with catgut, I replaced the organs, and all the patients are apparently well.

DR. E. G. MARK, Kansas City: I have wondered whether the angioneurotic kidney is not responsible for the so-called essential hematuria. To have hemorrhage you must have some pathologic condition; yet we are sometimes confronted by cases in which we operate when no pathologic condition was found beforehand and no abnormal condition discovered later in the laboratory. The operation of splitting the kidney is unquestionably beneficial.

DR. J. E. DEWEY, Springfield: A man of 56 had been suffering from hematuria for three years. I was unable to find anything the matter with the kidney, so I removed it. Later searching showed a small concretion in one of the papillae which it would have been impossible for the man in his anemic condition to throw off. The second case was in a young man, an epileptic, who had been bleeding for fifteen months. We could find no lesion, either before or after

nephrectomy. Perhaps these cases would come under the head of angioneurotic kidney.

DR. C. M. NICHOLSON, St. Louis: Since in the majority of cases the symptom, whether or not we know the pathologic condition, is what we are treating, if it can be overcome by simply bisecting the kidney, this is better than to perform nephrectomy.

Factors of Safety in Goiter Operations

DR. VILRAY P. BLAIR, St. Louis: Refraining from radical operation during the height of crises, in the presence of grave degeneration, or functional disturbances of vital organs, is the most important working rule. A more potent factor, but rarely within the surgeon's control, would be to do necessary radical operations at an earlier period of the disease, before goiters reach the intensely toxic stage, before they cause degenerative changes in vital organs, and before they have become fixed in positions that render their removal excessively difficult and dangerous. Except in the presence of imminently grave obstruction, patients with simple goiters who are in poor condition should be nursed along until they are acceptable risks before thyroidectomy is undertaken. Preliminary ligation of thyroid vessels is ordinarily the most effective way of reducing the toxicity of exophthalmic goiters, and the postoperative behavior of the patient serves as a reliable indication as to how well a thyroidectomy would be tolerated. The avoidance of antiseptics and general anesthetics also reduces the liability of postoperative intoxication. Preservation of the integrity of important structures, the recurrent laryngeal nerves, parathyroids, the trachea and pharynx, is best assured by careful hemostasis during operation, the extraglandular ligation of the thyroid arteries and the preservation of the posterior capsule of the gland.

DISCUSSION

DR. W. T. COUGHLIN, St. Louis: We do not have the selection of cases in our hands. Usually the patient is sent to us with the expectation that we will operate. If the profession were educated to the point where patients would be sent to the surgeon as soon as response to medical treatment fails, the surgeon's work in selected cases would be greatly simplified. If the goiter has developed very rapidly, it is just as well to let it alone. The most dangerous cases are the rapidly growing exophthalmic type. If the patient fails to benefit by rest in bed, surgery should not be undertaken.

DR. V. P. BLAIR, St. Louis: There is one class of exophthalmic goiter which comes to the surgeon in which he will avoid operation if he regards the individual's good, unless forced to take the risk, that is, the goiter which has gradually led up to crisis, which has existed for a long time and shows evidence of degeneration, especially if mental symptoms are developing. Very interesting at present is the question of operating in those cases in which there is a suspicion of involvement of other ductless glands. Our present position is that, given a case of exophthalmic goiter, regardless of what other ductless glands may be involved, the removal of thyroid tissue will help the patient.

DR. ROLAND HILL, St. Louis: One point which ought to be emphasized is that goiters giving rise to nervous symptoms, especially in women over 25, should be seen by the surgeon before marked degeneration occurs.

Gastro-Enterostomy

DR. HERMAN E. PEARSE, Kansas City: The average length of time that patients endure dyspepsia and various stomach symptoms due to gastric and duodenal ulcer before coming to the surgeon for cure by gastro-enterostomy is fifteen years. The symptoms that bring patients to successful operative cure are pain, loss of weight, vomiting and hemorrhage.

DISCUSSION

DR. WILLARD BARTLETT, St. Louis: We do not operate for ulcer. We do not know what causes an ulcer, nor does any surgical operation cure the operation per se, an ulcer always being a secondary condition. We operate for certain complications of ulcer, and obstruction is the one which most

commonly brings the patient to operation. Perforation practically always demands immediate operation; we operate for small repeated hemorrhages which gradually deplete the patient; we operate for cancer on an ulcer basis and for "medical failures," although not using that term in any sense as a criticism, because from the very nature of the facts, many medical treatments are bound to fail. I do not believe that more than two fifths of all ulcers are surgical; three fifths are greatly benefited if not actually cured by such methods as are used by Sippy and others. Five forms of operation are applicable to ulcer, according to the case. Certain operators resect the ulcer-bearing area. Certain others resort to blocking the stomach at some point so that food cannot go over the ulcer area, and a drainage operation is done. Then there is excision of the ulcer, the fourth method, pyloroplasty, which is seldom used, and the fifth method, gastro-enterostomy, which is by far the most frequently used and the most useful of all operations for this condition.

A Question in Dealing with Abdominal Adhesions

DR. FRANK G. NIFONG, Columbia: The formation of abdominal adhesions is one of Nature's methods of limiting the extension of the infection. The observation of adhesions in animals indicates that Nature provides those most exposed to infection by habits and environment with the greatest ability to form adhesions. Resistance to peritoneal infection seems to be in direct proportion to the animal's power to form adhesions. The kind of infection producing the inflammation has something to do with the readiness by which adhesions are formed. Late postoperative shock, so-called "secondary shock" is not truly shock, but is due to the overwhelming of the nerve centers by the sudden turning loose of a large dose of protein poison. Theory is not incompatible with Crile's kinetic theory, but the application of the principles of anoci-association is impracticable. Breaking down old adhesions, breastworks in the presence of leukocytosis, or active battle in war analogy, would seem to be treasonable. What is needed from a surgical standpoint is some index to the patient's resistance and the amount of operative procedure permissible.

DISCUSSION

DR. H. E. PEARSE, Kansas City: The presence of the retained shock is correctly attributed by Dr. Nifong to the blow of extensive internal dissection. But when the heart is struggling under a load of infection, it seems to me a poor plan to add 30 or 40 ounces to the circulation by intravenous transfusion. It is desirable to dilute the blood and dilute the toxemia. I have seen two patients die very promptly from this method of treatment. The water should be placed under the skin where Nature can make use of it if she wants to take it up, but it should not be put into the circulation. The one thing that has pulled these patients through for me whenever everything else failed is atropin.

DR. W. T. COUGHLIN, St. Louis: I believe that delayed shock always indicates latent hemorrhage. The patient who dies from shock never reacts after the primary operation. Epinephrin is a very dangerous drug and should be used, if used at all, with extreme caution.

Tumors of the Carotid Body

DR. C. W. RUSSELL, Springfield, cited a case of ten years' standing, with a brief review of the anatomy, physiology and embryologic features so far as they have been investigated.

DISCUSSION

DR. J. F. BINNIE, Kansas City: About twenty years ago I operated for a tumor that I had diagnosed lymphangioma on the right side of the neck. In the course of the operation I changed my mind, and told the students present that I thought it was one of those cases then recently described in English literature as a potato-like tumor of the neck which had crystallized into tumors of the carotid. If I remember rightly, I dissected the tumor out without ligating the carotid vessels. The diagnosis of tumor of the carotid body was confirmed by Dr. Frank Hall. The subsequent history of the

case was lost in the chaos which surrounded all city hospital records in Kansas City at that time.

DR. C. W. RUSSELL, Springfield: About two years following the removal of the tumor, there appeared on the opposite side of the neck a small, freely movable tumor, which was properly located and which I removed. It proved to be a hypertrophy of one of the lymph nodes.

ASSOCIATION OF AMERICAN PHYSICIANS

Thirtieth Annual Meeting, held at Washington, D. C., May 11-13, 1915

(Continued from page 2091)

A Method of Determining Total Plasma and Blood Volume

DRS. L. G. ROWNTREE, N. KEITH, and J. T. GERAGHTY, Baltimore: The method consists of injecting into a vein a given quantity of nontoxic, nondialysable red dye; in three and six minutes, specimens of blood are taken and the degree of dilution of the dye determined. A standard solution is prepared by securing some blood before the dye is injected, and diluting an amount of dye equal to the dose to 4 per cent. of the body weight, using for the diluent 1 part serum and 3 parts salt solution. When the blood is taken after the injection of the dye, the serum is separated, diluted and compared with the standard solution: from this point the calculation is easy. The loss of the dye from the human circulation has been found to be only from 1 to 2 per cent. The dye cannot be found in the tissues, and it is not believed that it goes into the blood cells, either red or white. The average figures in normal individuals indicate that the blood volume should be 85 c.c. per kilogram, or about one twelfth the body weight. In essential hypertension and in diabetes, the blood volume has been found to be normal. In pregnancy there is a large increase in the blood mass which does not disappear until from seven to ten days after delivery. This would seem to be a physiologic preparation for hemorrhage.

Simple Method of Determining Variations in the H Ion Concentration in the Blood

DRS. L. G. ROWNTREE, MCKIM MARRIOTT and R. L. LEVY, Baltimore: The method consists of adding an indicator (phenolsulphonephthalein) to the dialysate of blood serum and comparing with a solution of known H ion concentration. The normal figures for H ion concentration are from 7.6 to 7.8. Many cases have been studied, among them twenty cases of acidosis, all of which have shown a concentration toward the acid side, as low as 7.0. In experimental acidosis, the readings went as low as 6.7, at which point the animals died. In alkalosis, the readings may go up to 8.0 or 8.1, when the animal dies. By this method the buffer values of the blood may be determined, and in acidosis the buffer values are very low. It is an easy method to study both acidosis and alkalosis from the blood side.

Case of Severe Anemia with Leg Ulcer and Remarkable Blood Findings

DRS. JEROME E. COOK, JEROME MEYER and GEORGE DOCK, St. Louis: The case is one of severe anemia occurring in a young mulatto girl. There is a complication of recurring, indolent, leg ulcers. The red cells show the greatest degree of variation both in size and shape, giving the appearance as if many of the cells had been broken into fragments; but the most frequent abnormal type is a much elongated, curled red cell often more or less sickle shaped. Among the white cells an eosinophilia of varying and sometimes intense degree is the most marked feature. The other children in the family (two), are dead; both suffered from severe anemia. Two similar cases are recorded in the literature; both cases were in mulattos and both had a chronic type of leg ulcer.

Unusual Condition of the Blood in Primary Pernicious Anemia

DR. N. E. BRILL, New York: A woman, aged 43, mother of five children, nonsyphilitic, presented all the classical signs

of a primary pernicious anemia, which began one year ago, insidiously, with gradually increasing sense of fatigue and later weakness with disturbed gastric symptoms, as vomiting for three weeks, and eructations of gas. Six weeks before coming under observation, weakness became extreme, and the skin pale and light yellow; visual power markedly diminished; cardiac palpitation, tinnitus aurium and vertigo were complained of; there had been no bleeding from the mucous membranes or into the skin. Six pounds were lost in weight during the year. Physical examination revealed a yellow skin, a slightly enlarged liver, a relatively larger spleen which could be felt over 3 c.c. below the costal border; tender tibiae and sternum, and a blood picture of high color-index (1.5) and the associated conditions of the cells indicating the presence of an anemia gravis. A transfusion of blood was done, followed in thirty-six hours by a splenectomy; following this an absence of the usual bone-marrow reaction was noted, though there was a gradual physical improvement in the patient, to the extent that she could walk again without the distress which had previously existed. In five weeks after her discharge from the hospital, there was a furibund recurrence in her symptoms which brought her back to the hospital in a worse condition than at any previous time. The blood then showed a tremendous loss of red cells, an increased activation of the leukoblastic and the erythroblastic tissues of the bone marrow, the circulating blood containing early myelocytic forms of cells, "myeloblasts or myelogones," of which a large number were phagocytic, containing one or more red cells in their cytoplasm, and a myelocytosis of 21 per cent., all accompanied by a hemoglobinemia and hemoglobinuria with the final blood picture of an acute myeloid leukanemia (von Leube) immediately before death. No necropsy could be obtained. The question arises, What relationship, if any, had the splenectomy on this unusual activation of the bone marrow?

Metabolism Studies Before and After Splenectomy in Congenital Hemolytic Jaundice

DRS. SAMUEL GOLDSCHMIDT, O. H. PERRY PEPPER and R. M. PEARCE, Philadelphia: The patient had had a severe anemia from birth with the later usual history. Metabolism studies were made both before and after splenectomy. The blood picture after operation showed marked improvement. In general, the studies indicated a tendency to lose nitrogen before splenectomy and to retain nitrogen afterward; the operation seemed to restore the capacity for nitrogen utilization. There was a high elimination of uric acid before splenectomy, with a drop of 47 per cent. in uric acid output after the operation. The iron elimination before splenectomy was 50 per cent. above the intake; after operation the iron elimination was greatly reduced. There was also a reduction of 90 per cent. in the urobilin elimination in the feces. These figures seem to support the evidence of the real benefit of the operation. Removal of the spleen seems to remove the toxic agent or the source of it, and in addition the hemolytic agent is removed as well.

Plasmapheresis

DRS. J. J. ABEL, B. B. TURNER, E. K. MARSHALL, JR., and P. D. LAMSON, Baltimore: Among the many points of view from which one may study the minute structures of the blood, the relation of cells to plasma led to experiments which consist of the removal of the plasma of withdrawn blood and the return of the cells to the circulation, a process to which has been given the name plasmapheresis. The method is as follows: An animal is bled very freely, almost to fatal exsanguination, the blood caught in a solution of herudin to prevent coagulation, diluted to double its volume with Locke's solution, centrifugalized and the supernatant plasma discarded. The cells are now diluted to the original bulk of blood with Locke's solution, and restored to the circulation of the animal. This may be done repeatedly from time to time without injury to the animal. Blood pressure estimations showed that the low pressure of the exsanguinated state was well restored on the return of the fluid to the vessels. It was also found that leech extract is not toxic, at least to the extent in which we use it. But

since the war, the supply of leeches has been interrupted and a manufactured herudin has been tried; this product is very toxic, quantities as small as 10 mg. being sufficient to kill animals with symptoms of great shock.

Preservation in Vitro of Living Erythrocytes

DRS. PEYTON ROUS and J. R. TURNER, New York: There are several practical purposes involved in attempts to preserve intact mammalian red blood cells: for culture materials in the cultivation of plasmodia; for readily available indirect transfusion material, etc. Washed cells were first used, but were found to disintegrate very early. The addition of citrated plasma prevents this injury. Gelatin, in the proportion of 0.125 per cent. in Ringer's or salt solution will also protect the cells for a long time. Cells were tested by shaking to compare their fragility when thus treated with their fragility to hypotonic salt solution: there was no relation between the degrees of fragility, though bloods differ in their behavior in this regard. Human blood cells can be washed without injury. Cells are protected but not preserved by gelatin; the addition of glucose or saccharose, however, to gelatin Ringer's solution will preserve the cells for a long time. Cells that have been kept several weeks take up and surrender oxygen normally, do not clump or show morphologic change, and behave normally in the Wassermann reaction. Rabbits were exsanguinated, and preserved blood used to supplant that withdrawn; the animals were fully restored and behaved normally after the operation. Many tests corroborated this experience. Rabbit blood can be kept alive at least two weeks. Human blood can be kept for several weeks in dextrose-gelatin solution. Effete blood cells when introduced into the circulation can take up and give off hemoglobin, but they quickly disappear from the circulation; but when the animals are treated by the introduction of blood preserved in the manner described, no changes can be found afterward, even in the spleen.

Clinical Studies in Blood Transfusion

DRS. E. LIBMAN and R. OTTENBERG, New York: In simple hemorrhage, the results of transfusion were uniformly good, especially in hemorrhage of gastric and duodenal ulcer. Transfusions made during the progress of the hemorrhage acted equally well as when made after the accident, and seemed to encourage spontaneous arrest of the effusion. In six cases of dysentery, transfusion was followed by marked improvement. In seven cases of typhoid hemorrhage, nine transfusions were done with two recoveries. Transfusion is useful in operative work, both before and after operation; but it is of no help in surgical shock. In purpura hemorrhagica, transfusion was done twelve times in nine cases; six patients recovered, the two deaths being in cases occurring shortly after pregnancy. In this disease, transfusion appears to have a direct curative value. For hemophiliacs, a donor should be picked in advance for possible needs. For prophylactic purposes, a small transfusion every few months may be useful. Transfusion is much more helpful than the injection of serum. For the treatment of postoperative hemorrhage in obstructive jaundice, transfusion was not of material benefit. The suggestion was made that in this condition there should be a preliminary bleeding with a large transfusion from several donors. In pernicious anemia and leukemia, the results were not uniformly good. In twenty-five cases of pernicious anemia, fourteen showed for a time progressive improvement; eight of these patients are alive at the present time, but they all present evidences of blood trouble. In eleven cases, transfusion was of no avail; two cases were also splenectomized without improvement. In one case, there were four transfusions, followed later by splenectomy; a remission then took place. Transfusion does more than anything else to abate the blood symptoms. It is important to try several donors when no improvement follows one or more transfusions from a single donor.

The effect of transfusion on the symptoms of pernicious anemia may be summarized thus: The appetite improves, the mental symptoms grow better, the glossitis clears up, and the blood picture improves; but the spinal cord symptoms do not improve. There is fever in 50 per cent. of the cases;

some become afebrile after transfusion. The fever may be due to toxic causes or to the anemia. In this disease, splenectomy is advisable; if no remission occurs after the operation, then transfusion should be done; or if remission does not follow transfusion, then splenectomy should be resorted to. We may thus determine the relative values of the two methods of treatment. In leukemia, there was some improvement following transfusion in a number of cases; but it was not lasting. In acute infections, transfusion has no very large field of application. Patients may be helped along by it at times, but the best results are to be had in long-continued subacute infections. In endocarditis with retention of infection, transfusion does good only to the extent of prolonging life for a time. The Unger method of direct transfusion and the Weil citrate indirect method are the best, and will supersede all others.

Discussion on Blood and Blood Diseases

DR. R. C. CABOT, Boston: In six cases of pernicious anemia, splenectomy has been done in the past four months. No marked improvement could be noted in the first two or three weeks after splenectomy; then there was a rapid rise in the cell count, more rapid than that which may be noted in a spontaneous remission or after treatment by transfusion or salvarsan. All of the cases have gone above 4,000,000 in the cell count. Four out of the six patients are now at work, whereas before the operation they were entirely helpless. The blood still shows very definite changes.

DR. JOSEPH L. MILLER, Chicago: Removal of the spleen does not remove the hemolytic agent; it seems to stimulate resistance of the cells and the bone marrow, so that the blood recovers somewhat in spite of the hemolytic agent. I recall a case in which there were progressively increasing spinal cord lesions after splenectomy, thus further indicating the retention of the hemolytic agent.

DR. R. WEIL, New York: Concerning the toxicity of sodium citrate, I used enough to keep blood fluid and in some cases to preserve such blood as long as two weeks, and then to reintroduce this blood into the circulation of animals without toxic effect. In man, 5 gm. of the citrate may be injected without producing any symptoms. The use of sodium citrate and of citrated serum has been found to have the curious effect not of increasing the coagulation time but of decreasing it. This observation may play an important rôle in the treatment of hemorrhagic diseases.

DR. THEODORE C. JANEWAY, Baltimore: My work on the arteries has shown such a lethal effect of sodium citrate on the arterial walls that it suggests caution in the use of citrated blood. Perhaps the citrate used in a transfusion is too dilute to do any harm. The results of transfusion in cases of pernicious anemia coming under my observation have been even better than those reported by Dr. Libman.

DR. J. J. ABEL, Baltimore: I have observed relaxation of the intestinal strip in citrate solution, but this is not comparable to work in vivo.

DR. R. WEIL, New York: I have injected as much as 1,400 c.c. citrated blood without producing symptoms, and I have given 5 gm. sodium citrate in water a number of times without untoward effect.

DR. PEYTON ROUS, New York: It is possible to use kept corpuscles without citrate by sedimenting and pipeting off the plasma. In using preserved blood, it must be remembered that dextrose delays clotting.

DR. W. S. THAYER, Baltimore: I have a patient who has a grave secondary anemia with a leukocytosis of 20,000. There is an increased resistance to hypotonic salt solution and a great increase of vitally staining cells.

DR. E. LIBMAN, New York: Dr. Lewis has been working with herudin and has observed the same toxicity of the manufactured article to which Dr. Abel has called attention. I would not be in favor of separating cells from plasma in transfusion work as suggested by Dr. Rous. I have seen one case in which mild diarrhea followed the transfusion of citrated blood. The symptom was trifling and its significance doubtful.

DR. N. E. BRILL, New York: Metabolism studies in my case of pernicious anemia showed no difference in iron

elimination before and after splenectomy. With better protection of cells and greater production after splenectomy, it stands to reason that there should be a retention of blood. Lecithin is known to protect blood cells, but in my case there was no increase of lipoid in the blood after splenectomy.

Treatment of Tetanus by Antitoxin Given Intraspinally

DR. MATTHIAS NICOLL, JR., New York: Experiments were made to ascertain the value of intrathecal administration of antitoxin. Guinea-pigs were given twice the minimum lethal dose of tetanus toxin; they died in three days. Pigs treated thus were given antitoxin by injection into the heart cavity; they died in from five to eight days. Tetanic pigs treated by injecting antitoxin into the sciatic nerves did no better. But pigs treated by injecting one twentieth the dose of antitoxin used in the other animals into the spinal canal recovered. Several pigs were allowed to grow so tetanic that they were twisted into grotesque shapes; out of six treated by intraspinal injections of antitoxin, three recovered. Twenty human patients were treated with intrathecal injections of antitoxin, and sixteen out of the twenty recovered. The method of treatment recommended is to give from 3,000 to 5,000 units into the spinal canal, diluting the serum to from 10 to 20 c.c. to make it thin and easily diffusible; posture is not required to assist diffusion. In addition, 10,000 units should be given intravenously. The intraspinal injection should be repeated in twenty-four hours and if necessary, the intravenous injection should be repeated also. By this method, the mortality of tetanus has been reduced to 20 per cent.

(To be continued)

AMERICAN PEDIATRIC SOCIETY

Twenty-Seventh Annual Meeting, held at Lakewood, N. J., May 24-26, 1915

(Concluded from page 2094)

Allergy to Common Foods

DR. OSCAR M. SCHLOSS, New York: A number of cases of eczema and bronchial asthma prove to be due to food allergy. A satisfactory result can be obtained in some of these cases, but not in all, because there is a lack of proper substitute foods, and it is difficult to secure the reaction in all cases. The guinea-pigs used in these experiments were divided into two groups, one of which was egg fed. After thirty-five days, they were found anaphylactic. Of the others, which were fed on egg for several months, none had developed immunity. The treatment should consist either in the administration of gradually increasing amounts of the toxic protein, or in eliminating the offending protein from the diet.

DISCUSSION

DR. JOHN HOWLAND, Baltimore: These children are sensitive to so many proteins that it is hard to give them a food on which they can be nourished. The subcutaneous test is more sensitive than the cutaneous, but more difficult to interpret. This differs somewhat from anaphylactic shock, in that it is impossible to produce passive sensitization in animals or to obtain precipitins from their blood.

DR. FRITZ B. TALBOT, Boston: The longest absolute cure I have had is three years. In about 60 per cent. of a large number of cases of asthma that I have seen recently, I have found a positive skin test to some food. Egg was the most common offending article.

DR. S. McC. HAMILL, Philadelphia: In some investigations which I have been making, I have been struck with the number of times I have obtained the reaction in children with no very definite manifestation of anaphylaxis, but with gastro-intestinal trouble accompanied with recurrent attacks of diarrhea.

DR. ROYAL S. HAYNES, New York: I have treated several cases of asthma in which the child was sensitive to egg, and in which it was also necessary to limit the amount of chicken. If the child ate a little egg or chicken, but not sufficient to develop asthma, it would get a return of eczema.

DR. ROWLAND G. FREEMAN, New York: Many children have been injured by the assumption that they have an idiosyncrasy to cow's milk. I have found none that I could not give it to, if I began with a small amount and gradually increased it to a normal quantity.

DR. ISAAC A. ABT, Chicago: While some children take care of these foods badly, others can take them without any toxic response; and the question is whether the result is due to an abnormality in the food or in the child. If in the latter, have we any means of classifying this idiosyncrasy on the part of the children?

Adaptation of an Artificial Food to Human Milk

DRS. H. J. GERSTENBERGER, H. D. HASKINS, H. H. MCGREGOR and H. O. RUH, Cleveland: There is a means of eliminating the low volatile fatty acids, for the homogenizer makes it possible to mix this fat with other constituents of the food in the form in which it exists in breast milk, and also to add any other thing that further investigation may develop, thus affording a practical method of getting much closer to securing for the great bulk of children in the cities a food which needs no dilution and can be fed to a young infant, as well as to an older one. The bacterial content is very low. The food is cheap, and will probably prove of great value to the general practitioner.

Homogenized Olive Oil-Fat-Free Milk Mixtures in Cases of Difficult Feeding

DR. MAYNARD LADD, Boston: Foreign milk usually contains a much higher percentage of fat than foods given in its place. This fact led to experimentation with other foods. By homogenizing, we are able, in cases of intolerance to cow's fat, to combine these foods with skimmed milk and produce a perfect emulsion. We can combine chemically pure casein with pure oils and pure sugars. My experiments thus far justify me in believing that in this way a food can be obtained which can be given with great improvement to the health of the patients. Olive oil combined with fat-free milk might be of great value, for olive oil costs only about a fourth as much as cream. I have had success with this method of feeding in one or two very difficult cases, but my experience has not yet been sufficient to warrant me in drawing conclusions.

DISCUSSION

DR. B. RAYMOND HOOBLER, New York: There are two types of fats: those which come from glandular tissue and those which are not glandular in type. Animals are not sufficiently or properly nourished on the latter kind of fats, but when glandular fats are added to their food, nutrition takes place. An increase in weight is not sufficient evidence of true nutrition; the animals must be able to produce normal offspring. Animals fed on nonglandular fat are unable to do this. We should inquire whether the foods suggested are capable of fulfilling this standard of nourishment.

Composition of Woman's Milk

DRS. L. EMMETT HOLT, ANGELIA COURTNEY and HELEN M. FALES, New York: After the first month there are no practical differences in the composition of the milk until the end period. The fat is highest in the transition period. In the late period, it was as high as in the mature period, except in one case. In only one case was the sugar less than 7 per cent., and in over half the cases it was over 8 per cent. It showed a diminution in quantity up to the late period. The protein did not differ much from the amount found in the early period. The milk differed but little in composition at the various ages. The total ash is practically the same in all. The ratio between the protein and the ash in human milk is practically the same as in cow's milk in the mature period, 1:5. In cow's milk, in ordinary dilutions, we are giving more mineral than the child really needs.

DISCUSSION

DR. HENRY J. GERSTENBERGER, Cleveland: What were the iron determinations?

DR. THOMAS S. SOUTHWORTH, New York: One of the interesting things is the high fat in the transition period. The bad effects of this high fat content of the mother's milk at this stage can be overcome by diluting it with some alkaline solution. The fact that the fat is normally high at this time and then begins to decrease shows that Nature comes to our aid by lowering the amount of fat.

DR. L. EMMETT HOLT, New York: The percentage of iron found by other observers is 1.7 mg. in 1,000 c.c. of milk.

Sugar in Infant Feeding

DRS. CHARLES H. DUNN, Boston, and LANGLEY PORTER, San Francisco: Eighteen patients were observed, 108 samples of urine tested, and 235 tests made. Twelve of the eighteen cases showed reducing bodies on some tests. Eight showed a loss in reducing power after shaking the picric acid. The majority were difficult feeding cases. None showed marked intolerance to any of the food elements. The effect of increased sugar on the weight of the babies was surprising. They gained rapidly at first, but less rapidly after sugar intolerance developed. It is our belief that the idea of sugar intoxication has been so exaggerated as to keep us from trying the effect of large amounts of carbohydrates for babies who show an inability to take a sufficient amount of food. Some children have been much benefited by pushing the amount of sugar temporarily above the ordinary limits.

DISCUSSION

DR. OSCAR M. SCHLOSS, New York: Some results that we obtained about a year ago did not accord with those cited. In many instances we found that the infant's urine would reduce copper, and occasionally bismuth. In a number of instances we were able to determine that the reducing substance was sugar. This sugar, however, was not lactose. It was a monosaccharid, sometimes dextrose and sometimes galactose.

DR. LANGLEY PORTER, San Francisco: There is no necessary antagonism between these findings and those in our paper; these were cases merely of disturbance, and not of intoxication. The interesting thing was the presence of reducing bodies other than sugar in such a large proportion of the urines of infants.

DR. I. A. ABT, Chicago: The idea of Finkelstein and his school is that sugar or any other food element finds its way into the circulation because there is a damaged intestinal wall. It is not damaged by the sugar or any other food, but by bacterial action or the toxic product resulting from bacterial action. Food intolerance merely means that the food breaks through the intestinal barrier.

DR. L. EMMETT HOLT, New York: What about the permanence of the gain in weight in these children? A child can have intolerance for a small amount of sugar and tolerance for a large amount. We have seen so many symptoms in children getting small amounts that we have hesitated to give a larger amount of sugar.

DR. HENRY KOPLIK, New York: There is a limitation to the amount of sugar we can administer to these children. If you persist in administering this large amount, the children gain for a while, then stand still, and finally lose.

DR. HENRY J. GERSTENBERGER, Cleveland: A high protein content will allow of a much higher percentage of sugar, and a low one most likely limits the amount.

DR. DEWITT H. SHERMAN, Buffalo: Some studies made by us seem to show that lactose stimulates motor function in the stomach more than either cane sugar or malt sugar. That, however, is probably not true, for the reason that the secretion following the ingestion of lactose was no greater than after the other two. We concluded that cane sugar stimulates the gastric secretion a little more than lactose, but that dextromaltose stimulates the secretion twice as much as lactose.

DR. J. P. CROZER GRIFFITH, Philadelphia: Last winter I tried feeding infants with foods rich in carbohydrates, and found they did very well, being able to tolerate from 10 to 13 per cent. perfectly.

DR. CHARLES H. DUNN, Boston: The problem we are studying is the possible damage produced by sugar. In this series of cases, the gain in weight was maintained, but the sugar was immediately cut down when symptoms of intolerance developed. I believe that the chief cause of those severe cases in which fat cannot be taken is prolonged overfeeding with sugar. The amount of protein given was 2.5 per cent. We found that many specimens of lactose contain gas bacillus spores and other things that tend to lead to trouble and make us draw wrong conclusions.

Indications for Treatment of Severe Diarrhea in Infancy

DRS. JOHN HOWLAND and W. MCKIM MARRIOTT, Baltimore: We tested the alveolar air in infants, and found that the carbon dioxid tension in such cases is lower than in health, especially if dyspnea is present. This low tension is an evidence of acidosis. Giving alkalis in large quantities causes the carbon dioxid tension to rise and the dyspnea to disappear. Cathartics should not be given unless there is distention of the abdomen accompanied by fever. Opium should be administered in sufficient quantity to prevent more than two or three stools a day, and alkali (preferably sodium) given, with water, in sufficient quantity and often enough to cause the dyspnea to disappear and to overcome the diarrhea. The condition is not a food intoxication, but the absence of a substance necessary to life.

DISCUSSION

DR. HENRY KOPLIK, New York: Opium is a dangerous drug in these cases, sending the children into a deeper stage of intoxication. Why attempt to stop peristalsis? Diarrhea is a means by which Nature eliminates a certain amount of poison.

DR. OSCAR M. SCHLOSS, New York: In some work which I did during the past year, I obtained results exactly comparable to those of Dr. Howland. In cases of severe intoxication and dyspnea, there was a marked lowering of the carbon dioxid in the blood.

DR. HENRY J. GERSTENBERGER, Cleveland: I should like to know the dose of alkali which Dr. Howland gives.

DR. CHARLES G. KERLEY, New York: Opium is one of the best drugs to use in intestinal diseases, but it must be used carefully. Drainage may be so excessive as to exhaust the patient.

DR. I. A. ABT, Chicago: It is important to give these children the proper kind of food to prevent acidosis, as well as to administer alkali to correct this condition.

DR. A. D. BLACKADER, Montreal: We can check peristalsis entirely with a large dose of opium, while, with a smaller one, we can check it just enough to give the digestive fluids a chance to work in the intestine. In cases of normal children, even when a cathartic is given, the stools contain much undigested food. Small doses of opium, repeated often enough to prevent this extreme waste, have never caused any disastrous results, in my experience.

DR. JULIUS P. SEDGWICK, Minneapolis: Study of the creatin-creatinin excretion in these cases of acidosis might aid in clearing up this problem.

DR. JOHN LOVETT MORSE, Boston: If there is something in the bowel that needs to come out, one should give a cathartic; but if everything doing harm is out, and the diarrhea is merely draining the tissues of water and salts, we do harm with a cathartic and good with opium. It is advisable to give alkalis before these severe symptoms develop.

DR. FRITZ B. TALBOT, Boston: In studying a large number of new-born infants, we found that the respiratory quotient was very low on the second or third day of life. It was such a low respiratory quotient as we get with acidosis or diabetes. We have not, however, found acetone bodies in the urine.

DR. JOHN HOWLAND, Baltimore: I dislike the term "acidosis," because it has been applied so loosely to a number of different diseases in which physiologic acidosis is not present. The fact that a small number of bodies of the acetone series

can be found in the urine does not prove that acidosis is present. It is only when the protective mechanism of the body is called into play that we can speak of acidosis. If the infant's abdomen is distended, the intestines being full of putrefying substances, and the baby has high fever, opium should not be given. These children do not, however, come in that condition, but with a retracted abdomen, the intestines being empty. It is dangerous to let them have eight or ten large stools a day. I give a few drops of opium after each loose stool. It is surprising how much they can take without influencing their stupor in the slightest degree. We usually give 4 gm. of alkali at a time, subcutaneously, 5 or 6 gm. intravenously, and 3 or 4 gm. by mouth. I believe protein milk, rather concentrated, and in small amount, to be the best food for these patients. The appetite is almost always lost, and many infants vomit everything that is ingested.

Reducing Substance in Spinal Fluid

DRS. OSCAR M. SCHLOSS and LOUIS C. SCHROEDER, New York: The reducing substance in spinal fluid is a fermentable, dextrorotary sugar, probably dextrose. In infants free from meningeal disease, the spinal fluid sugar ranges from 0.05 to 0.134 per cent. Approximately the same figures would obtain in cases of meningismus. The spinal fluid sugar is normal. In epidemic cerebrospinal meningitis, and suppurative forms of meningitis, the sugar is greatly reduced or absent. A large proportion of the cases of tuberculous meningitis show a decrease in the sugar of the spinal fluid. An increase of sugar alone is of diagnostic importance in this disease. The reducing substance was not found decreased in cases of idiocy, cerebrospinal syphilis or anterior poliomyelitis.

DISCUSSION

DR. ALFRED HAND, JR., Philadelphia: I have examined the spinal fluid in many cases, and have found the absence of sugar in suppurative meningitis, and its presence in practically every case of tuberculous meningitis. I have come to depend on this fact in making the differential diagnosis. I believe that the ferment produced by the polymorphonuclear leukocytes causes the disappearance of the sugar in epidemic and suppurative forms of meningitis.

Meningitis in the Newborn

DR. CHARLES HERRMAN, New York: The infection may take place through the placental circulation, but this is probably rare. It may also occur, in cases of difficult labor, through premature respiration on the part of the infant, resulting in the swallowing or aspiration of contaminated amniotic fluid. Infection may likewise take place at birth, through an injury to the skull; or after birth, through the eyes, ears, nose, gastro-intestinal tract, umbilicus or genitalia. From the fact that the *Bacterium coli* is the most common causative agent in such cases, it seems probable that the infection takes place through contaminated water in the bathing tub.

DISCUSSION

DR. HENRY KOPLIK, New York: I have seen several cases of meningitis in the new-born. Babies are considered as new-born in hospitals up to the third month. Most cases are usually of streptococcic origin. One of the cases I saw was a colon meningitis; another was due to a bacillus similar to the typhoid.

DR. L. E. LAFETRA, New York: The symptoms of meningitis are not evident in these cases, the infants showing great depression or symptoms of sepsis. They do not have very high temperatures. Various organisms are found.

A Case of Amaurotic Family Idiocy in One of Twins

DR. CHARLES HERRMAN, New York: Alcohol and syphilis have been considered factors in the etiology of this disease, but it is difficult to see how any condition in the mother could affect only one of twins. These children received breast milk for only two weeks, and it could hardly be considered to be toxic for only one child. The theory of arrest of development must also be given up, because the brain of

the amaurotic infant is normal morphologically at birth and for some time afterward. Then there gradually occurs a degeneration of all the ganglion cells and loss of function. The tendency to degeneration must be born with the child and develop subsequently. Some endogenous factor comes in and affects these children, although it does not do so in one born without this weakness.

Macewen's Sign: Analysis of Anatomic Conditions which Enter Into the Production of this Sign; Its Value in Diagnosing Changes in Intracranial Pressure

DR. HERBERT B. WILCOX, New York: A positive Macewen's sign exists when variation from the normal note is found. It consists in a relative change, rather than in a definite condition common to all diseased crania. The sign is better elicited by the stethoscope than by the unaided ear. Increased clearness of sound when percussion is made over the posterior portion of the skull, rather than near the stethoscope, is diagnostic. The sign uniformly accompanies conditions of increased intracranial tension, and is not found unless the causative factor exists. It is equally applicable to infants and to older children.

DISCUSSION

DR. L. E. LAFETRA, New York City: To me, the pitch of the sound seems of more value than its loudness. The pitch becomes higher as one approaches the bell of the stethoscope. I think the sign will prove of value in cases that are not meningitis, but meningismus, or some other type of spinal condition with increased spinal fluid.

DR. HENRY KOPLIK, New York: This is the most useful sign we have of beginning tuberculous meningitis, ordinary meningitis and serous meningitis due to otitis media. I find the greatest difficulty in applying the sign in the case of children who have had rickets. It is difficult in them to tell how much the sign is due to the slight hydrocephalus resulting from the old rickets, and how much to the new disease.

Epidemiology of Pneumonias in Children

DRS. GODFREY R. PISEK and M. C. PEASE, New York: From a study of a thousand cases, we have established a mortality rate for pneumonia of 34.3 per cent. Bronchopneumonia is preeminently a disease of the first two years of life, and is relatively uncommon after the third year. Lobar pneumonia is the type present after that period. Omitting those cases which are frankly secondary to some other condition or which occur as a terminal infection, the infection which is the etiologic factor of primary lobar pneumonia is always the pneumococcus; bronchopneumonia may be due to a number of organisms. If pneumococci are present in bronchopneumonia, they are usually one of a group of organisms, or are of low virulence. The pneumonia should be treated with a serum or vaccine derived from organisms belonging to the group causing the infection, or the therapy will be useless.

DISCUSSION

DR. JULIUS P. SEDGWICK, Minneapolis: At Minneapolis, in hospital, as well as in private practice, the mortality from lobar pneumonia in infants and young children is almost nothing.

DR. A. D. BLACKADER, Montreal: A high mortality in lobar pneumonia does not represent the experience we have in Montreal.

Unusual Case of Congenital Heart Disease

DR. JOHN LOVETT MORSE, Boston: A child of 4 years had a severe attack. No murmur could be heard by any one, however, except the house doctor. Nov. 30, 1914, he came to the hospital with the history of having been taken suddenly ill the night before. No murmurs or thrill could be heard. On the following day he was not examined, but the day after, Dr. Howland discovered a murmur, which, however, could not be heard by others. December 4, he developed a diastolic murmur, and later, a systolic murmur. This was followed by a double pneumonia. Within the next few weeks, the

murmur diminished, but did not disappear. He then died suddenly, presumably from embolism. Only a partial necropsy was obtained, which showed complete atresia of the pulmonary artery, congenital defect of the intraventricular septum, vegetative endocarditis, an open ductus arteriosus, and atrophy of the right ventricle. Only five other cases like this are said to be on record.

DISCUSSION

DR. ALFRED HAND, JR., Philadelphia: In the few instances in which I have seen such a defect of the septum, the lesion has been in the muscular, rather than the membranous part.

Case of Myelogenous Leukemia in an Infant Nine Months Old

DR. J. H. MASON, Baltimore: The patient was a girl, aged 9 months. The striking feature in the case, besides the age of the patient, was the rapid course of the disease, less than three weeks. There was no enlargement of the lymph nodes or spleen, and no record of hemorrhage or of necrosis of the mucous membrane. The symptoms apparently were entirely referable to the gastro-intestinal tract. The great number of leukocytes in the circulating blood (200,000 per cubic millimeter) is to be accounted for by a possible peripheral infection. The atypical granulations seen with neutrophilic myelocytes as well as in the presence of eosinophilic and basophilic varieties gave evidence that it was a true primary disease of the bone-forming organs.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Physiology, Baltimore

June, XXXVII, No. 3, pp. 453-517

- 1 *Active Principles of Different Organs, as Shown in Kymograph Tracings. G. G. Fawcett, J. Rogers, J. M. Rahe and S. P. Beebe, Ithaca, N. Y.
- 2 *Rate of Oxidation of Enzymes and Their Corresponding Pro-Enzymes. W. E. Burge and E. L. Burge, Chicago.
- 3 *Effects of Epinephrin Infusion on Vasomotor Irritability. R. G. Hoskins and W. N. Rowley, Chicago.
- 4 *Distribution of Gastrin in Body. R. W. Keeton and F. C. Koch, Chicago.
- 5 Researches on Exchange of Energy in Live Animal Tissues. I. Microcalorimetry Applied to Animal Tissues. A. O. de Almeida, Rio de Janeiro.

1. **Active Principles of Organs.**—All the different organs from which the authors prepared extracts, with the exception of the suprarenal, contain a depressor substance within the "residue" portion, which in each case varies in its action directly as its nitrogen content (calculated in terms of protein). The depressor effect of the thyroid "residue" is said to be dependent on a substance containing iodine. When standardized according to its nitrogen content each "residue" produces characteristically different effects in the kymograph tracings. This depressor agent cannot be cholin because a dosage of pure cholin which is comparable to that of a thyroid "residue," for example, produces no effect. The active portion of these "residues" is apparently not the same as Popielski's vasodilatin, which is prepared in a totally different way and gives different reactions.

2. **Rate of Oxidation of Enzymes.**—The Burges summarize their findings as follows: Trypsin is more easily oxidized than trypsinogen. Pepsin is more easily oxidized than pepsinogen. The fact that trypsin and pepsin are relatively easy to oxidize makes it possible for the mucosa of the stomach and intestine to protect itself from digestion by means of its oxidative processes. The fact that trypsinogen and pepsinogen are relatively difficult to oxidize prevents these substances from being oxidized in the cells of the pancreas and of the gastric mucosa during the process of secretion.

3. **Epinephrin and Vasomotor Irritability.**—In forty-four anesthetized dogs the effects of epinephrin infusion on the

irritability of the vasomotor mechanism was investigated by Hoskins and Rowley. The vasomotor mechanism was stimulated by faradization of the sciatic and splanchnic nerves, and by injections of nicotin, epinephrin and pituitary extract, before, during and after intravenous infusion with epinephrin. No concentration of epinephrin gave satisfactory evidence of augmenting vasomotor irritability, or facilitating the transmission of vasomotor impulses. In most cases the infusion lessened the vasomotor irritability—sometimes to a marked degree. The animal's own suprarenal glands played no significant part in the results. The irritability of both the pressor and depressor mechanisms was decreased. The authors conclude that the depression was probably both central and peripheral, hence circulating epinephrin is probably not a factor in the ordinary functioning of the animal economy.

4. Distribution of Gastrin in Body.—Evaporation of an acid extract from various tissues leaves a residue, soluble with difficulty, in 95 to 98 per cent. alcohol, which manifests varying degrees of gastrin activity. The gastrin is uniformly distributed throughout the stomach mucosa, is found in much smaller concentrations in the duodenum, and its presence can just be demonstrated in the esophagus. Preparations of pancreas, submaxillary gland, smooth muscle and striated muscle are negative. Gastrin intramuscular doses of 1 c.c. (corresponding to 4 to 5 gm. of fresh tissue) cause a fall in blood pressure lasting over four to five minutes, a secretion lasting over one and one-half hours with a maximum between thirty and forty-five minutes following the injection. The authors believe that gastrin causes a true gastric secretion rather than a simple vasodilator response, that it is of a different chemical nature from pancreatic secretin, and that it is a specific substance.

Bulletin of Johns Hopkins Hospital, Baltimore

June, XXVI, No. 292, pp. 211-240

- 6 *Accurate Clinical Study of Blood Sugar. S. Strouse, I. F. Stein and A. Wiseley, Chicago.
- 7 Chorio-Epithelioma of Testicle. J. V. Cooke, San Francisco.
- 8 Mithridatium and Theriac, Most Famous Remedies of Old Medicine. G. W. Corner, Baltimore.
- 9 Is Pathologic Metabolism in Parental Organism Responsible for Defective and Monstrous Development of Offspring? E. I. Werber, Princeton, N. J.
- 10 Medicine in China. R. M. Pearce, Philadelphia.
- 11 Case of Abscess of Liver, Due to Streptothrix. A. Bloomfield and S. Bayne-Jones, Baltimore.

6. Study of Blood Sugar.—The Kowarsky method of determining blood sugar, as modified by the authors, affords an efficient and accurate means of studying blood sugar in man. The normal blood sugar, as shown by a study of sixty-one determinations, varies from 0.04 to 0.12 per cent. (in one instance 0.14 per cent.) with an average of 0.084 per cent. These variations are due to the varying factors in the ordinary day of any normal individual—especially to the diet factor. Carbohydrate in the diet raises the blood sugar. The blood sugar of a normal man describes a curve reaching its lowest limits before breakfast and before dinner, and invariably showing a rise one hour after meals. The authors emphasize the fact that blood sugar determinations, to be of any value, must be performed before and after an ordinary meal containing carbohydrate.

Journal of Experimental Medicine, Lancaster, Pa.

June, XXI, No. 6, pp. 525-652

- 12 *Study of Barlow's Disease Experimentally Produced in Fetal and New-Born Guinea-Pigs. A. Ingier, Christiania, Norway.
- 13 *Pure Cultivation in Vivo of Vaccine Virus Free from Bacteria. H. Noguchi, New York.
- 14 *Transplantation of Tumors to Foreign Species. C. Funk.
- 15 *Effect of Arsenic Compounds of Rous Chicken Sarcoma. C. Funk.
- 16 *Antibody Formation Against Treponema Pallidum—Agglutination. H. Zinsser and J. G. Hopkins, New York.
- 17 *Adult Tertian Malarial Parasites Attached to Peripheral Corpuscular Mounds. Extracellular Relation of Parasites to Red Corpuscles. M. R. Lawson, New London, Conn.
- 18 *Influence of Digitalis on T Wave of Human Electrocardiogram. A. E. Colin, F. R. Fraser and R. A. Jamieson, New York.
- 19 *Effect of Sensitization on Development of Lesions of Experimental Pneumonia in Rabbit. M. B. Kirkbride, Albany, N. Y.

- 20 Visual Cortex, Its Localization, Histologic Structure and Physiologic Function. E. B. Funkhouser, Trenton, N. J.
- 21 *Pathogenic Properties of Bacillus Proteus. W. P. Larson and E. T. Bell, Minneapolis.

12. Barlow's Disease Experimentally Produced.—Pronounced cases of Barlow's disease were produced by Ingier in the fetus as early as ten to fifteen days after the commencement of dieting pregnant guinea-pigs with oats and water. There are wide individual variations. The scorbutic changes in the skeleton are greatest in the earlier embryonic stages. The fetuses of that period, with practically no exceptions, die and show marked traces of impeded growth. Fetuses from the later period of pregnancy are born alive, and apparently fully developed, with comparatively slight changes in the osseous system. Even a short extension of the period of extra-uterine dieting on milk from scorbutic mothers and later on oats and water is sufficient to change the latent scurvy into a highly pronounced case. The fetus cannot be kept alive longer than the adult animal, about twenty-eight days, either by intra-uterine dieting alone or by combined intra-uterine and extra-uterine dieting. The mothers show signs of disease at an early period, and are more severely attacked than nonpregnant animals. Death also occurs comparatively often in the first period of gestation.

13. Cultivation of Vaccine Virus.—Vaccine virus freed from all associated bacteria by means of suitable disinfecting agents was propagated by Noguchi in a pure state in the testicles of rabbits and bulls. The virus cultivated in this manner is not only devoid of all bacteria, but appears capable of indefinite transfer from one animal to another. Sixty passages in rabbits of a pure strain have been made within one year. Several transfers from testicle to testicle are required to bring about accurate adaptation of the virus to the testicular parenchyma, so that continued propagation in this way can be certainly secured. During the first transfers from testicle to testicle the activity of the virus may be less than the original skin specimen from which the pure strain was derived; but as the transfers proceed the activity rises until, when the adaptation is complete, the activity of the testicular equals that of the skin strain. The multiplication of the virus within the testicle is maximum on the fourth or fifth day after inoculation; the quantity of virus remains about stationary until the eighth day, when diminution begins. At the expiration of five weeks no more virus could be detected in the testicle.

The vaccinal processes in the skin, cornea and testicle of rabbits are practically identical whether the virus employed for the inoculation has been the original skin strain or the pure testicular strain; and the skin lesions produced in the calf by means of the two strains are also identical.

Human beings react to the pure testicular strain of vaccine virus in an entirely typical manner. In the case both of original vaccination and revaccination the vaccinal effects cannot be distinguished from those arising from uncomplicated skin virus. Pure strains of testicular virus are readily produced, and once secured they may be propagated in a pure state in rabbits or bulls by the method described, without difficulty and with economy. The pure strains thus obtained should supply an ideal form of virus for employment in the vaccination of human beings.

14. Transplantation of Tumors to Foreign Species.—By feeding to rats the tissue of the mouse chondroma, Funk found that they are rendered more suitable as hosts for the growth. Using this method rats have been inoculated successfully with the mouse tumor, and it has been transferred to three successive series of these animals.

15. Effect of Arsenic Compounds on Rous Chicken Sarcoma.—Arsenic and arsenious acids, cacodylic acid, atoxyl and neosalvarsan failed to influence markedly the growth of the Rous chicken sarcoma.

16. Antibody Formation.—It is shown by Zinsser and Hopkins that the serum of rabbits treated with emulsions of *Spirochaeta pallida* contains agglutination substances.

17. **Adult Tertian Malarial Parasites.**—It is claimed by Lawson that the malarial parasite is extracellular throughout its entire life cycle; that is, when it is not free in the blood serum, it is attached to the external surface of the red corpuscle. Adult parasites follow the same procedure in attaching themselves to the outer surface of the red corpuscles, as do the young parasites. Adult parasites are most frequently seen attached to surface corpuscular mounds. Corpuscular mounds projecting at the periphery of the red corpuscles and encircled by the pseudopodia of adult parasites, are proof positive of the extracellular relation of the adult parasite to the red corpuscle. Adult parasites attached to peripheral corpuscular mounds are only found in appreciable numbers when the red corpuscles are not badly damaged, so that the mounds show more or less hemoglobin content. The nuclei or protoplasm of adult parasites extending beyond the periphery of the red corpuscles is additional evidence of the extracellular relation of the parasites to the red corpuscle.

18. **Influence of Digitalis on Human Electrocardiogram.**—It is shown in this investigation that digitalis, administered orally to patients, can modify the T wave in the electrocardiogram. When the T wave in the initial curve is directed upward, the first change noticed is a lowering and the final change is an inversion of the wave. It is not only the wave itself, but that portion of the curve between the end of R and the end of T which is involved. Instances in which the initial T waves have other than upright forms are described and their behavior under the influence of digitalis has been indicated. This influence of digitalis on the T wave may be detected in thirty-six to forty-eight hours after the administration of digitalis has commenced; it may persist as long as twenty-two days after the administration has been stopped. Instances in which it persisted only five days have been encountered. The unexpected length of duration of the sign probably explains why a second treatment with digitalis requires a smaller amount of the drug to produce the same effect than the first.

19. **Experimental Pneumonia in Rabbit.**—Kirkbride's study would seem to give some ground for the view that while in pneumonia a hypersensitive condition probably takes some part in the inception of the infection, the subsequent development of the diffuse exudative reaction in the lung is not directly due to an acquired hypersusceptibility, but to intrinsic qualities possessed by the pneumococcus itself.

21. **Pathogenic Properties of Bacillus Proteus.**—The first proteus strain with which Larson and Bell experimented was isolated from a laparotomy wound in a case which subsequently terminated fatally. The proteus was repeatedly isolated from this patient in pure culture. The second strain was isolated from a severe eye infection following a cataract operation. A third strain was isolated from an infection of the finger, believed to have been contracted at a necropsy. A fourth was isolated from the heart's blood in a case in which the patient had died from peritonitis following a gunshot wound of the intestines. The fifth strain was from a patient with gangrene of the lung. These organisms all proved to be pathogenic for rabbits. All cultures obtained from sources other than human infections were nonpathogenic for the laboratory animals. A nonpathogenic culture may be made pathogenic by the use of aggressins or by inoculation into the anterior chamber of the eye. Proteus cultures lose their virulence rapidly when grown on artificial mediums. The lesions produced in animals are either simple abscesses, proliferative lesions, or a mixed exudative and proliferative lesion. The proliferative lesions consist mainly of epithelioid cells apparently of connective tissue origin. No giant cells of the Langhans type are present. The histologic type of the lesion does not depend on the strain employed. Neither does it bear any relation to the clinical severity of the case. The ability to produce the characteristic lesions has no necessary connection with the toxicity of the bacteria. The authors suggest that the proteus bacteria probably play a more important part in human pathology than is generally believed.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

May 22, I, No. 2838, pp. 877-916

- 1 *Treatment of Toxemia of Later Pregnancy; Report of Cases. J. Byers.
- 2 Dressing Station in France. G. R. Ward.
- 3 Some Infections of Tonsils. F. C. Pybus.
- 4 *Successful Sterilization of Skin with Tincture of Iodin. J. L. Stretton.
- 5 Typhus in Palestine, 1913 to 1914. C. H. Corbett.
- 6 Admission of Men with Glasses into Army. A. A. Bradburne.

1. **Treatment of Toxemia of Later Pregnancy.**—Byers emphasizes that every effort should be made to relieve the kidneys by getting the skin and bowels to act and by the administration of a simple nonnitrogenous diet. If there be headache or edema the patient, in addition, should be kept in bed and should have hot baths, free purgation and a milk diet; and if the state of affairs becomes more severe, warm saline lavage of the stomach and intestines is useful. In the nephritic cases, if in spite of this method of management the patients get worse, labor should be induced. One of the most important points emphasized is that a pregnant woman's urine must be analyzed once a month during the first six months of gestation, and at least once a fortnight after that period. Since adopting this routine method, Byers has not had in private practice during the past fifteen years a single case of eclampsia, as prompt measures taken when an examination of the urine showed any considerable amount of albumin (under these circumstances a catheter specimen should always be obtained), and with it any diminution in urea and nitrogen output, warded off all risk of convulsions and coma.

4. **Sterilization of Skin with Iodin.**—Stretton claims to have been the originator of this procedure, which he first described Aug. 14, 1909. He has now used the method with satisfaction in upward of 3,000 cases, and has never seen any dermatitis result from the use of the tincture of iodine. There is sometimes a limited amount of desquamation. The solution he originally used was the tincture of iodine (B. P.). It is prepared by dissolving 2.5 per cent. of iodine and 2.5 per cent. of potassium iodide in rectified spirit. In an endeavor to save the funds of the hospital he tried a solution of the same strength in methylated spirit, but soon found that it produced so much irritation and lacrymation that he was obliged to resume the original compound. He now uses the tincture in the theater and a similar solution made with methylated spirit in the wards.

Lancet, London

May 22, I, 4786, pp. 1065-1112

- 7 *Some Infections of Tonsils. F. C. Pybus.
- 8 Treatment of Septic Wounds. A. M. Sheild.
- 9 *Heart Perfusion with Excretory Toxins. D. T. Barry.
- 10 Influence of Injections of Contratoxin No. 4 (Mehnarto) on Content of Opsonins in Blood Serum of Tuberculous Patients. R. T. Hewlett and L. Rajchman.
- 11 Progress in Treatment of Cataract in India. H. Smith.
- 12 *Two Extraordinary Cases of Liver Abscess. C. B. Pasley.
- 13 Cerebrospinal Fever and Sphenoidal Sinus. D. Embleton and E. A. Peters.

7. **Some Infections of Tonsils.**—The principles to be adopted in the treatment of tonsillar disease are summed up by Pybus as follows: So far as the individual is concerned, when the symptoms are mainly or entirely mechanical and fail to subside in three months after removal of any source of infection, partial removal may suffice. Tonsillotomy, however, has this disadvantage, the basal portion of the tonsil may enlarge and again cause symptoms. In addition to this, many hypertrophied tonsils, so far as can be ascertained on inspection, do not appear to be grossly infected. In those cases which are grossly infected the basal portion, often the most diseased, is left behind and may commence to give trouble, especially if some of the lacunae become partially or entirely sealed up in the process of healing. When infec-

tive symptoms predominate in the tonsil itself, such as acute tonsillitis or chronic lacuna infection, or when the tonsils are in addition enlarged, any source of infection must be removed, especially carious teeth. Nasal breathing must be reestablished, and the case watched to see the effect of the treatment. In cases in which the tonsil is too severely affected to be capable of recovery, as judged by the recurrence of symptoms and the failure of the above measures, then total removal is indicated.

For lymphatic gland infections, in which tuberculosis is suspected, tonsillectomy is indicated; the course of the glandular enlargement determines whether this also may require operation. In pyogenic infections of the glands the tonsil must be dealt with when the acute lymphadenitis has subsided or been operated on if suppuration has supervened. Chronic glandular enlargement of the mild or moderate degree is so frequently encountered in hypertrophied tonsils that when the tonsil recovers its normal character the glands subside also. It should be a rule that no tonsil should be removed when acutely inflamed. For more distant infections, when the tonsil is suspected of being the focus, removal is indicated when the general condition is satisfactory. The maintenance of nasal respiration, the prevention of dental caries and the proper supply of food in sufficient quality and quantity will greatly diminish the prevalence of this condition. The provision of a cleaner air supply and the prevention of infection by milk are measures needing attention.

9. Heart Perfusion with Excretory Toxins.—The heart is exposed to the action of certain excretory toxins of the urine and feces when the mechanism of their expulsion is defective, or it may be, to these toxins of their precursors normally on their way to elimination. This action was tested by Barry by perfusion of the toad's heart. The inferior vena cava below the liver was isolated and a small cannula inserted, communicating with three perfusion bottles; one contained freshly prepared Ringer's solution, the second a mixture of human urine and the third fecal extract made with Ringer's solution. Strengths of 10 and 15 per cent. were tried. The aorta was cut across to provide a free exit of the fluid. The toxicity of these solutions is greatly diminished by boiling and by allowing them to stand for a few days.

The first toxic effect is exhibited by the ventricle. A 10 per cent. urine solution in a few seconds brings about cessation of this chamber in a state of tonus. The auricular beat is increased in force, due in part, at any rate, to increased tension; there was no previous perfusion. Recovery with Ringer's solution is rapid, though the ventricle is somewhat irregular for a time. Fecal extract shows a similar result. There seems to be a certain degree of tolerance of, or immunity from, the toxins on their repeated use. This is exhibited by a slower onset of the effects and a diminution of the toxicity. A certain amount of antagonism seems to exist between these poisons, but the question has not been properly investigated. The a.-v. bundle seems to be the part most affected by the excretory toxins which depress its conductivity, at the same time that they affect somewhat the ventricular muscle as a whole. A marked difference in the mechanism of the two chambers is also demonstrated by their action. Irritability of ventricular muscle is completely lost only with strong solutions and is quickly recovered if the action be not too long continued. The nervous mechanism, except the accelerator fibers, seems to be unaffected by the weaker solutions.

12. Two Extraordinary Cases of Liver Abscess.—In the two cases cited by Pasley as worthy of record from the fact of the remarkable size of the abscesses, the patients were extremely emaciated and constitutionally extremely ill. They both recovered perfectly, thus showing that no liver abscess, however large and however ill their possessors may be, can be considered as hopeless. In one case the abdomen was found enormously distended, resembling closely the abdomen at full-term pregnancy. An enormous tumor was palpable, which gave the sensation of fluid under extreme pressure.

It was slightly tender to touch. Absolute dulness extended from the pubic region up to and continuous with the hepatic area proper. The tumor extended equally into both umbilical regions laterally—in fact, it practically filled the abdominal cavity. The patient's general condition was extremely bad; he was wretchedly thin, weak and listless. There was absolutely no sign of jaundice and no bile in the urine. Blood examination showed slight leukocytosis. Examination of stools gave a negative result. A provisional diagnosis of liver abscess was made and operation decided on. The patient rapidly improved. No ameba were found in swabbings taken from the abscess cavity. The only medicine given during his illness was emetin administered daily by hypodermic injection. He received $1\frac{1}{2}$ grains per day.

In the second case, on examination, an enormous tumor was found practically filling the entire abdomen. It gave the sensation, on palpation, of a sac containing fluid under very high pressure. So far as could be made out by external palpation the lower margin of the tumor was situated $1\frac{1}{2}$ inches above the symphysis pubis. It extended laterally into each flank and seemed to originate from the liver. Examination of the blood showed a slight leukocytosis. Examination of the feces showed the presence of ankylostoma and ascaris ova. The patient's general condition was wretched. Pasley operated on him. His recovery was uneventful. He received one-half grain emetin hydrochlorid daily for three weeks by hypodermic injection.

Archives de Médecine des Enfants, Paris

May, XVIII, No. 5, pp. 237-292

- 14 Vaccine Therapy of Whooping-Cough. (La bactériologie et la thérapeutique de la coqueluche.) M. de Biehler.
- 15 Relations Between the Pulse and the Viscosity of the Blood in Children. (Le rapport sphygmo-viscosimétrique.) P. Gautier.
- 16 *Primary Tuberculosis Bacillema in Infants. A. Jousset.

16. Summarized in Abstract 29, March 27, p. 1112.

Journal de Chirurgie, Paris

August, 1914, XIII, No. 2, pp. 145-240

- 17 *Treatment of Acute Diffuse Peritonitis. S. Mercadé.
- 18 Suppuration in Hand Spreads by Continuity or by the Lymph Vessels. (Pathogénie des phlegmons de la main.) L. Imbert.

17. Acute Diffuse Peritonitis.—Mercadé discusses in turn the treatment of the peritoneum after the inevitable laparotomy, the treatment of the general intoxication, treatment also of the paralysis of the bowel and stomach, and treatment of the heart weakness. To combat the general intoxication lavage of the blood is required, and this is best realized by saline solution given in the rectum by the drop method. Some prefer plain boiled water, others sea water; the latter seems to have a pronounced stimulating action, but does not promote diuresis so well as plain water. Solutions of sugar, he says, have little diuretic action, but are nourishing, stimulating and tonic. Schiassi advocates for the purpose a solution of sodium chlorid 6.5 parts; potassium chlorid, 0.3 part; fused calcium chlorid, 1 part; sodium bicarbonate, 0.5 part; glucose, 50 parts; alcohol, 15 parts, and distilled water, 1,000 parts.

Among the nine various measures that can be applied in treatment of paralysis of the bowel, he emphasizes the advantages of electric enemas. They seem especially indicated here to combat the dynamic ileus; they are harmless and if they prove effectual their action is prompt. They should be applied early, so as not to waste much time if they prove ineffectual after two or three applications. If the paralysis extends to the stomach, a retention stomach tube is advocated by Grosser and others, the tube, 4 or 8 mm. in diameter, passed through the nose. Sometimes as much as 4 or 5 liters of fluid are thus brought out of the stomach in the twenty-four hours, and fluids must be supplied in other ways to replace these amounts thus lost. In conclusion, Mercadé points out that we have thus quite a number of measures at our command for carrying a patient through acute general peritonitis, but too many must not be applied at once.

Presse Médicale, Paris

May 6, XXIII, No. 19, pp. 145-152

- 19 Improvised Extension Splint for Fractures of the Humerus. (Méthode simple de traitement des fractures de l'humérus par armes à feu.) L. Bérard.
- 20 *Wounds of Peripheral Nerves. (Les lésions traumatiques des nerfs. Considérations opératoires.) L. Imbert.
- 21 Laboratory Tests for Cholera. L. Lagane.
- 22 Nomenclature of Bacteria. H. Coupin.
- 23 Extraction of Projectile Under Control by Roentgen Rays. Lobligeo's.

May 13, No. 21, pp. 161-168

- 24 *White Spots in the Mouth Usually a Sign of Syphilis. (Les taches blanches de la muqueuse jugale et commissurale, dites "plaques de fumeur," fonction de syphilis.) L. Landouzy.
- 25 Splint in Treatment of Radial Paralysis. T. Tuffier.
- 26 *Peritoneal Complications of Typhoid. M. Villaret.

20. **Wounds of Peripheral Nerves.**—Imbert comments on the number of operations now required for wounds of this kind as one of the surprises of the war. He is stationed at Marsilles, and has had to devote three or four mornings a week to operations on peripheral nerves. He does not operate on the nerve until the wound has entirely healed, but then permits no further delay. The study of each case requires the cooperation of a neurologist and histologist with the surgeon. When this is the case the danger of the operation is minimal while the functional outcome is often extremely gratifying.

24. **"Smoker's Patches" in the Mouth.**—Landouzy makes a practice of examining the mouth for the whitish lines or triangular patch on the mucosa extending back from the juncture of the lips toward the first molar known as smoker's commissural patches. He has found them exclusively in syphilitics; the tobacco is merely the local irritant causing the patch to develop in the predisposed. He has found them in women, but never in any except those married to syphilitics or with a history of personal syphilis. Landouzy has been preaching for twenty years the extraordinary, the unbelievable frequency of syphilis, and has found these smoker's patches often the only clue. He examines the mouth of every adult patient, man or woman, and has found these patches on the inside of the cheeks almost constantly in syphilitic smokers, and with extreme frequency in nonsmoking syphilitics in the third phase of the disease, and also in syphilitic women. The patches are liable to retrogress under mercury and iodid, although the smokers make no change in their smoking habits. Since the introduction of the Wassermann test, he applies it regularly to all patients showing these stripes or patches in the mouth. Of 164 syphilitics, the Wassermann was strongly positive in 81 of the 131 showing the patches. In another group of 72 men and 12 women in the third stage of syphilis, 52 of the men and 4 of the women had white patches, and 39 of these men and 2 of the women responded positively to the Wassermann test. He found the commissural leukoplakia also in 15 of 17 young syphilitic soldiers recently encountered; the Wassermann was positive in 9. In short, Landouzy regards these "smoker's patches" as pathognomonic, and as instructive as the Wassermann reaction, while their presence can be determined by merely a glance. He adds that the number of women in whom he has found them now total 15.

26. **Peritoneal Complications of Typhoid.**—Villaret states that perforation has occurred in only about 1.5 per cent. of the 600 cases of typhoid among soldiers in the hospital in his charge, but that all the other possible immediate complications of typhoid were numerous and grave. A purulent otitis or parotitis seemed often to serve as a spontaneous fixation abscess, and hastened recovery. Unless perforation had actually occurred, medical measures brought the men through in 97 per cent. of the cases showing a reaction on the part of the peritoneum. When signs of such a reaction develop, absolute repose and absolutely nothing by the mouth for several days are indicated; the mouth can be frequently rinsed out, and that is all. Ice to the abdomen and over the heart was an important aid in the cure, he is convinced, as also subcutaneous injections of 0.5 or 1 c.c. of a 1:1,000

solution of epinephrin or of 300 or 500 c.c. of saline containing epinephrin. The great value of these injections whenever cardiovascular or peritoneal symptoms became apparent was demonstrated most effectually in the aggravation of conditions throughout the wards when the supply of epinephrin ran out. A tendency to collapse was combated with camphorated oil plus ether, and the septicemia with some colloidal silver preparation subcutaneously, and an artificial fixation abscess. These measures cured 60 per cent. of the men with unmistakable peritonitis, and 97 per cent. of those with a peritoneal reaction which did not progress to actual inflammation.

Berliner klinische Wochenschrift

May 17, LII, No. 20, pp. 509-536

- 27 *Angina Pectoris. H. Kohn.
- 28 *Heart Disturbances in War. (Herzstörungen bei Kriegsteilnehmern.) S. Korach.
- 29 *Vagotony. W. Lublinski.
- 30 Scientific Management in Factories, Etc., from Psychologic Standpoint. (Zur Psychologie des Wirtschaftslebens.) G. Rosenfeld.
- 31 *War and Venereal Diseases. (Krieg und Geschlechtskrankheiten.) K. Touton. Commenced in No. 19.
- 32 Spa Treatment of the Wounded. (Resultate der Badebehandlung von Kriegsverwundeten und Erkrankten.) M. Porges.
- 33 Bath Trains. (Transportable Badeanstalten.) R. Rauch.

27. **Angina Pectoris.**—Kohn remarks that although Askanazy's work on the efficacy of theobromin in angina pectoris was published twenty years ago, yet few even now realize that theobromin can be relied on in angina pectoris almost as confidently as digitalis can be relied on when the heart action is rapid and weak. In treatment of a pronounced attack of angina pectoris, morphin relieves the pain and relaxes the spasmodic contraction of the coronary arteries. The dose must be 0.01 gm. at least, repeated if improvement does not soon follow. If one already knows the patient, 0.015 or 0.02 might be given to start with. If the pulse is slow or growing slower, stimulants should be injected at the same time, not waiting for signs of pulmonary edema to develop, repeating the camphor or caffeine as needed. Alcohol can also be used, with moist heat to the heart, placing the hands or feet in hot water, and giving amyl nitrite or nitroglycerin. To ward off attacks, theobromin has fully established its efficacy, he says, in treatment of the fundamental disturbance of which the angina pectoris is the manifestation. It is actually marvelous, he declares, to witness how the theobromin arrests the tendency to repeated mild partial or abortive attacks, the status anginosus as he calls it, in analogy with the status epilepticus. Patients long tormented day after day or night after night, are freed at once from their symptoms by the theobromin. He deplores the lack of general appreciation of the efficiency of theobromin in the treatment of the fundamental disturbances which are the bases for angina pectoris. The patient must stay in bed till all tendency to heart disturbances seems to have subsided; physical exercise should be discouraged and tobacco forbidden.

28. **Soldier's Heart.**—Korach remarks that in scarcely any other affection is it so difficult to decide whether the symptoms are of organic or purely nervous origin as in the heart disturbances encountered among the men in active service. And yet dire harm is likely to be wrought if treatment is applied on the wrong basis. The majority of the men he has seen at Hamburg who were sent back from the front on account of cardiovascular disturbances were suffering merely from purely nervous or functional cardiovascular derangement. Once entirely relieved from physical and emotional stress, the disturbances slowly right themselves in those with previously sound hearts. Differentiation is possible as a rule only with prolonged tranquil study of the case. Neurasthenics with extra systoles and very high blood pressure are not capable of service at the front.

29. **Vagotony.**—Lublinski goes over much the same ground covered by the two articles in THE JOURNAL, Jan. 31 and May 16, 1914, pp. 365 and 1535, and emphasizes that it is easy to recognize the "vagotoniker" at a glance by the ebb and flow of color in the face, the sudden perspiration, the

cool, damp and bluish hands, the lusterless eyes, the narrow pupil, the drooping corners of the mouth and the frequent swallowing. The abnormally irritable vagus system can be steadied and toned up with atropin, but this must be kept up perseveringly, even when good results are apparent, with ascending and declining dosage. Arsenic is useful also as a tonic for the nerves; it is especially advantageous in the form of an arsenical mineral water.

31. War and Venereal Diseases.—This long address was delivered before a mixed audience, and in conclusion Touton reiterated that the compulsory introduction of individual prophylactics is, next to sanification of prostitution, by far the most important means to avoid the weakening of the army from venereal diseases. He quotes a communication from Löb at Mannheim to the effect that under the influence of salvarsan endemic syphilis had been nearly stamped out in that city, as in other smaller centers, but that since the war began there has been an appreciable increase in the number of cases of syphilis. Touton advocates classing the effects of venereal diseases acquired during the war with other war disabilities entitling to a pension. The state insurance has abandoned its former practice of discriminating against such policy-holders, and he urges that soldiers and their families suffering from the results of these diseases should not be treated as criminals or sinners. In short, he concludes, the whole subject of venereal disease during the war should be regarded and managed from the strictly hygienic-medical standpoint, leaving all ethical and esthetic considerations in the background for the time being.

Gazzetta degli Ospedali e delle Cliniche, Milan

May 13, XXVI, No. 38, pp. 593-608

34 *Aleukemic Lymphomatosis. (Le linfosi aleucemiche dal punto di vista clinico.) G. Ghedini.

35 Treatment of Tetanus in the Present War. A. Bertolini.

34. Aleukemic Lymphosis.—Ghedini recalls that lymphosis may develop with merely the signs and symptoms, local and general, of more or less severe anemia, with or without enlargement of the spleen, or as a hemorrhagic diathesis, an acute infection, simple lymphadenitis, sarcomatosis of the viscera or bones, or a nodular infiltrating and ulcerating dermatosis, or it may simulate syphilitic or tuberculous lesions. He reports a specimen case of each of these ten different types, and refers to typical examples of each on record. It is evident from his research that in many cases of anemia, with splenomegaly, the underlying lymphomatosis has not been recognized. It may develop with the aleukemic blood picture, and the latter may vary widely from the classical type of lymphomatosis. The morbid blood picture should be studied from a broader standpoint than has hitherto been the case. It should be studied not merely as a disease of the blood-producing apparatus.

Policlinico, Rome

May, XXII, Surgical Section, No. 5, pp. 209-264

36 *Experimental Study of Fat Embolism. (Embolia grassosa.) M. Maccagno.

37 *False Appendicitis. L. Longo. Commenced in No. 4.

36. Fat Embolism.—Maccagno injected from 0.5 to 1.5 c.c. of olive oil into a vein in eleven rabbits and the next day killed and examined them to learn the fate of the oil. In others he repeated the injections and did not kill the animals until several days later. Study of the forty-two rabbits thus treated shows that the animals are unable to survive after intravenous injection of an amount equal to 1.06 per thousand of the weight. Also that the fat is only very slowly and defectively eliminated; he found it still present by the fortieth day. The most notable results and those most liable to prove fatal, are pulmonary edema, infarcts, embolism and heart disturbances. The experiences related teach the necessity for absolute repose in cases of fracture suggesting the possibility of fat embolism. Everything should be avoided that might in any way favor the passage of fat into

the blood. When a fracture has not been reduced at the time the symptoms of fat embolism are observed, it is better to refrain from further intervention to reduce the fracture until the vessels have become thrombosed, as even a small quantity of fat in the blood vessels is likely to do much damage.

37. Pseudoappendicitis.—By this term Longo means any clinical picture which may be mistaken for that of appendicitis. The treatment of course differs for each, but the decision can be made, as a rule, only after the abdomen has been opened. It is especially necessary to examine the surrounding viscera when the appendicitis seems to have started in as a chronic affection and the appendix seems practically sound on direct examination. Besides this type of chronic appendicitis, there is a type in which the symptoms are many and varied, but the appendicitis never becomes fully developed; this group may be called abortive appendicitis. In other cases appendicitis is simulated by the disturbances resulting from Lane's kink; from Jackson's membranous pericolicitis; mucomembranous enterocolitis with paroxysmal attacks resembling appendicitis, or the disturbances resulting from abnormal movability and dilatation of the cecum. He reports seven operative cases of this pseudoappendicitis, the operation revealing the appendix nearly or quite sound; in three cases the trouble was a simple membranous pericolicitis, in the others the result of dilatation or abnormal movability of the cecum, or pericolicitis with complications. The operations had been done in some of the cases on the diagnosis of ileus.

Hygiea, Stockholm

LXXVII, No. 8, pp. 401-464

38 *Present Status of Progressive Paralysis and Tabes. (Luesparalyslärans i dess nuvarande läge.) V. Wigert.

39 Case of Erythema with Intense Tuberculin Skin Reaction. K. Frumerie.

38. Present Status of Paralysis and Tabes.—Wigert gives tables from the literature showing the proportion of cases of syphilis in which tabes or general paralysis had developed, classified according to the treatment that had been given. It is much to be regretted that the statistics cannot be compared with each other, as the reports vary so widely with respect to numerous points. It is high time, he declares, for compilation of statistics on a uniform basis in order to learn the exact conditions which favor or render impossible the development of tabes and general paralysis later. Cases should be classified in groups with like clinical course and unlike treatment, and also in groups with like treatment and unlike course of the disease. No such compilation is available at present. Certain statistics seem to indicate that treatment actually shortens the interval between infection and the appearance of paralysis or tabes, and this question deserves intensive study. Only one fact seems to stand out as established by the records to date, he remarks, that there is no evidence on hand at present that the usual mercurial treatment of fifteen and twenty years ago had any efficacy as a relative protection against paralysis and tabes. About half the article is devoted to a discussion of the existence of a syphilitic virus with a special affinity for nerve tissue.

Ugeskrift for Læger, Copenhagen

May 20, LXXVII, No. 20, pp. 781-824

40 *Physiology and Pathology of Sports and Competitive Athletics. K. Secher.

41 Medicinal Rash. (Tilfælde af Atophanexanthem.) A. Kissmeyer.

40. Competitive Athletics.—Secher has not found much evidence of harm done by sports and athletics in Denmark, but he thinks that the authorities should interfere to enforce a medical examination before any competitive event of the kind. A number of athletic associations have already provided for this as a routine measure. All athletics should have some medical supervision. By this means it would be possible to keep out of strenuous competitive events those not equal to this strain, although under ordinary conditions they can keep up their athletic work without harm.

Miscellany

Cystitis in Children

R. Fischl is professor of children's diseases at the University of Prague, and in a recent number of the *Prager medizinische Wochenschrift* he reviews his experiences with cystitis in children, especially the cases in which he has been called in consultation and the attending physician had failed to diagnose the bladder trouble. In his service at Prague, every girl child suspected of urinary trouble is catheterized, and boy babies wear a special receptacle to collect the urine. By this systematic investigation, he has found that cystitis is comparatively rare. Only twenty-six cases were found among the 15,000 children examined in the course of twelve years, and in the group were no infants less than a year old. He has also encountered fifteen cases in his private practice, a total of forty-one cases. Only five of the patients were boys. In twelve cases, the family had recognized that the bladder was the seat of the trouble, but in over 50 per cent. of the cases, this had not been suspected. One child of 8 was supposed to have typhoid, as there had been high continuous fever for a week with moderate diarrhea. There was no agglutination, and the only signs of trouble were slight enlargement of the spleen. The urine at first had contained a little albumin, and this gave the clue to the cystitis; under treatment for this the child promptly recovered. In another case of apparent typhoid, the child of 9 had been taken suddenly, after a long walk on a hot day, with high fever and prostration soon accompanied by diarrhea and cough. The aspect and symptoms suggested typhoid except that there was no agglutination; the sudden onset was also unlike typhoid. The discovery of a vulvovaginitis suggested the possibility of bladder trouble, the long walk having possibly contributed to spread the infection to the bladder. Treatment on this assumption soon cured the child.

Another young child had been treated for supposed typhoid for weeks without benefit, while the strict dieting had emaciated the little patient. The fever had been continuous at first and then irregularly remittent. Called in consultation, Fischl noticed the peculiar odor of the urine at once, and the microscope showed evidences of cystopyelitis. It had developed after an attack of diarrhea. As it had not been suspected for so many weeks, it had run into a chronic phase quite refractory to persevering local measures plus hexamethylenamin internally. These brought the temperature down to normal and the general condition improved, but the urine kept turbid and of a putrid odor while the child had the tint of anemia. The urine finally became normal after one injection of an autogenous colon bacillus vaccine, and there has been no relapse to date.

Left untreated too long, cystitis may drag along for years, or lie latent until roused by pregnancy or other period of stress. Fischl warns that urates in the urine are liable to simulate the cloudiness of cystitic urine. Powder used to dust the genitals of infants may also get into the urine and prove misleading. In one case a bright 5-year-old boy became incontinent and wet his clothes both day and night. The enuresis was not affected by the various methods of treatment applied in turn. No one thought of examining the urine under the microscope. When finally this was done, findings suggestive of cystitis pointed the way to a prompt and speedy cure of both the cystitis and the enuresis.

Fischl gives hexamethylenamin internally in doses of at least 0.5 gm. per day for young infants, and keeps it up until the urine is normal; a week usually answers the purpose. If the desired result is not attained in one or two weeks, it is useless to keep it up longer, and local measures should be applied. He begins with a weak solution of potassium permanganate. If this proves ineffectual, he changes to a 1:5,000 silver nitrate solution. The fresh urine with cystitis is so often neutral that there is no reason for treating with alkalis, as Thomson advocates.

Effect of Pasteurization on the Cream Line

Complaints were made to the New York City Board of Health, following the enforcement of certain regulations concerning the temperature at which milk should be pasteurized by milk distributors, that the cream did not properly rise or separate in the pasteurized product and show a distinct line between the cream and the milk. In order to determine the effect of pasteurization at different temperatures and for different periods, a series of tests was instituted under the supervision of the New York board at the different pasteurizing plants, using different methods and different apparatus, and the results are set forth in Reprint 27 of the board by Charles H. Kilbourne, supervising inspector of foods. Details of the tests, the temperatures, apparatus, time and other conditions are given in detail, and some obscure and as yet not entirely explainable phenomena are described in respect to the cream line in the pasteurizing process. The results, however, are summarized by Kilbourne as follows: All tests indicated that when the milk is cleaned by a centrifugal clarifier, the volume of cream in the milk is reduced from 2 to 3 per cent. The volume of cream in bottled milk is influenced by (1) the temperature to which the milk is heated; (2) the length of time the milk is held at the high temperature; (3) the temperature of the heating medium with which the milk comes in contact during the heating process; (4) the clarification of the milk; (5) the type of apparatus used in treating the milk, and (6) the amount of agitation to which the milk is subjected, especially while hot. The last factor is said to have considerable influence, and in one instance in which the cream line was considerably reduced in the process, the experiment was made of reducing the speed of the agitator which kept the hot milk in motion, when it was found that the cream line remained normal. It was also found that in the processes in which there was most agitation or pumping of the hot milk, most difficulty with the cream line was experienced. Other factors which have an influence are said to be the age of the milk before pasteurization, the grade of cows producing the milk, and the freezing or nonfreezing of the milk before being treated. It is stated that milk may be heated to 145 F. for thirty minutes without producing any injurious effect on the cream line.

Sanitary Works in Argentina

The manner in which the problems of water supply and sanitation have been met in Argentina, particularly in Buenos Aires, is described in *Commerce Reports* for April 14. Buenos Aires is said to present points of resemblance to Chicago. Both are decidedly modern cities which received their greatest accessions of population in recent years, and each is situated on a large body of fresh water. In respect to water supply and drainage, Buenos Aires has the advantage over the northern city in that the waters of the Rio de la Plata move toward the sea, and that the winters in Buenos Aires are never so cold that the danger of frozen water pipes and mains needs to be reckoned with.

The scientific study of water supply and drainage for Buenos Aires dates from 1873, when the population was something over 200,000 (it is now over 1,500,000). The sanitary work now partly completed and partly still under construction is supposed to insure a proper drainage and water supply to meet the city's needs up to 1952, at which time it is prophesied that the population will be near to 6,000,000. The consumption of water allowed per inhabitant per day is 300 liters (nearly 80 gallons), an amount considerably above the rate of the actual present consumption.

While some of the water used in Buenos Aires is as yet obtained from driven wells, these are to be done away with and the entire city supplied with water from the Rio de la Plata. By means of sedimentation, coagulation and filtration, it has been found possible to purify the river water absolutely and render it suitable for all purposes.

Since Buenos Aires is situated on the edge of the river, with no natural elevation from which distribution of water to the city might be effected, it has been necessary to con-

struct elevated distributing stations. Four new centers of distribution are planned. From a water tower in the river, an intake tunnel will conduct the water to the pumping stations on shore, whence it will pass, first to the decanting reservoirs, then to the filter beds, and thence to the gravity tanks and reserve tanks, from which a network of water mains will lead it to all parts of the city. The capacity of the tanks, compared with the amount of water consumed in one day, is much less than in New York or London, owing to the high price of land in Buenos Aires and the lack of natural elevations, which have rendered the cost of such large tanks prohibitive. The use of the coagulation method has counterbalanced this difficulty, however, and provision has been made for a proper reserve of filtered water, so that the city will not suffer for water in case the filter beds and coagulation tanks should be temporarily out of service.

The sewage of Buenos Aires is discharged into the Rio de la Plata at a point far enough below the intake to preclude the possibility of contamination of the water supply.

The water supply and drainage of the federal district (Buenos Aires) is under the control of the National Department of Sanitation (*Obras Sanitarias de la Nación*) which may also, at the request of the provincial cities, undertake similar work on their behalf. This department is autonomous, being responsible only to the president of the republic, who, with the approval of the senate, appoints the members of its directorate, consisting of a president, a vice president and five other members who serve for a term of four years. This directorate is given liberal powers, both administrative and financial. It has the authority to nominate and discharge all subordinates and to raise money, when necessary, for constructive work, by means of loans secured by the property of the department. These loans are finally to be discharged from the income of the department, which is drawn in part from the national lottery and in part from monthly taxes on all houses which receive water and sewage service. These taxes consist of 3 per cent. on the rental value for the water and 2 per cent. for the sewage. This income is sufficient to meet amortization and interest payments and finally to wipe out the entire debt contracted for the work under process of construction.

The Death Rate in Berlin Last Year

The mortality in Berlin was a little higher in 1914 than in 1913; per thousand inhabitants, 14.54 per cent. died in 1914 to 13.48 in 1913. In this calculation, however, the great changes in the populace after the outbreak of the war must be borne in mind. The increase in the mortality for 1914 included 996 males and 592 females, but classifying the deaths by ages shows that the increase was mostly among infants or the aged. This grouping is evident also in the classification according to the causes of death. The increase, namely, is in catarrhal bowel troubles and diarrhea, measles and pertussis, while the figures for scarlet fever and diphtheria are about the same. There was a moderate increase in the mortality from pulmonary tuberculosis, which does not affect to such an extent the very young or the very old. The pneumonia mortality showed a considerable increase, mostly among the elderly. The number of deaths from senile debility also materially increased, as also the number of deaths from cancer.

The influence of the seasons is instructive. In 1914 the mortality in the winter and spring was above the average; from June to November it was moderate. It used to be the rule that the summer months had the highest mortality on account of the high death rate among infants in the heated term. But now the mortality among infants does not form such a large proportion of the total—partly owing to the influence of the declining birth rate—and hence it is not so important a factor in the general mortality.

During 1914, notwithstanding the unusual decline in the birth rate, the infant mortality was notably higher. There were 5,846 deaths among infants, 37,493 living children born in 1914 to 5,607 deaths, and 40,481 living children born in

1913. But even taking this into account, July, August and September, although they showed the highest death rate among infants, did not have so high a total mortality as the months of the winter and spring. The total rate in July was only 13.66 per thousand, the lowest month in the year. More than the heat of the summer, the inclement weather of the winter and early spring claimed more victims in 1914.

Opportunities for Graduate Work

An interesting sketch of medical impressions on a trip around the world was published recently by Dr. J. Eduque in the *Revista Filipina de Medicina y Cirujia* on his return from a tour for inspection of the clinics and hospitals of Europe and America, made under the auspices of the University of the Philippines. In conclusion Eduque summarizes his impressions in the advice to go to Austria to study pathology, diagnosis and specialties, to England for anatomy and physiology, to France for urology and to the United States for surgery. He urges the necessity for studying the language before leaving home, and strongly advocates the joining of the local medical association open to foreigners, as this provides numerous advantages in the way of opportunities and information. His sketch is republished in the *Prensa Medica* of Havana. He relates that the queen of Bulgaria had planned to come to America and bring several young women with her to study the system of trained nurses here as she had been much impressed with their work in the Red Cross units during the last Balkan War.

The Hospital for Industrial Diseases in Italy

The hospital and clinic for the exclusive study and treatment of the industrial diseases, at Milan, has just completed its fourth year of work. It is the first and to date the only institution of the kind for occupational diseases, and the postgraduate courses have attracted medical men from other countries. Prof. L. Devoto is director and is editor of the little monthly, *Lavoro*, published by the clinic, although antedating it by four years. The expense of running the hospital and clinic is \$17,000 a year. The number of days of hospital treatment has averaged 18,720 per year. In April, as an average month, 228 persons were given treatment in the dispensary, including 98 women; and 16 men and 14 women were admitted to the hospital. Wassermann tests were applied in 43 cases, with positive findings in 15. Roentgen-ray examinations were made in 63 cases—all without charge. The institution has prepared sets of lantern slides which they sell for \$4 a dozen. They portray various features of industrial diseases and means to recognize and avoid them, tables of statistics, etc., from various countries, and other data bearing on occupational disorders.

Biologic Diagnosis by Means of Intermediate Host

E. Brumpt is professor of parasitology in the medical school at São Paulo, Brazil, and he has recently worked out a method for diagnosis which he calls xenodiagnosis, from the Greek *ξένος*, host, as he utilizes the intermediate host of the parasite or some vicarious host for the cultivation of the parasite in question. He has applied the method to date mostly in cultivation of Chagas' trypanosome. A Brazilian leech was found convenient for the purpose; the trypanosomes taken up as it sucks blood multiply amazingly in the stomach. But for Chagas' disease, the true intermediary host is preferable. The bite of the bug in question, which is the host of Chagas' trypanosomes, is not painful, and consequently children do not object to let it be placed on them to bite and draw blood. It takes up from ten to five hundred times as much blood as could be examined with the microscope, and the bug, a large black insect with red markings, can then be set aside in a labeled tube and examined at leisure as the trypanosomes proliferate in its interior. Brumpt's communication is the leading article in the *Annaes Paulistas de Medicina*, 1914, iii, 97.

JOURNALS INDEXED IN THE CURRENT MEDICAL LITERATURE DEPARTMENT

JANUARY-JUNE, 1915

The following journals have been indexed in the Current Literature Department of THE JOURNAL during the past six months. Any of the foreign journals, except those starred, will be lent by THE JOURNAL to subscribers in the United States and to Fellows of the American Medical Association for a period not exceeding three days. Only one journal may be borrowed at a time. Requests for periodicals should be addressed to the Library of the American Medical Association and six cents in stamps should be enclosed. This covers the average expense of mailing a journal. Domestic journals can be obtained by sending the approximate amount direct to the respective publishers. Thus most of the journals indexed are accessible to the general practitioner, no matter where he may be located.

- Albany Medical Annals. M. \$2. 170 Washington Ave., Albany, N. Y.
- American Journal of Anatomy. Bi-m. \$5. 36th St. and Woodland Ave., Philadelphia.
- American Journal of Diseases of Children. M. \$3. American Medical Association, 535 N. Dearborn St., Chicago.
- American Journal of Insanity. Q. \$5. Johns Hopkins Press, Baltimore.
- American Journal of the Medical Sciences. M. \$5. Lea & Febiger, 706 Sansom St., Philadelphia.
- American Journal of Obstetrics and Diseases of Women and Children. M. \$5. Wood & Co., 51 Fifth Ave., New York.
- American Journal of Orthopedic Surgery. Q. \$3. P. Blakiston's Son & Co., 1012 Walnut St., Philadelphia.
- American Journal of Physiology. M. \$5. Johns Hopkins Medical School, Baltimore, Md.
- American Journal of Public Health. M. \$3. 755 Boylston St., Boston.
- American Journal of Roentgenology. M. \$5. 32 Adams Ave., West, Detroit.
- American Journal of Tropical Diseases and Preventive Medicine. M. \$2. P. O. Drawer 602, New Orleans, La.
- Annales de gynécologie et d'obstétrique. M. 22 francs. Paris.
- Annales de médecine. M. 23 francs. Paris.
- Annals of Ophthalmology. Q. \$4. Mermod-Jaccard Bldg., St. Louis.
- Annals of Otolaryngology and Laryngology. Q. \$4. Mermod-Jaccard Bldg., St. Louis.
- Annals of Surgery. M. \$5. J. B. Lippincott Co., E. Washington Square, Philadelphia.
- Annals of Tropical Medicine and Parasitology. Q. \$5. Liverpool.
- Archiv für Gynäkologie. Irregular. Price varies. Berlin.
- *Archiv für Kinderheilkunde. Irregular. 15 marks. Stuttgart.
- Archiv für klinische Chirurgie. Irregular. Price varies. Berlin.
- Archiv für Verdauungs-Krankheiten. Bi-m. 24 marks. Berlin.
- Archives of Diagnosis. Q. \$1. 250 W. 73d St., New York.
- Archives of Internal Medicine. M. \$4. American Medical Association, 535 N. Dearborn St., Chicago.
- *Archives des maladies de l'appareil digestif et de la nutrition. M. 14 francs. Paris.
- Archives des maladies du cœur, des vaisseaux et du sang. M. 17 francs. Paris.
- *Archives de médecine des enfants. M. 18 francs. Paris.
- Archives mensuelles d'obstétrique et de gynécologie. M. 25 francs. Paris.
- Archives of Ophthalmology. Bi-m. \$5. G. P. Putnam's Sons, 27 W. 23d St., New York.
- Archives of Pediatrics. M. \$3. E. B. Treat & Co., 241 W. 23d St., New York.
- Archives of Roentgen Ray. M. \$4.50. London.
- Arizona Medical Journal. M. \$2. Phoenix, Ariz.
- *Beiträge zur Geburtshilfe und Gynaekologie. Irregular. Price varies. Leipsic.
- Beiträge zur Klinik der Tuberkulose. Irregular. 16 marks. Würzburg.
- *Beiträge zur klinischen Chirurgie. M. Price varies. Tübingen.
- Berliner klinische Wochenschrift. W. 24 marks. Berlin.
- Boston Medical and Surgical Journal. W. \$5. 126 Massachusetts Ave., Boston.
- Brain: A Journal of Neurology. Irregular. \$4. London.
- Brazil Medico. W. 20 milreis. Rio de Janeiro.
- Bristol Medico-Chirurgical Journal. Q. \$3.
- British Journal of Children's Diseases. M. \$5. London.
- British Journal of Surgery. Q. \$6.50. William Wood & Company, 51 Fifth Ave., New York.
- British Journal of Tuberculosis. Q. \$1.25. London.
- British Medical Journal. W. \$8.50. London.
- Bulletin de l'Académie de médecine. W. 20 francs. Paris.
- Bulletin of the Johns Hopkins Hospital. M. \$2. Baltimore.
- Bulletin of the Lying-in Hospital of the City of New York. Irregular. \$1. 23 E. 93d St., New York.
- Bulletin of the Medical and Chirurgical Faculty of Maryland. M. \$0.25. 1211 Cathedral St., Baltimore.
- California State Journal of Medicine. M. \$1. Butler Bldg., San Francisco.
- Canadian Medical Association Journal. M. \$5. 145 Wellington St., W., Toronto.
- Centralblatt für die Grenzgebiete der Medizin und Chirurgie. Irregular. 22 marks. Jena.
- Cleveland Medical Journal. M. \$2. 2318 Prospect Ave., Cleveland.
- Colorado Medicine. M. \$2. Metropolitan Bldg., Denver.
- Correspondenz-Blatt für schweizer Aerzte. W. 22 francs. Basel.
- Deutsche medizinische Wochenschrift. W. 32 marks. Berlin.
- *Deutsche Zeitschrift für Chirurgie. M. Price varies. Leipsic.
- *Deutsches Archiv für klinische Medizin. Irregular. Price varies. Leipsic.
- Dublin Journal of Medical Science. M. \$5.
- Edinburgh Medical Journal. M. \$6.
- Gazzetta degli ospedali e delle cliniche. Semi-w. 25 francs. Milan.
- Glasgow Medical Journal. M. \$5.
- Grèce médicale. Semi-m. 12 francs. Athens.
- Hospitalstidende. W. 27.5 kronen. Copenhagen.
- Hygiea. M. \$5. Stockholm.
- Illinois Medical Journal. M. \$2. 3338 Ogden Ave., Chicago.
- Indian Journal of Medical Research. Q. \$2.50. Calcutta.
- Indian Medical Gazette. Bi-m. \$5. Calcutta.
- Jahrbuch für Kinderheilkunde. M. 36 marks. Berlin.
- Journal d'urologie médicale et chirurgicale. M. 40 francs. Paris.
- Journal of Abnormal Psychology. Bi-m. \$4. R. G. Badger, 194 Boylston St., Boston.
- Journal of the American Medical Association. W. \$5. 535 N. Dearborn St., Chicago.
- Journal of the Arkansas Medical Society. M. \$1. 810 State Bank Bldg., Little Rock, Ark.
- Journal of Biological Chemistry. M. \$3. 2419 York Road, Baltimore.
- Journal of Cutaneous Diseases. M. \$5. Rebman Company, 141 W. 36th St., New York.
- Journal of Experimental Medicine. M. \$5. Rockefeller Institute for Medical Research, 66th St. and Avenue A, New York.
- Journal of the Florida Medical Association. M. \$1.00. 334 St. James Bldg., Jacksonville, Fla.
- Journal of the Indiana State Medical Association. M. \$1. 219 W. Wayne St., Fort Wayne, Ind.
- Journal of Infectious Diseases. Q. \$5. 57th St. and Greenwood Ave., Chicago.
- Journal of Iowa State Medical Society. M. \$2. Washington, Ia.
- Journal of Kansas Medical Society. M. \$2. 501 Husted Bldg., Kansas City, Kan.
- Journal of Laryngology, Rhinology and Otolaryngology. M. \$5. London.
- Journal of Maine Medical Association. M. \$2. Portland, Maine.
- Journal of Medical Association of Georgia. M. \$1. Harison Bldg., Augusta, Ga.
- Journal of Medical Research. M. \$4. 240 Longwood Ave., Boston.
- Journal of Medical Society of New Jersey. M. \$2. 252 Main St., Orange, N. J.
- Journal of Michigan State Medical Society. M. \$2. 91 Monroe Ave., Grand Rapids, Mich.
- Journal of Missouri State Medical Association. M. \$2. 3525 Pine St., St. Louis.
- Journal of Nervous and Mental Diseases. M. \$5. 64 W. 56th St., New York.
- Journal of Obstetrics and Gynecology of the British Empire. M. \$6.25. London.
- Journal of Oklahoma State Medical Association. M. \$2. Muskogee.
- Journal of Outdoor Life. M. \$1. 289 Fourth Ave., New York.
- Journal of Parasitology. Q. \$2. Urbana, Ill.
- Journal of Pathology and Bacteriology. Q. \$5.50. Cambridge, Eng.
- Journal of Pharmacology and Experimental Therapeutics. Bi-m. \$5. 2419 York Road, Baltimore.
- Journal of the Royal Naval Medical Service. Q. \$1. London.

W.—Weekly; M.—Monthly; Semi-m.—Semi-monthly; Bi-m.—Bi-monthly; Q.—Quarterly. *Cannot be loaned.

- Journal of Sociologic Medicine. Bi-m. \$3. 52 N. Fourth St., Easton, Pa.
- Journal of South Carolina Medical Association. M. \$2. Anderson, S. C.
- Journal of Tennessee State Medical Association. M. \$2. Jackson Bldg., Nashville, Tenn.
- Journal of Tropical Medicine and Hygiene. Semi-m. \$5. London.
- Journal-Lancet. Semi-m. \$2. 839 Lumber Exchange, Minneapolis.
- Kentucky Medical Journal. M. \$2. Atherton Bldg., Bowling Green, Ky.
- Lancet. W. \$8. London.
- Lancet-Clinic. W. \$3. Main near Seventh St., Cincinnati.
- Laryngoscope. M. \$5. 3858 Westminister Place, St. Louis.
- Lyon chirurgical. M. 25 francs.
- Lyon médical. W. 20 francs.
- Medical Record. W. \$5. W. Wood & Co., 51 Fifth Ave., New York.
- Medizinische Klinik. W. 32 marks. Berlin.
- Military Surgeon. M. \$3.50. 535 N. Dearborn St., Chicago.
- Mitteilungen aus den Grenzgebieten der Medizin und Chirurgie. Irregular. 25 marks. Jena.
- Mitteilungen aus der medizinischen Fakultät der Kaiserlichen Universität zu Tokyo. Irreg. Price varies. Tokio.
- Modern Hospital. M. \$3. Metropolitan Bldg., St. Louis.
- Monatsschrift für Geburtshilfe und Gynäkologie. M. 42 marks. Berlin.
- Monatsschrift für Kinderheilkunde. M. 20 marks. Leipsic.
- Münchener medizinische Wochenschrift. W. 32 marks. Munich.
- Nederlandsch Tijdschrift voor Geneeskunde. W. 10.50 florins. Amsterdam.
- New Mexico Medical Journal. M. \$2. P. O. 23, Las Cruces, N. M.
- New Orleans Medical and Surgical Journal. M. \$2. 1551 Canal St., New Orleans.
- New York Medical Journal. W. \$5. A. R. Elliott Publishing Co., 66 W. Broadway, New York.
- New York State Journal of Medicine. M. \$1. 17 W. 43d St., New York.
- *Nordiskt Mediciniskt Arkiv. Irregular. 30 marks. Stockholm.
- Norsk Magazin for Lægevidenskaben. M. \$5. Christiania.
- Northwest Medicine. M. \$2. Cobb Bldg., Seattle, Wash.
- Ohio State Medical Journal. M. \$2. 207 E. State St., Columbus, Ohio.
- Old Dominion Journal of Medicine and Surgery. M. \$2. 116 E. Franklin St., Richmond, Va.
- Ophthalmic Record. M. \$4. 7 W. Madison St., Chicago.
- Ophthalmology. Q. \$5. 711 Cobb Bldg., Seattle, Wash.
- Pediatrics. M. 12.50 lire. Naples.
- Pennsylvania Medical Journal. M. \$2. Athens, Pa.
- Philippine Journal of Science. Irregular. \$7. Manila, P. I.
- Policlinico. W. 32 lire. Rome.
- Practitioner. M. \$6.50. London.
- Presse médicale. Semi-w. 15 francs. Paris.
- Public Health Journal. M. \$2. York Publishing Co., Lumsden Bldg., Toronto.
- Quarterly Journal of Medicine. \$6.50. London.
- Revue médicale de la Suisse romande. M. 14 francs. Geneva.
- Revue mensuelle de gynécologie, d'obstétrique et de pédiatrie. M. 12 francs. Paris.
- Riforma medica. W. 35.50 lire. Naples.
- Sei-I-Kwai. M. \$2. Tokio.
- Semana médica. W. \$5. Buenos Aires.
- Southern Medical Journal. M. \$2. 905 Van Antwerp Bldg., Mobile, Ala.
- Southwest Journal of Medicine and Surgery. M. \$1. El Reno, Okla.
- Surgery, Gynecology and Obstetrics. M. \$5. Surgical Publishing Co., 31 N. State St., Chicago.
- Svenska Läkaresällskapets Handlingar. Irregular. 7.50 kronen. Stockholm.
- Texas State Journal of Medicine. M. \$1.50. Western National Bank Bldg., Fort Worth, Tex.
- Therapeutische Monatshefte. M. 12 marks. Berlin.
- Therapie der Gegenwart. M. 14 marks. Berlin.
- Tumori. Bi-m. 25 lire. Rome.
- Ugeskrift for Læger. W. 20 kr. Copenhagen.
- United States Naval Medical Bulletin. Q. \$1. Washington, D. C.
- Upsala Läkareförenings Förhandlingar. Irregular, 10 kr.
- Washington Medical Annals. Bi-m. \$1. 2114 18th St., N. W., Washington, D. C.
- West Virginia Medical Journal. M. \$1. Wheeling, W. Va.
- Wiener klinische Wochenschrift. W. 24 marks. Vienna.
- Wisconsin Medical Journal. M. \$2. Goldsmith Bldg., Milwaukee.
- Zeitschrift für Geburtshilfe und Gynäkologie. Irregular. Price varies. Stuttgart.
- *Zeitschrift für Kinderheilkunde. Irregular. 18 marks. Berlin.
- *Zeitschrift für klinische Medizin. Irregular. 16 marks. Berlin.
- *Zeitschrift für Urologie. M. 30 marks. Berlin.
- Zentralblatt für Chirurgie. W. 30 marks. Leipsic.
- Zentralblatt für Gynäkologie. W. 30 marks. Leipsic.
- Zentralblatt für innere Medizin. W. 30 marks. Leipsic.

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EXPLANATION OF THE USE OF THE INDEX

This is an index not only to the reading matter in *THE JOURNAL*, but also to original articles in the principal medical periodicals of this and other countries. The reading matter appearing in *THE JOURNAL* is distinguished by the use of **black-faced numerals**.

The letters used to explain in which department the matter indexed appears are as follows: "E," Editorial; "C," Correspondence; "T," Therapeutics; "M," Medical; "P," Propaganda for Reform; "ME," Medical Economics; "ab," abstract; the star (*) indicates an "Original Article" in *THE JOURNAL*.

This is a subject index and one should, therefore, look for the chief word, with the following exceptions: "Book Notices," "Deaths" and "Society Proceedings" are indexed under these titles at the end of the letters "B," "D" and "S." Matter pertaining to the Association is indexed under "American Medical Association."

All matter is indexed under the most important word of the heading used in *THE JOURNAL*, and also under the subject heading. For instance, abscess of the brain will be found under "abscess," as well as under "brain." Such titles as "ocular manifestations, etc." have been indexed under "Eye." Cross references have been liberally used.

The figures in parentheses refer to the paragraph, the number following to the page in *THE JOURNAL*.

ABDERHALDEN serodiagnosis, present status of, *1898

This reference is to an original article in *THE JOURNAL*, as shown both by the star and by the black-faced numerals indicating the page.

ACONITE in pneumonia, 1782

This reference, as indicated by the black-faced figures, is also in *THE JOURNAL*, and on turning to page 420 we find an answer to a question in the Department of Queries and Minor Notes.

ACID, uric, in blood, colorimetric determination of, (84) 1877

In this reference, the (84) indicates that the article is in the Current Literature Department and the fact that the page number is in black-faced type shows that the article is abstracted and discussed in *THE JOURNAL*. Turning to page 1877 we find (84) refers to an article by S. R. Benedict in the *Journal of Biological Chemistry*, April.

ABSCCESS, brain, after blocking trigeminal nerve for removal of teeth, (97) 1690

The fact that in this last reference the page is given in ordinary type indicates that only the title of the article is given. Turning to page 1690 we find that the numeral (97) refers to a paper on that subject by F. Bannes which appeared in *Medizinische Klinik*, April 4.

In the **AUTHOR'S INDEX** are the names of the authors of articles which have appeared in *THE JOURNAL* of the American Medical Association and of articles that have been listed from week to week in the Department of Current Medical Literature as having appeared in other journals. The black-faced numerals indicate that the article is in *THE JOURNAL*, either in full or in abstract. The star (*) preceding the page number, indicates an original article.

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- Acad.—Academy.*
Am.—American.
A.—Association.
Conj.—Conference.
Cong.—Congress.
Conv.—Convention.
Internat.—International.
M.—Medical, Medicine.
Phar.—Pharmaceutical.
S.—Society.
Surg.—Surgical, Surgery, Surgeon.
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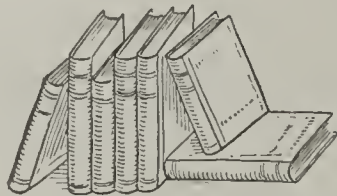
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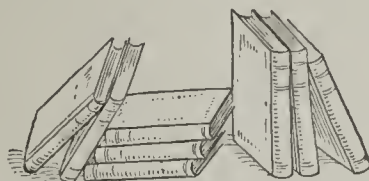
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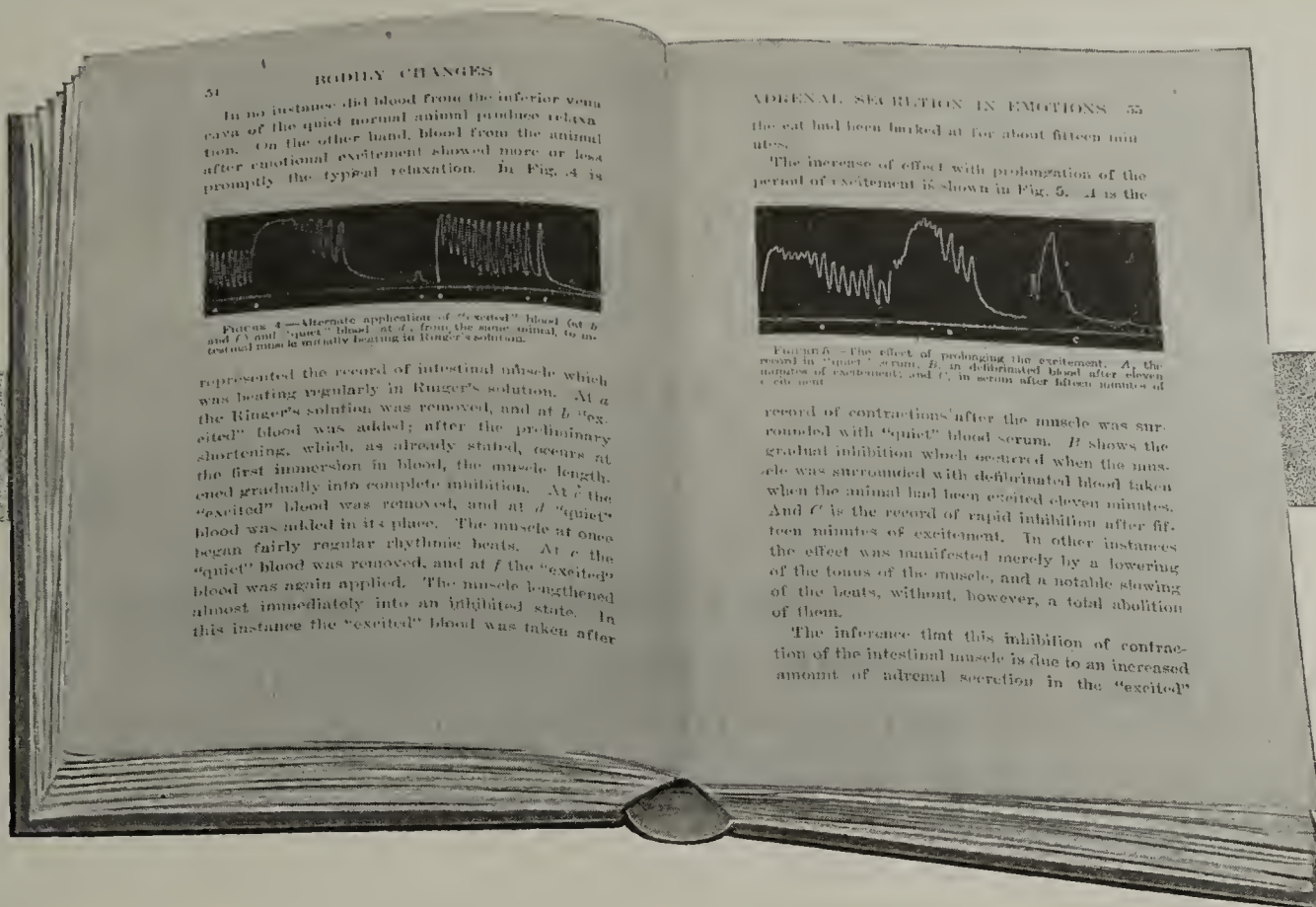
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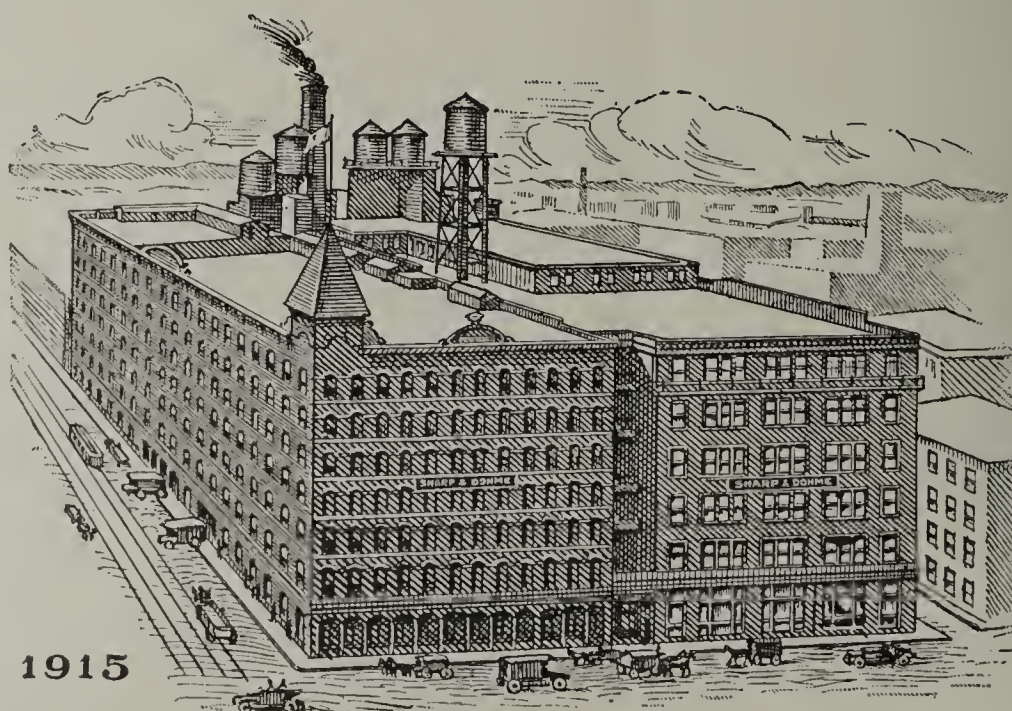
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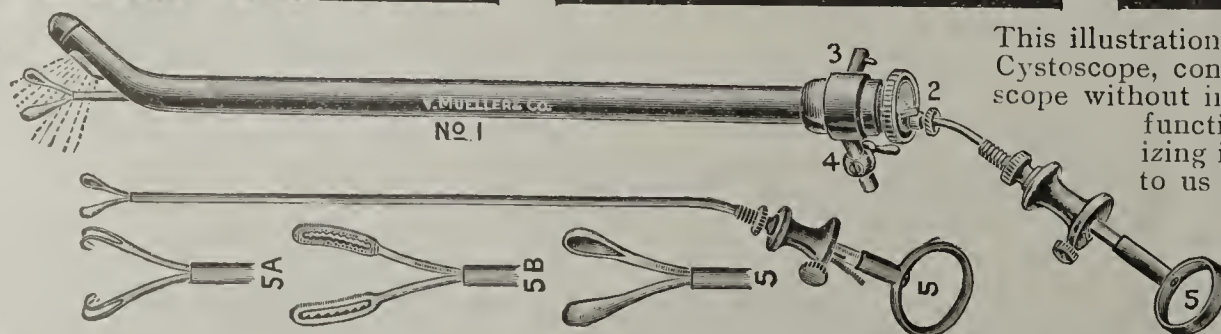
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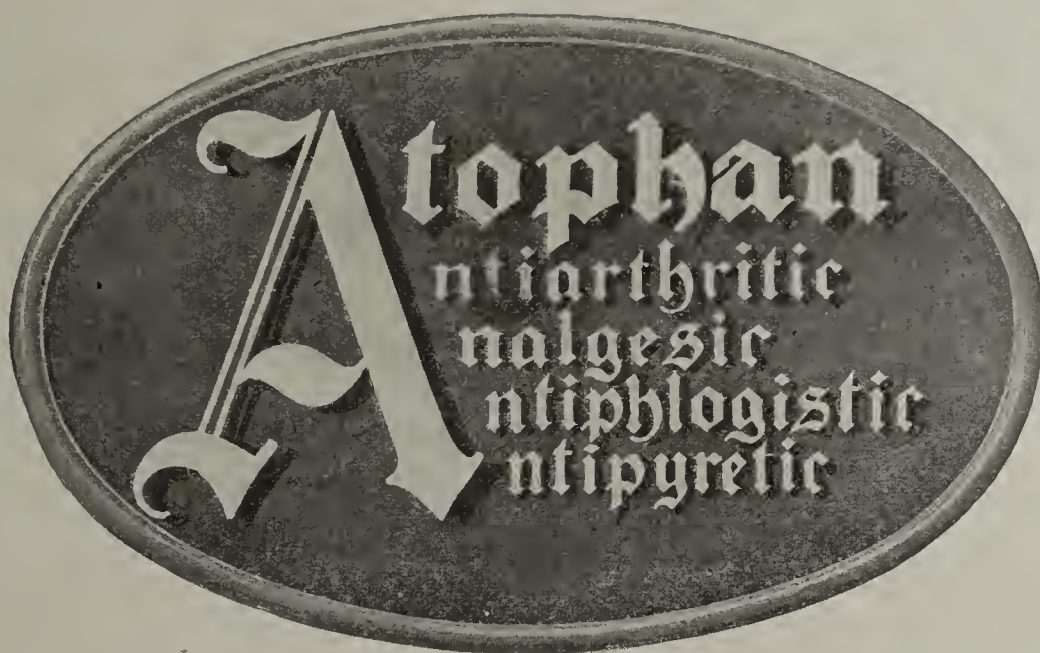
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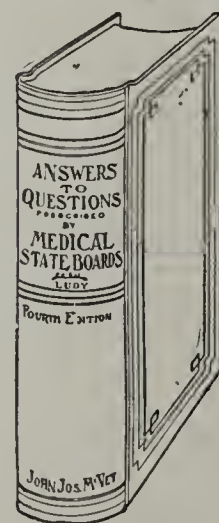
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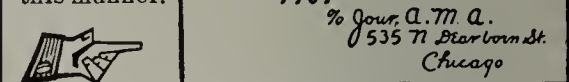
RESULTS VS. ECONOMY—DO NOT TRY TO economize at the expense of the effectiveness of your advertisement by omitting important and attractive features. In selling a practice, value of which runs into hundreds of dollars, it is surely unwise to run the chance of losing a prospective purchaser by not including every important fact and favorable item pertaining to the location and practice. Extra words over fifty cost 3 cents each.

For the following classifications the rate is \$1.50 for 30 words or less—additional words 5c each. This rate applies for each insertion. No gratuitous insertions given under these headings.

Abstracting	Medical Brokers	Med. Illustrators
Automobiles	Educational	Vacation Trips
Auto accessories	Publishers	Typewriters
Carriages	Tr. Sch. for Nurses	Printers
Collections	Nurses Wanted	Salesmen
	Miscellaneous Commercial Advs.	

SPECIAL NOTE—A fee of 25c. is charged those advertisers who have answers sent % AMA. Letters sent in our care are forwarded promptly.

Frequently, we receive requests to this effect: "Please send me the address and particulars regarding ads. No. —, No. —, and No. —." We are not permitted by advertisers who have their mail sent %AMA to furnish inquirers information of any kind, hence when you wish to correspond with such an advertiser, address the envelope in this manner.



Classified ads. are Payable in advance
Rates for display ads. sent upon request

For current issue, ad. must reach us by 4:30 p. m. Monday.

Journal A.M.A., 535 N. Dearborn St. CHICAGO

N. B.—We exclude from our columns all known questionable ads. and appreciate notification from our readers relative to any misrepresentation.

ASSISTANTS WANTED

WANTED — EYE, EAR, NOSE AND throat physician; thoroughly competent, sober and reliable; salary \$100 per month to start; city in Iowa; good future; send references, experience, training and photo. Add. 8379 B, % AMA.

WANTED—A YOUNG PHYSICIAN TO act as resident physician in Tubercular Sanatorium, near Los Angeles, Calif.; good opportunity for young man wishing to specialize on chest. Add. 8375 B, % AMA.

WANTED—UNMARRIED PHYSICIAN AS assistant in Nervous and Mental Sanatorium in the East; \$600 a year and maintenance; must have had hospital experience and fairly well up in laboratory work; morals and good appearance a necessity. Add. 8377 B, % AMA.

WANTED—ASSISTANT; YOUNG WOMAN physician to assist an F. A. C. S. in clean eye, ear, nose and throat practice in small Illinois city; practice not excessive; the object being to do the best and most thorough work possible; give experience and salary expected. Add. 8284 B, % A.M.A.

WANTED — EYE, EAR, NOSE AND throat physician, thoroughly competent, sober and reliable; salary \$1,200 and 25% on profits of medical and surgical work; reply with photograph. C. A. Hoffman Co., 814 Nicollet Ave., Minneapolis, Minn.

(Continued on page 22)



The
Mental Appeal
in Dietetics

The taste, flavor and appearance of food are more than mere esthetic considerations; they have an important influence on appetite and digestion. Moreover, it is essential that the food, through its variety, shall make an appeal to the mind. Through the use of a *pure* baking powder, many appetizing, nutritious and wholesome foods can be prepared from the most simple ingredients.

ROYAL Baking Powder

will insure food tempting to the palate and possessing only healthful qualities. Royal Baking Powder contains no Alum or Phosphate of Lime. It is made from pure Cream of Tartar derived from ripe grapes, and is

*Absolutely
Pure*

A. M. A. ANNOUNCEMENT

(Continued from page 20)

ciation; for example: Guide to Current Medical Literature, American Medical Directory, Handbook of Therapy, Laws Regulating Practice, New and Nonofficial Remedies, Nos-trums and Quackery, Pamphlets on Defense of Research, Great American Fraud, Propaganda for Reform in Proprietary Medicines, Pamphlets on Medical Fakes and Fakers.

ARCHIVES OF INTERNAL MEDICINE

Monthly, \$4 a year; to JOURNAL subscribers, \$3. Single copy, 50 cents.

AMERICAN JOURNAL OF DISEASES OF CHILDREN

Monthly, \$3 a year; to JOURNAL subscribers, \$2. Single copy, 30 cents.

GUIDE TO CURRENT MEDICAL LITERATURE

Semi-annual, 50 cents a copy, \$1.00 a year. An index medicus of the world.

AMERICAN MEDICAL ASSOCIATION,
535 N. DEARBORN STREET, CHICAGO

Tonics and Sedatives

IT KEPT HIM BUSY

A reporter on a country paper had visited the court for a number of days in succession without raising a story, and he complained: "What's the reason there is no crime stuff around here any more judge?"

"Kaint tell, bub, less'n th' constable is gittin' a leetle bit laxative," answered the justice.—*Argonaut*.

A PROPER CHRISTENING

"What's that you call your mule?"

"I call him 'Corporation,'" answered the old negro.

"How did you come to give him such a name?"

"E'm studyin' de animal and readin' de papers, boss. Dat mule gets mo' blame an' abuse dan anythin' else in de township, an' goes ahead havin' on his way jes' de same."—*National Monthly*.

BLOWING SOME

Two old Scotchmen were one day disputing as to who remembered the windier day.

"I mind it bein' sic a win'," said one, "that it took the craws three 'oors to flee hame frae the dominie's field, an' that's no mair than a mile."

"Hoot, mon!" the other replied, "I've seen it that windy that the craws had to walk hame!"—*Pittsburgh Chronicle-Telegraph*.

THE ROACH

Mr. Jones got up at night. After he had taken some six or seven steps he stubbed his toe on the baby carriage.

"D— Ford cars," he said, "they get in everywhere."—*Fun About Fords*.

AVOIDING THE TAILOR

"The other people on the block are sore on me," sighed the tailor. "Say I have killed business on this side of the street. It isn't my fault, though."

"What's wrong?"

"So many men owe me who cross over to the other side when they come to my block."—*Kansas City Journal*.

HE HAD ESTHETIC TASTES

The artist was painting—sunset, red, with blue streaks and green dots.

The oid rustic, at a respectful distance, was watching.

"Ah," said the artist, looking up suddenly, "perhaps to you, too, Nature has opened her

(Continued on next page)

SYSTEM FOR THE DOCTOR

means money and time saved, more efficiency in the treatment of the patient and less drudgery for the physician.

THE HOLDEN SYSTEM

is simplicity itself and a recognized economical complete, uniform and reliable short-cut method for ACCOUNTS and CASE-RECORDS Eleven years of success.

LET US SHOW YOU! WE CAN!

Address Box 351, Yonkers, N. Y.

Complete Carbon Dioxide Apparatus



Carbon Dioxide Ice

An effective therapeutic agent for removing Moles and Warts, Papillomata, Epitheliomata, Angiomata, Lupus Vulgaris. All pigmentary, hairy congenital deformities of skin and many other dermatoses.

Illustrated circular free on request.

AMERICAN CARBONIC MACHINERY CO.

1638 Otis Building

CHICAGO, ILL.

A STUBBORN FACT invites admiration, provided the fact rests on something that makes life easier and better.

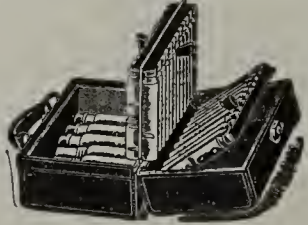
IT IS A FACT that the ALLISON Cabinets for over 25 years have been the admitted standard by which all others are measured.

Write for our list No. 2, of special Prices on Tables, Chairs, Cabinets and Office Accessories.

W. D. ALLISON CO.

915 N. Alabama St.

Indianapolis, Ind.



SEND FOR CATALOGUE ILLUSTRATING OVER 150 SIZES AND STYLES OF

PHYSICIANS' BAGS and CASES

WESTERN LEATHER MFG. CO.

MAKERS

184 W. Lake St.

Chicago

"AMBUMATIC" WASHABLE ABDOMINAL SUPPORTERS



Patented. Made buckled or laced.

DO THE WORK "JUST RIGHT" ADJUSTABLE FOR "LIFT-UP" OR "BINDER SUPPORT"

To any part of the abdomen. Adapted to any person, any condition requiring efficient, comfortable support.

Call or send to-day for folder, order blanks and catalog.

We Are Experts in Corrective

ORTHOPEDIC APPLIANCES

ELASTIC STOCKINGS, TRUSSES, CORSETS, ETC.

Your correspondence solicited, given careful attention and full information. Phone Cent. 4623

ORDER

THE AMBULATORY PNEUMATIC SPLINT

To secure greatest comfort, shortest period of confinement, best results and health for your

FRACTURES

of leg, knee, thigh, and hip patients. All dealers and direct from us. Wire order. State fracture, which limb, sex. Send for booklet, prices, etc. Recommend it.

Amb. Pneu. Splint Mfg. Co., 30 (A.) E. Randolph Street, Chicago

See page 20 for cost of classified and commercial announcement advertisements.

(Continued from page 20)

WANTED—A SINGLE MAN, RECENT graduate, registered in Michigan, to act as assistant and laboratory worker; salary \$100 per month, and rooms with steam heat, electric light and bath; give reference, age, experience, when and where graduated, religious and fraternal connections; splendid opportunity for experience; modern mining town, up to date in every respect. Add. 8270 B, % A.M.A.

PHYSICIANS WANTED

WANTED—PHYSICIAN WHO IS ALSO A druggist, for location in South Dakota to start drug store and practice; building suitable for drug store and living rooms for family; so occupied for years and former owner retiring; place to move or start a drug store and practice; will sell building on very small payment; for particulars of deal, location, etc., address, Dr. E. Gomer Davies, 1000 Walnut St., Yankton, S. D. C

WANTED—EYE, EAR, NOSE AND throat physician to fill a vacancy caused by death; must be thoroughly competent. Add. Maywood Hospital, Sedalia, Mo. C

WANTED—EYE, EAR, NOSE AND throat specialist, or general practitioner, to take offices just being vacated by a specialist well established for many years, and now retiring, in a growing city of 50,000 population. The Geo. G. Newton Co., Superior, Wis. C

WANTED—EXCEPTIONAL OPPORTUNITY for young woman physician to study x-ray work preparatory to taking position in the Woman's Hospital of Philadelphia. For details apply to Dr. A. M. Seabrook, Superintendent of the Woman's Hospital, 2137 N. College Ave., Philadelphia, Pa. C

WANTED—AN EXPERIENCED LABORATORY man; splendid opportunity for one capable of accurate work in the making of Wassermann, Abderhalden and Widal tests, who can examine blood, stomach content, urine, spinal fluids, etc., as well as report reliably on all kinds of tissue, can find a good opening in a live western city of 40,000 people, where he will be given the support of from 30 to 50 physicians in active practice and furnished with enough money to cover all overhead expense; none but thoroughly trained men need apply; write at once. Add. 8335 C, % AMA.

WANTED—AN EYE, EAR, NOSE AND throat man, competent to do the ordinary work, can learn of a good location in an Ohio Valley state; must be ethical; nothing to sell. Add. 8339 C, % AMA.

NURSES WANTED

WANTED—CAPABLE NURSE TO ASSIST doctor in his practice and small hospital; salary, \$35 to \$50 per month as per ability, with board and room; please state in first letter, age, height, weight, preliminary education, training, experience, salary expected, when could come; inclose references and photo. Odebolt Hospital, Odebolt, Iowa.

WANTED—GRADUATE NURSE FOR small hospital in small town Pacific Coast state; must be competent to assist in operating room and otherwise aid busy surgeon; salary \$50 per month with board and room, no personal laundry; must accept immediately; give age, references, where trained and send photograph. Add. 8278 % A.M.A.

INTERNS WANTED

WANTED—RECENT GRADUATE WOMAN physician for a position as intern in large hospital for the insane; also want experienced graduate man pathologist. Add. 8376 D % AMA.

WANTED—TWO INTERNS—LODGING board and laundry furnished; \$10 per month will be paid. Add. Secretary, Medical Staff, St. Luke's Hospital, St. Louis, Mo. D

WANTED—WOMAN INTERN AT BOEHNE Camp Tuberculosis Hospital; 30 beds, Evansville, Ind; salary \$600. Apply to Dr. James Y. Welborn, Evansville, Ind. D

LOCATIONS WANTED

WANTED—IN ILLINOIS—LOCATION that yields not less than \$3,000 yearly; size of town not important; give full particulars in first letter; proposition must bear close investigation; would like to succeed successful elderly man, retiring. Add. 8385 E, % AMA.

(Continued on next page)

TONICS AND SEDATIVES

(Continued from preceding page)

sky-pictures page by page? Have you seen the lambent flame of dawn leaping across the livid east; the red-stained, sulphurous islets floating in the lake of fire in the west; the ragged clouds at midnight, black as a raven's wing, blotting out the shuddering moon?" "No," replied the rustic, shortly; "not since I signed the pledge."—*Tit-Bits*.

Books Received

Books received are acknowledged in this column, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

DIARRHEAL, INFLAMMATORY, OBSTRUCTIVE AND PARASITIC DISEASES OF THE GASTRO-INTESTINAL TRACT. By Samuel Goodwin Gant, M.D., LL.D., Professor of Diseases of the Colon, Sigmoid Flexure, Rectum and Anus at the New York Post-Graduate School and Hospital. Cloth. Price, \$6 net. Pp. 604, with 181 illustrations. Philadelphia: W. B. Saunders Company, 1915.

ALVEOLODENTAL PYORRHEA. By Charles C. Bass, M.D., Professor of Experimental Medicine at the Tulane Medical College, and Foster M. Johns, M.D., Instructor in the Laboratories of Clinical Medicine at the Tulane Medical College. Cloth. Price, \$2.50 net. Pp. 167, with 42 illustrations. Philadelphia: W. B. Saunders Company, 1915.

INDISPENSABLE ORTHOPEDICS. A Handbook for Practitioners. By F. Calot, Chief Surgeon to the Hôpital Rothschild. Translated from the Sixth French Edition by A. H. Robinson, M.D., M.R.C.S., and Louis Nicole. Two volumes. Cloth. Price, \$5 per volume. Pp. 1175, with 1,260 illustrations. St. Louis: C. V. Mosby Company, 1915.

OPERATIVE GYNECOLOGY. By Harry Sturgeon Crossen, M.D., F.A.C.S., Associate in Gynecology, Washington University Medical School. Cloth. Price, \$7.50. Pp. 670, with 770 illustrations. St. Louis: C. V. Mosby Company, 1915.

The Public Service

U. S. Public Health Service

Changes for the seven days ended June 16, 1915:

Blue, Rupert, surgeon-general, designated by the State Department as delegate on the part of the United States to the Pan-American Medical Congress, to be held at San Francisco, Calif., June 17-21, 1915.

Kerr, J. W., asst.-surgeon-general, designated by the State Department as delegate on the part of the United States to the Pan-American Medical Congress, to be held at San Francisco, Calif., June 17-21, 1915.

Irwin, Fairfax, senior surgeon, granted 12 days' additional leave of absence, from July 24, 1915.

Pettus, W. J., surgeon, granted 6 days' leave of absence on account of sickness, from June 6, 1915.

Magruder, G. M., surgeon, granted 7 days' leave of absence from June 23, 1915.

Young, G. B., surgeon, granted 1 month's leave of absence from June 28, 1915.

Gardner, C. H., surgeon, directed to proceed to Detroit, Mich., to arrive Monday morning, June 21, 1915, to serve as recorder of a board of commissioned officers for the examination of candidates for admission to the Service.

Foster, M. H., surgeon, granted 1 month's leave of absence from July 5, 1915.

King, W. W., surgeon, granted 9 days' leave of absence, on account of sickness, from May 23, 1915.

Fox, Carroll, surgeon, directed to proceed to Toledo, Ohio, to complete the investigations

(Continued on next page)

WASSERMANN TEST \$5.00

(Including Noguchi Control Test)

Expert work and prompt reports assured

Our technique is accurate and reports perfectly dependable. We enjoy facilities and advantages which merit your preference. If you are practicing in the west, it will be to your advantage to send your specimens to our laboratories. Reports telegraphed without extra charge. Fee list and containers mailed on request.

PACIFIC WASSERMANN LABORATORIES

San Francisco, Cal. - Pacific Bldg.
Oakland, Cal. - Physicians Bldg.

Los Angeles, Cal. - Hollingsworth Bldg.
Seattle, Wash. - Green Bldg.

ILLINOIS TRAINING SCHOOL FOR NURSES

FOUNDED IN 1880

Offers an up-to-date course in theoretical instruction and practical training to women who wish to enter the nursing profession.

Favorable applicants must meet the requirements of good health, of age (19-35), and of good moral character, having had one year of High School or its educational equivalent.

The instruction covers a period of three years, practical instruction being obtained in Cook County Hospital and private hospitals.

The school catalogue and blanks will be sent on application to the Superintendent of Nurses. Mary C. Wheeler, R.N., 509 Honore Street, Chicago, Illinois.

Let Us Fortify You With the Right Gloves

"Well-Nown" Gloves Afford You the Protection Necessary in Your Operations

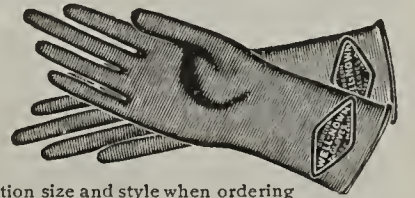
A Perfect fit and always Fresh rubber they are absolutely Guaranteed as to Wearing quality and Sterilization or money refunded.

"Well-Nown" gloves are used by the most Eminent surgeons of the Country and Leading hospitals where Excellent Equipment is the first requisite. SENT PREPAID ON RECEIPT OF PRICE (Foreign postage extra)

Medium Weight, smooth	2 pairs	\$1.00	6 pairs	\$3.00	1 doz. pairs	\$5.00
Medium Weight Pebbled Non-Slip	2 pairs	1.20	6 pairs	3.60	1 doz. pairs	5.75
Tissue Cots, assorted sizes, 3 doz. (no less) 50c						

L. T. KINNEY & CO., 56 E. Randolph St., Chicago, Ill.

Sizes 6 to 10. Mention size and style when ordering



MALIGNANT INFECTION

is only one of the

Hidden Dangers of Your Profession

You need the protection from disability and accidental death afforded by insurance in the

PHYSICIANS CASUALTY ASSOCIATION

of OMAHA, NEBRASKA

A mutual accident Association writing insurance at actual cost.

Send today for information about our policies



E. E. ELLIOTT, Sec.
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OMAHA, NEB.

Stationery

For Professional Men—Letterheads envelopes, etc., for physicians, druggists, dentists. Finest quality Engraving and print process at about one-half the price of ordinary printing. Portfolio of samples and price-list sent free upon request. Write for them today!

Eugene Smith Co., 151 Fox St., Aurora, Ill.

GRADUATE NURSES FURNISHED

We have nurses with advanced hospital experience located in every state in this country, wanting hospital positions. If you need a nurse in any department, write or wire; we will put you in touch with nurses promptly. No charges for this service.

AZNOE'S CENTRAL REGISTRY FOR NURSES
3644 Grand Boulevard, Chicago, Illinois.

OPTIC PROJECTION

By Simon Henry Gage, B.S.
and Henry Phelps Gage, Ph.D.

Principles, installation and use of all forms of Projection Apparatus, including directions for showing refractive eye defects on the screen.

For a review of this work, see The Journal, Jan. 16, p. 288.

Library Buckram, 8vo., pp. 731, \$3.00 Postpaid
16-page circular on request.

Comstock Publishing Company
124 Roberts Place ITHACA, N. Y.

PLEASE MENTION THE JOURNAL A. M. A.
WHEN WRITING TO ADVERTISERS

(Continued from preceding page)

WANTED — EYE, EAR, NOSE AND throat practice or partnership, or would enter strictly first-class ethical firm of surgeon, internist, gynecologist, etc.; any large city, Chicago preferred; A+ graduate; over three years' active general practice, then three years' thorough course and degrees in above specialty in the best American and European institutions; considerable experience in hospital and practice; 32 years old; have worked hard; can deliver the goods; Protestant, teetotaler, Shriner; best American and European references on ability and character; every proposition must be absolutely clean and bona fide to receive consideration; write complete detail first letter; held sacredly confidential. Add. 8232 E, % AMA.

WANTED—PATHOLOGIST DESIRES LO-cation; do you need some one in your community who can do Wassermanns, blood, sputum and bacteriological work, tissue diagnosis, etc.? am looking for good opening and will appreciate hearing from physicians. Add. Physician, 1221 Montgall Ave., Kansas City, Mo. E

WANTED — BY PHYSICIAN, AGED 34, married; graduate A+ school; four years' hospital, medical, surgical and private practice experience; also anesthesia; location in growing town, country, Virginia, North Carolina, Kentucky, West Virginia, Georgia; preferably salaried position with corporation; chance to build up outside practice; will consider assistantship with busy physician. Add. 8203 E, % AMA.

WANTED—BY PHYSICIAN — LOCATION, preferably Virginia, Maryland, North Carolina, Kentucky or Georgia; Graduate A 1 school; married, aged 30; three years' hospital and private practice; will consider salaried position with corporation, institutional work or assistantship to a busy physician; state particulars in first letter. Add. 8394 E, % AMA.

WANTED—TO BUY A GOOD PRACTICE in Nebraska, Kansas, Oklahoma, Colorado, Utah, in town 1,000 to 5,000; give distance to a hospital and competing towns and full information about your town—price of land, nationality and density of population, age of competitors, do any of them do surgery, particulars about your business. Add. 8369 E, % AMA.

WANTED — LOCATION BY GRADUATE of University of Illinois who has had extensive experience as practitioner; location in Indiana or Illinois within 100 miles of Chicago preferred; can make moderate investment in real estate or equipment if price is right; in answering give full particulars respecting monthly income, territory, nationality and competition. Add. 8381 E, % AMA.

(Continued on next page)

THE PUBLIC SERVICE

(Continued from preceding page)

of sanitary administration in that city; thence to proceed to Carson City, Nev., to conduct a study of public health organization and administration.

Korn, W. A., surgeon, leave of absence for one month from Jan. 6, 1915, revoked. Directed to assume charge of the San Francisco Quarantine Station, Angel Island, Calif., relieving Surgeon M. W. Glover.

Bahrenburg, L. P. H., surgeon, detailed to attend the Summer School for Health Officers, to be held at the University of Texas, Austin, Tex., June 16-17, 1915.

Holt, J. M., surgeon, leave of absence for 29 days from June 9, 1915, revoked.

Kolb, Lawrence, P. A. surgeon, detailed for duty at the Manhattan State Hospital, Ward's Island, N. Y., for the study of mental diseases, beginning July 1, 1915.

Watkins, J. A., asst.-surg., granted 2 months' leave of absence from July 5, 1915.

Slaughter, W. H., asst.-surg., directed to proceed to Annapolis, Md., for duty in connection with investigations of rural sanitation in Anne Arundel County.

Prather, D. J., asst.-surg., directed to proceed to Adel, Ia., for duty in connection with the investigation of rural sanitation in Dallas County.

Reimer, H. B. C., acting asst.-surg., directed to proceed to the Marine Hospital, Chelsea, Mass., for temporary duty during the absence of P. A. Surgeon G. L. Collins.

Slough, Charles, pharmacist, relieved from duty at the Immigration Station, Ellis Island, N. Y., and proceed to Gulf Quarantine Station, Biloxi, Miss., and report to the medical officer in charge for duty and assignment to quarters.

Stier, C., pharmacist, relieved from duty at the Gulf Quarantine Station and directed to proceed to Boston, Mass., and report to Surgeon S. B. Grubbs for duty.

Wilbert, M. I., technical assistant, directed to attend the meeting of the Pennsylvania Pharmaceutical Association, Forest Park, Pa., June 22-24, 1915.

Hommon, H. B., sanitary chemist, directed to proceed to Cincinnati, Ohio, to inaugurate the industrial waste studies carried on from that station.

Applewhite, C. C., field investigator, directed to proceed to Walker County, Alabama, for duty in connection with field investigations of rural sanitation.

Taylor, Quintard, field investigator, directed to proceed to Walker County, Ala., for duty in connection with field investigations of rural sanitation.

BOARDS CONVENED

Board of commissioned medical officers convened to meet at the Bureau, Monday, June 21, 1915, for the purpose of examining applicants for appointment as assistant surgeons in the Public Health Service. Detail for the board: Asst.-Surg.-Gen. W. G. Stimpson, chairman; Asst.-Surg.-Gen. L. E. Cofer, member; P. A. Surg. E. A. Sweet, recorder.

Board of commissioned medical officers convened to meet on Monday, June 21, 1915, at 10 a. m., for the purpose of making physical examinations and conducting the mental examinations of candidates for appointment as assistant surgeons in the Public Health Service, as follows:

Marine Hospital, Detroit, detail for the board: Sr. Surg. H. W. Austin, chairman; Surg. C. H. Gardner, recorder.

Immigration Station, Ellis Island, N. Y., detail for the board: Surg. L. L. Williams, chairman; Surg. C. H. Lavinder, recorder.

Marine Hospital, San Francisco, detail for the board: Surg. R. M. Woodward, chairman; Asst. Surg. W. M. Jones, recorder.

Marine Hospital, Chicago, detail for the board: Surg. J. O. Cobb, chairman; Asst. Surg. C. L. Williams, recorder.

Marine Hospital, St. Louis, Mo., detail for the board: Surg. M. J. White, chairman; Asst. Surg. H. C. Cody, recorder.

Marine Hospital, New Orleans, detail for the board: Surg. R. H. von Emdorf, chairman; Surg. R. A. Kearny, recorder.

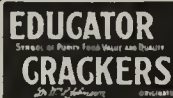
Teeth Cutting
Made Easy

Good
teeth
mean
good
health
and a
good
body

BABY EDUCATOR

Is a Food Teething Ring made from pulverized honey-sweetened cereals baked so hard that just a little is eaten at a time as it becomes moistened by the saliva.

The Baby Educator Food Ring pacifies the teething baby and at the same time develops the teeth and jaws. Better than tasteless and foodless rubber rings.



Doctor, may we send you free samples? Your name on a post card will do.

Johnson Educator Food Co.
30 Batterymarch St., Boston.

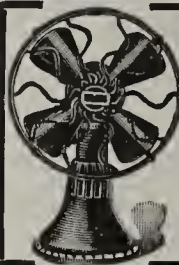
\$2 A MONTH FREE TRIAL

Late Style Visible. Every modern convenience. Back Spacer. Tabulator—Two Color Ribbon—Automatic ribbon Reverse, etc. Bargain Prices. Perfect machines with complete equipment, every extra. Guaranteed against defect. Free circular describes special FIVE DAYS' TRIAL OFFER. Address H. A. SMITH, 700—231 N. 5th Ave., CHICAGO, ILL.

LUX LEGS
ARMS
BRACES

BRACES FOR ALL KINDS OF DEFORMITIES, MADE TO ORDER.

Artificial legs, arms, arch supports, abdominal supports, trusses, wheel chairs and crutches.
RAY TRAUTMAN, Minneapolis
522 Medical Block Nic. 4289



Runs on Alcohol

at cost of less than 1/2 cent an hour anywhere without electricity, springs or batteries. Superb construction. 12-inch blades. Adjustable roller bearing. Reliable. A proved comfort. Prompt delivery. **Keep Cool**

Write for price and free circular
LAKE BREEZE MOTOR
116 N. Jefferson St., CHICAGO

The ARGO LYING-IN HOSPITAL

A private maternity home, under the management of the Argo Hospital, affording every kindness and protection to its patients and their infants. Graduate nurses and attending physicians. Rates, \$10 to \$15 per week. Correspondence solicited from Physicians.

Address, Rose Massoth, R.N., Supt.
Phone Summit 178-M ARGO, ILL. Cook County

POMPEIAN
OLIVE OIL

ALWAYS FRESH
PURE-SWEET-WHOLE SOME

(Continued from preceding page)

WANTED—BY A PHYSICIAN WITH 20 years' experience in general practice; graduate of Class A college, with hospital and post-graduate experience; a good location for practice, or partnership with a busy practitioner; can furnish best of references; Ohio, Iowa or Colorado preferred. Add. 8393 E, % AMA.

WANTED—UNOPPOSED LOCATION IN Illinois; state terms, amount of annual collections, fees, nationality predominating, distance to competition, size of town, character of country; or I will pay \$50 to anyone pointing out a satisfactory location with little competition. Add. 8384 E, % AMA.

WANTED — LOCATION IN OHIO, OR partnership, by physician, aged 39, of 12 years' successful general practice, in town of four or five thousand or more; graduate of A+ school; best of references given; owing to recent financial loss, must be paying from the start. Add. 8366 E, % AMA.

LOCUM TENENS WANTED

WANTED—LOCUM TENENS FROM JULY 10 to JULY 24. Camp practice; salary. Add. Box 9, Walville, Wash. F

WANTED—AT ONCE—LOCUM TENENS with chances of making permanent deal; North Central Wisconsin; population, 1,200; one easy competitor; must be sober, well recommended; no cigarettes or drug addict wanted; should have own auto. Add. 8389 F, % AMA.

PARTNERS WANTED

WANTED—SOUTH CENTRAL WISCONSIN; experienced German physician for partner, with view to becoming successor; village and country practice in rich agricultural community; state age, experience and give references in first letter; small amount of capital required. Add. 8386 G, % AMA.

WANTED — SURGEON OF NATIONAL reputation planning gradually to retire from practice, wants junior partner; opportunity for ambitious, capable and energetic younger surgeon, wishing to establish future in large city; applicant must have highest references as to character and ability; also sufficient capital to eventually take up part of interest in well-established and well-paying hospital. Add. 8327 G, % AMA.

WANTED—A RECENT GRADUATE WHO is interested in surgery and who will be willing to associate himself with a general practitioner in Minneapolis. Must be American, of good education, address and habits. Prefer one who can invest reasonable amount for equipment; very attractive offer on cooperative plan. Add. 8363 G, % AMA.

PARTNERSHIP WANTED

WANTED—TO BUY A PARTNERSHIP INTEREST with a surgeon who owns his own hospital in a good growing town in the west; Washington or Idaho preferred; 17 years in general practice; habits excellent. Add. 8324 H, % AMA.

WANTED—BY A WOMAN PHYSICIAN with a broad training and with money to invest, a part interest in a hospital for general and surgical work; best of credentials can be furnished of work done in this country and in Europe. Add. 8311 H, % A. M. A.

WANTED — PARTNERSHIP — A PHYSICIAN who has a large practice in medicine and surgery who is contemplating, either by reason of age, ill-health or over-work, taking a partner; I am open for engagement at any time; ethical, honorable and sober; had 20 years' experience in medicine and surgery; 45 years of age; graduate of Eastern school; married; no family; will work on salary until convinced I am right; will buy part or all on retiring for good. Add. 8362 H, % AMA.

SITUATIONS WANTED

WANTED—A HIGH-GRADE DETAIL MAN of 18 years' experience in introducing specialties to the profession, who is capable of planning as well as executing campaigns of introduction, desires to correspond with any reputable firm wishing to avail themselves of A1 detail service, regarding which satisfactory proof and references can be furnished; his connection as the Chicago representative for the past 8 years of a well-known eastern firm will cease July 1. Add. 8337 I, % AMA.

(Continued on next page)

WANTED—SITUATION—TRAINED G. U. man will consider partnership or salaried arrangement; experienced in modern methods and can handle patients; assisted G. U. specialist who possesses national reputation; graduate A-plus school; general hospital and institutional experience; 28 years old; will go anywhere. Add. 8392 I, % AMA.

WANTED—ASSISTANTSHIP WITH BUSY practitioner or institution; two years general practice; nine months assistant in state institution; special training obstetrics; American, aged 30, single, Christian unaffiliated, teetotaler; best references; knowledge French; licensed Illinois, Maine; minimum salary \$75 month with board, room, laundry. Add. 8391 I, % AMA.

WANTED — POSITION DESIRED BY bright young lady who desires to learn the drug business and after reasonable experience to invest cash and buy half interest if mutually agreeable; retail store experience but not in drug line; unmarried; 28 years old; good references; Catholic. Add. 653, Care F. V. Kniest, Medical Broker, Omaha, Neb. I

WANTED — SALARIED POSITION AS assistant or partner, or contract practice, by young man, graduate Class A school; familiar with laboratory work; references furnished; also registered pharmacist; write me and I will state particulars in detail. Add. 8378 I, % AMA.

WANTED—ASSISTANTSHIP WITH BUSY physician, surgeon or in hospital at once; single, aged 26; graduate Class A school, 1913; 18 months' general hospital training and 6 months' general practice; references furnished; California and Missouri license; state full particulars and salary in first letter. Add. 8354 I, % AMA.

WANTED—BY WOMAN PHYSICIAN—PO-sition as assistant in institution; experience from large state hospitals for insane and epileptics, with charge of acute service, hydrotherapy, etc.; experience from private sanitarium for nervous diseases; experience as superintendent of general hospital and training school; capacity 30 beds for three years. Add. 8216 I, % AMA.

WANTED—YOUNG MAN, AGED 23, SIN-gle, desires a position as assistant to a busy practitioner or take charge of small practice for the three summer months. Will be a senior next year in a Class A school; expect small salary and prefer East Tennessee if obtainable. Add. C. A. Frazier, Knoxville, Tenn. I

WANTED — A POSITION, INSTITU-tional or assistant, leading to a partnership and salaried to safeguard a family, by an experienced physician and surgeon; 43 years old; seeking mild southern or western climate if possible; had special training and many years of hospital work along lines of abdominal surgery; best references. Add. 8318 I, % AMA.

WANTED—BY EXPERIENCED PATHOLO-gist, bacteriologist and clinical microscopist position with institution, medical school or with a number of physicians and surgeons; have had 3 years' experience in general pathological and bacteriological work, clinical microscopy, serology, etc.; also teaching experience in most of these branches and 3 years in the practice of medicine; graduated in medicine in 1909; can furnish the best of reference. Add. 8265 I, % A.M.A.

WANTED—POSITION AS ASSISTANT TO obstetrician and gynecologist or surgeon; graduate A+ school; 2 years' general practice; 1 year general hospital training; single, aged 28; speak German; best references furnished as to morals and ability. Add. 8353 I, % AMA.

WANTED — LOCUM TENENS WORK — Physician, aged 32, graduate of Class A school; 2 years' hospital experience and 5 years in general practice; desires position as locum tenens; licensed in West Virginia and Indiana; references furnished. Add. 8397 I, % AMA.

WANTED—POSITION BY PHYSICIAN—Aged 34; married; no children; speaks English only; graduate '07 and '15 Class A2 school; 8 years' general practice; can do laboratory work; good reference furnished; habits good; prefer assistantship in tuberculous sanatorium in western Texas, New Mexico or Colorado; or would take a good contract practice; give full particulars in first letter; available June 10. Add. 8159 I, % AMA.

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(Continued from preceding page)

NURSES LOCATION WANTED

WANTED—POSITION AS HOSPITAL SU-perintendent, by graduate registered nurse; nine years' experience as superintendent; graduate of a general hospital; three years' training; college education; experienced drug-gist and assistant in operating room; best of credentials as to character and ability. Add. 8373, % AMA.

APPARATUS, ETC., FOR SALE

FOR SALE—X-RAY OUTFIT, JUMBO coil, 16-inch, lead screen, ten good tubes (two new tungsten), lead glass shield, tube stand, etc., etc.; capable of heaviest and most rapid work; exchange for car, Ford preferred, or sell \$175 cash. Dr. Herring, New Hamburg, N. Y. K

FOR SALE—SCHEIDEL-WESTERN RADI-ographic Special Coil outfit complete with compression diaphragm tube stand and table, all ready for use; cheap. National Physicians' Exchange, 30 E. Randolph St., Chicago, Ill. K

FOR SALE—MICROSCOPE COMPLETE—Made by Queen and Company; oil immersion lens included; everything in first class condition; will ship by express subject to inspection; price, \$30. A. W. Skitton, M.D., Furnace Run, Pa. K

FOR SALE — SCHEIDEL-WESTERN 12 K. W. interrupterless apparatus complete with lead protective shield for 220 volt, 60 cycle A. C. in perfect condition, \$500; 1 16-inch Scheidel-Western radiographic special coil outfit for A. C., \$250; 1 20-inch Scheidel-Western radiographic coil outfit for A. C., \$175. For further details write to the Wm. Meyer Co., 817 W. Washington Blvd., Chicago, Ill.

FOR SALE—CYSTOSCOPE, NITZE COM- bination double catheterizing and examining; Loewenstein latest model Zeiss lens system, perfect, \$40; urethroscope, Goldschmidt combination anterior posterior, Loewenstein latest model Zeiss lens, perfect, \$45; Allison pynchon cabinet, bevel glass back and top, cost \$97, sell for \$30; perfect. Estate, % Dr. Michel, 15 Central Park West, New York City. K

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BOOKS WANTED AND FOR SALE

FOR SALE—MEDICAL BOOKS, A LARGE selection, new and old, A. M. A. Journals 1906 to 1915, not all; a Leitz microscope, a haemoglobinometer; a faradic and galvanic battery and attachments. Add. 8401 M, % AMA.

WANTED—JANUARY, MARCH AND NO-vember, 1914, *American Journal of Diseases of Children*. We will pay 50 cents each for January and March issues, and 25 cents each for November issues, returned in good condition. Add. Amer. Med. Assn., 535 N. Dearborn St., Chicago. M

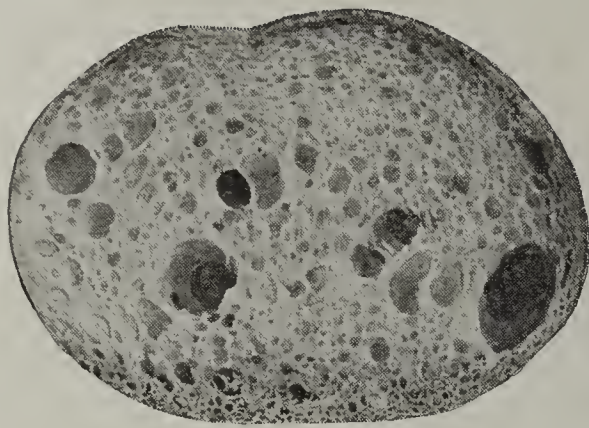
PRACTICES FOR SALE

FOR SALE—CALIFORNIA—\$3,600 PRAC-tice; growing town, San Joaquin Valley; thickly settled dairying and fruit section; nine-room electric lighted house, garage; four-bed hospital with operating room; good opportunity; legitimate reasons for selling; price, \$6,000, at least half cash; furniture and equipment optional. Add. 8303 N, % A. M. A.

FOR SALE—COLORADO—PRACTICE AND drug store in one of the richest agricultural regions in the state; good fees and collections; no competition; \$2,500 to \$3,000 yearly; good roads; money-maker from the start; best of reasons for selling; \$750 cash; this adv. appears but once. Add. 8388 N, % AMA.

FOR SALE—COLORADO—IN GOOD BUSI-ness town of 1,500; good school, churches; electric lights and waterworks; unopposed and contract practice of \$4,000 cash; all transferable; contracts \$2,500; want \$1,500 cash; this includes \$500 worth necessary personal property; must leave by July 1; don't answer unless you mean business. Add. Box 622, Canon City, Colo. N

(Continued on next page)



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Puffed Grains are made by exploding the food cells. A wheat or rice kernel contains more than 100 million cells. Each holds a trifle of moisture.

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CORN
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FOR SALE—EASTERN COLORADO—
\$3,000 practice; \$1,800 for 6-room house and three lots, terms on part; county seat; county high school; one competitor; nearest outside competition 10 and 25 miles; good roads; appointments; wish to specialize; send stamp if you mean business. Add. 8301 N, % A. M. A.

FOR SALE—CENTRAL ILLINOIS—CASH
practice of \$3,000; in rich farming community, and town of 750; collections 95%; German Lutheran, Catholic and Protestant people; competition congenial; Catholic young physician here since Jan. 1st; location, complete office equipment and furniture, large stock of drugs, automobile, storm buggy, price \$1,800. Add. 8277 N, % A.M.A.

FOR SALE—NORTHERN ILLINOIS—ES-
tablished practice for five years, averaging from \$4,000 to \$7,000 yearly; in town 650 inhabitants; rich farming community; collections, 90 per cent.; competition congenial; ten miles from two hospitals; eight-room house fitted for office, electric lighted; two lots, large barn and garage, good garden and chicken run; practice free to purchaser of property at \$5,000, part cash, balance on easy terms; reason for leaving made known in correspondence; don't answer unless interested, as the proposition is a bargain to an energetic, able practitioner. Add. 8382 N, % AMA.

FOR SALE—CENTRAL ILLINOIS—CASH
practice of \$2,500 in rich farming community and town of 1,400 to purchaser of my residence, 2½ lots, new barn; complete office equipment including large stock of drugs and all furniture including safe included in price; \$4,000 with terms if taken at once; reason for selling, going to larger place. Add. 8164 N, % A. M. A.

FOR SALE—ILLINOIS—GENERAL PRACTICE
in manufacturing town of 18,000; 90 miles S. W. of Chicago, in fine agricultural community; average collections, \$200 monthly; reason for leaving, ill health; will show books and introduce; excellent office location; price exceptionally low to make a quick sale. Add. 8370 N, % AMA.

FOR SALE—ILLINOIS—\$4,500 PRACTICE;
suburb of Chicago; a real opening and an ideal place to live; population 5,000; fine schools and college; paved streets and macadam roads; can transfer some appointments; practice and introduction for invoice price of office fixtures and drug stock amounting to about \$700. Add. 8355 N, % AMA.

FOR SALE—CENTRAL ILLINOIS—\$3,400
country practice; established 10 years; village of 600; American community; for about value of office fixtures; unless you have \$500 and are a clean honorable man, do not investigate this; reason for selling given if wanted; this proposition is absolutely sound. Add. 8336 N, % AMA.

FOR SALE — NORTHERN ILLINOIS—
Railroad town of 900 inhabitants; a \$4,500 practice; located in richest part of corn belt; land \$300 per acre; distance to other towns 9, 13, 9, 12; opposition just right; want young or middle aged married man, Protestant, who is good mixer, willing to work, can come at once and has \$500 cash; no real estate; rent, office \$5, house \$10; will introduce. Add. 8340 N, % AMA.

FOR SALE—EASTERN IOWA—GROWING
town on railroad; only doctor; three churches, good schools, fine roads; very rich farming community; collections 100 per cent.; practice established 35 years; nearest doctor 8 miles; yearly practice \$4,000; surgeon could do \$5,500; new 7-room bungalow, garage, etc.; new 2-room office addition; large stock drugs; office furniture; insurance and county poor contracts; going to city; price, \$4,000 cash. Add. 8350 N, % AMA.

FOR SALE—NORTHEASTERN IOWA—
\$3,500 or more unopposed practice in good business town of 350; fine farming; railroad; electric lights; large territory; collections first class; \$500 buys large stock of drugs, static machine and office fixtures; good opportunity. Add. 8383 N, % AMA.

FOR SALE—CENTRAL IOWA—\$3,000
practice; established 10 years; population 1,000, Americans and German-Americans; electric lights and water works; large territory; rich farmers; good roads; main line railway; railway surgeonship; good opening for surgeon; none for 16 miles; competition moderate; collections 98%; drugs, equipment and office furniture and introduction, \$800; taking hospital postgraduate. Add. 8312 N, % A.M.A.

(Continued on next page)

FOR SALE—NORTH CENTRAL IOWA—
\$3,000 unopposed practice in rich farming section; collections 98 per cent.; good roads; fine people; competition 8, 8, 12 and 16 miles away and easy; good stock drugs, office furniture and good will, \$400; practice can be doubled by right man with surgery. Add. 8185 N, % AMA.

FOR SALE—N. W. IOWA—\$6,000 PRAC-
tice to purchaser of my \$7,000 office and residence in splendid farming community; town of 1,200; large territory, 10, 14, 18 miles; fees and collections good; electric light, water, sewer, hospital; taking up eye work. Add. 8347 N, % AMA.

FOR SALE — KANSAS — \$3,000 UNOP-
posed general practice in town of 300; railroad; good collections; good roads; wide territory; will turn everything over to successor for price of equipment and drugs, auto and library optional; \$500 will handle; if you have the cash and can come at once answer. Add. 8300 N, % AMA.

FOR SALE — SOUTHEAST KANSAS —
Good general practice; town of 800 population; splendid farming country, fine roads; four churches; good high school; two railroads; one competitor, other competition 9½, 10, 12 miles; good reason for selling; office fixtures, drugs and introduction included; residence and office building optional. Add. 8400 N, % AMA.

FOR SALE—KANSAS—\$4,000 PRACTICE
in good business, home and college city of 50,000, to purchaser of my office equipment and modern 8-room residence, situated in choice residence district; terms if desired; or I will give introduction with purchase of office equipment at invoice (about \$500) only; investigate. Add. 8326 N, % AMA.

FOR SALE—SOUTHERN KANSAS—GOOD
location in town of 10,000; part contract practice; this alone will pay back money invested in one year; complete office and clinical laboratory equipment; price reasonable; excellent opportunity for the right man. For further particulars add. 8332 N, % AMA.

FOR SALE—MAINE—SPLENDID PRAC-
tice; established 17 years; in beautiful village; practice runs \$2,500 to \$2,900; good people, schools, churches, roads, fees, collections; beautiful modern house, 12 rooms, steam heat, open plumbing; stable; several acres land; worth \$8,000; sell \$4,000, \$1,000 cash, balance terms; thorough introduction; competition light. Add. 8399 N, % AMA.

FOR SALE — MASSACHUSETTS — PRAC-
tice in exclusive Boston suburb; collections average \$3,000 last twenty years; will sell house furnishings, lease on house and good will for \$1,500 cash; detailed description on application; don't write unless you can pay cash and mean business. Add. 8361 N, % AMA.

FOR SALE—MASSACHUSETTS — GEN-
eral practice with unopposed dermatological and G.-U. practice \$8,000 to \$10,000 per year; books, instruments, drugs, latest x-ray outfit and accessories, office furniture, etc., with or without real estate in city of over 115,000; exceptional opportunity. Add. 8352 N, % AMA.

FOR SALE — MICHIGAN — \$3,400 CASH
practice in one of best towns of 700 in state; office fixtures and furniture with large stock of drugs; am leaving state; price, \$750. Add. 8395 N, % AMA.

FOR SALE—MICHIGAN—THE EYE, EAR,
nose and throat practice with extensive office equipment recently purchased by Dr. Edward M. Hamaker and which he was prevented from taking over on account of his sudden death; an unusually desirable location in a good Michigan city. Add. Dr. W. D. Hamaker, Meadville, Pa. N

FOR SALE — MICHIGAN — UNOPPOSED
\$3,000 practice; collections, 99 per cent.; inland town of 375, among thrifty people and fine farms; good roads year round; drugs, office equipment, buggy, harness and cutter for \$300; terms if desired; leaving state for partnership. Add. 8398 N, % AMA.

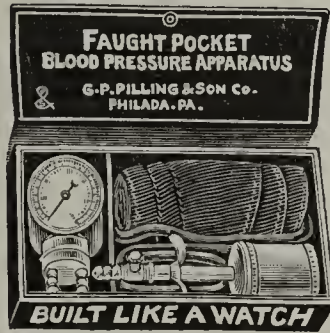
FOR SALE — MICHIGAN—PHYSICIAN'S
country practice; good town; fine farming country; good fees and no cutting; large territory, fine class of people; business this year to May 1, \$1,100; public school on university list; good hunting and fishing; price less than invoice; give immediate possession. Add. 8131 N, % AMA.

(Continued on next page)

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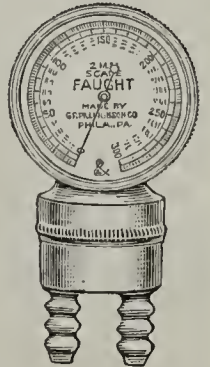
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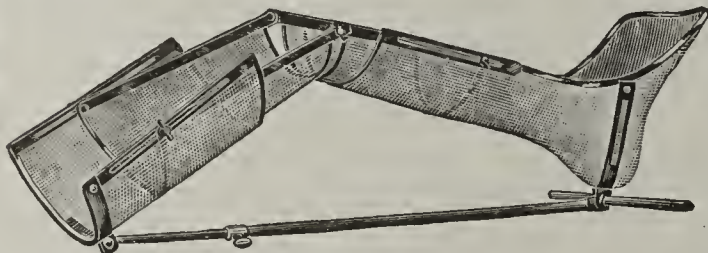
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and at the same time give comfort and satisfaction to your patient. On account of its great adaptability it is largely used in private and hospital practice. In this one single splint you have the well known Bucks, Hodgens and McIntyre. We make two sizes,

large size No. 65 and the small size No. 66. They are ten dollars each with express charges prepaid. It will give us pleasure to send our little booklet, also our price list of our full line of splints.

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Splendid unopposed \$7,000 hospital and general practice free to the purchaser of my 12-bed modern private hospital; \$17,300 and equipment (hospital, office and household), \$6,500; all under one roof; collections 98 per cent.; in a growing town; rich farming territory and beautiful lakes; a summer resort; half cash; balance terms. Add. 8333 N, % AMA.

FOR SALE—MISSISSIPPI — EYE, EAR,

nose and throat practice; town 12,000; purchaser will have referred all case in his line from practice of three physicians, as well as those admitted to private sanatorium of 35 beds. Add. C. T. Chamberlain, M.D., Natchez, Miss.

FOR SALE — NORTHEAST MISSOURI—

Practice \$3,000 per year in railroad town of 500; electric lights; four churches; good school; good roads; rich farming community; \$500 cash for office equipment, drugs and location; excellent opportunity. Add. 8194 N, % AMA.

FOR SALE — NORTHEAST MISSOURI—

Will turn to purchaser of my office outfit splendid unopposed practice in up-to-date town of 300; high school, electric lights; auto and property if wanted, with or without drug store; must sell; snap for some one; no triflers. Add. 8207 N, % AMA.

FOR SALE—NEW JERSEY—PHYSICIAN'S

home and practice in up-to-date town; over 4,000 inhabitants; established 23 years; retiring on account of ill health; house modern and centrally located. Add. 8325 N, % AMA.

FOR SALE—EASTERN NEBRASKA—UN-

opposed general practice in good town on main line railroad; fine agricultural district; good collections; Protestant community; twelve grade schools; successor can make \$2,500 first year without surgery; price, \$800 for location, drugs and office equipment. Answer if have cash and can take charge inside two months. Add. 8396 N, % AMA.

FOR SALE—NEBRASKA—EXCEPTIONAL

opening available account of death; extensive eye, ear, nose and throat practice; consultation and operative work; modern city 8,000 population; thrifty surrounding farming territory; complete equipment for special practice; cooperation of established surgeon; will sell reasonable; easy terms. Full particulars on request to Mrs. Julia A. Blanchard, Kearney, Neb.

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FOR SALE—S. E. NEBRASKA — UNOPPOSED \$6,000 practice; splendid farming section; good roads, schools, Protestant churches; here 8 years; made enough to retire; building equipment \$4,000; one-half cash; drug store for self or friend; nets \$3,000 annually. Add. 8172 N, % AMA.

FOR SALE — EASTERN NEW YORK —

Schoharie County; fully equipped office, furniture, library, instruments, drugs, violet ray, hot air apparatus, everything to do business; population, 3,000; established practice; make \$4,000 first year; excellent surgical opportunity; fifty miles from hospital; no real estate; if you want to buy a good practice in a good place this is worth while; will introduce and show you particulars upon request; price, \$2,800. Add. 8390 N, % AMA.

FOR SALE—NEW YORK—SPLENDID

practice. A physician, willing to work and desirous of locating in a Hudson River District, within 75 miles of New York, in consideration of the purchase of the deceased physician's residence, will find a life practice assured and unusual opportunities afforded by communicating with Mrs. A. T. Fink, Arlington, R. F. D., Dutchess Co., New York.

FOR SALE—NEW YORK — \$8,000 PRAC-

tice, largely surgical, 40 miles from New York City; visiting surgeon general hospital; do all major surgery in private hospital; can transfer appointments to capable man; \$5,000 cash for quick turn; investigate; large equipment optional; will easily double in five years; reason, health. Add. 8351 N, % AMA.

FOR SALE — NEW YORK — PROPERTY

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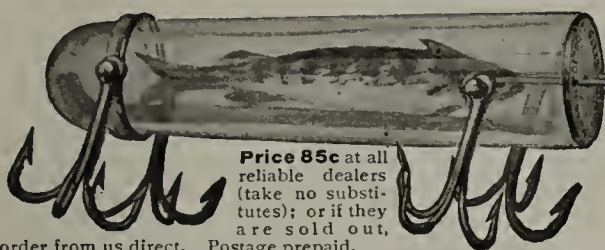
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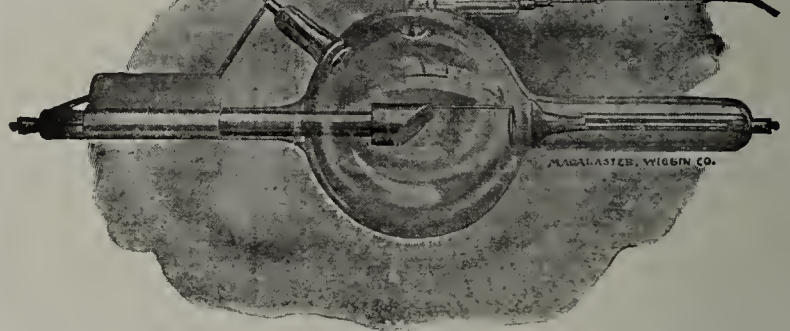
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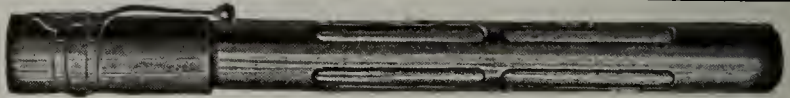


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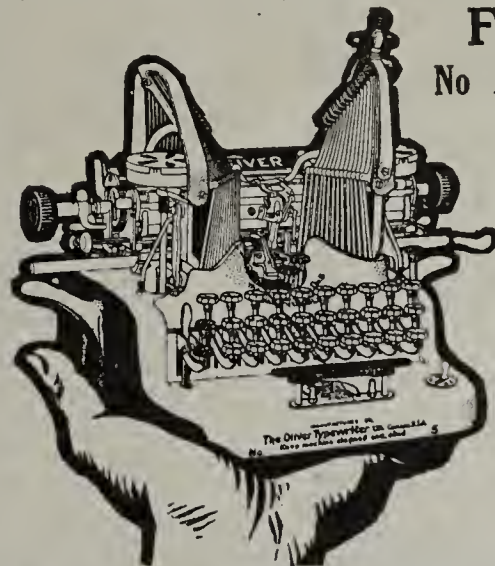
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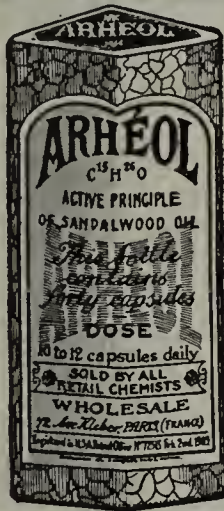
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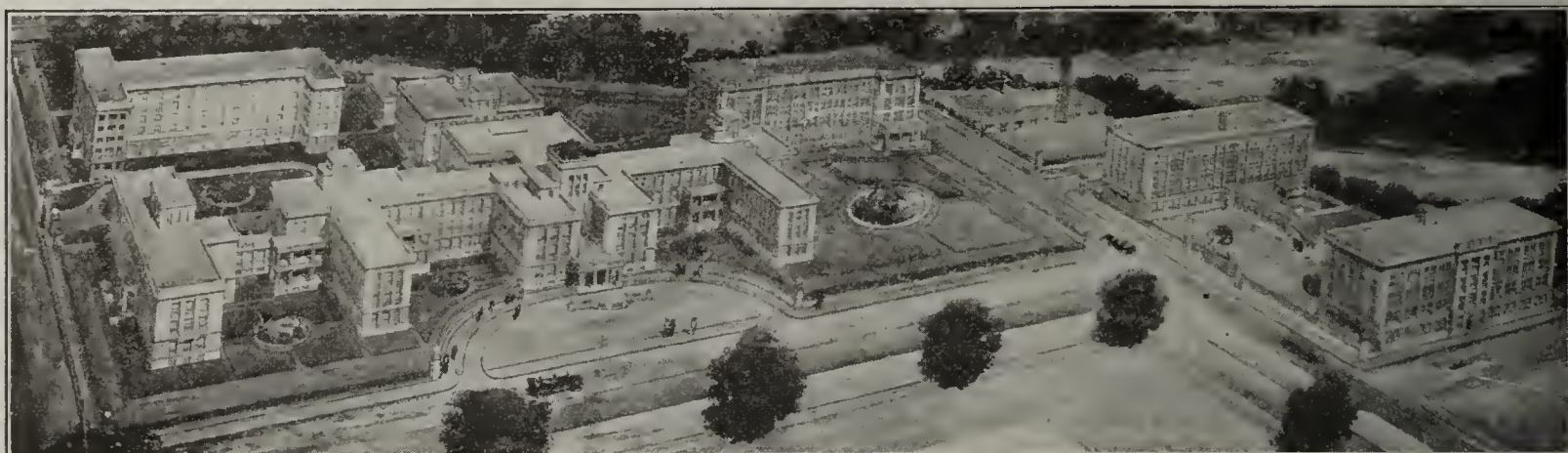
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The University and Bellevue Hospital Medical College

Session 1915-1916 begins Wednesday, September 22, 1915

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2. Course extending from February 1, 1916, to September, 1916. The completion of either course admits to the medical school.

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- (2) A certificate of the College Entrance Examination Board covering fifteen units of Secondary School Subjects.
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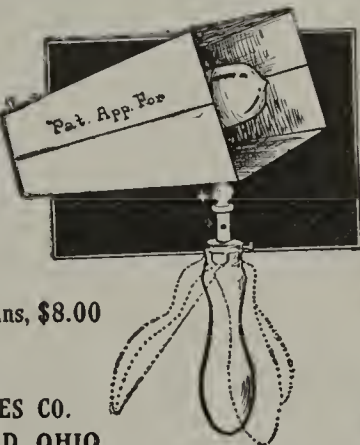
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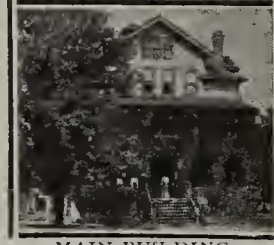
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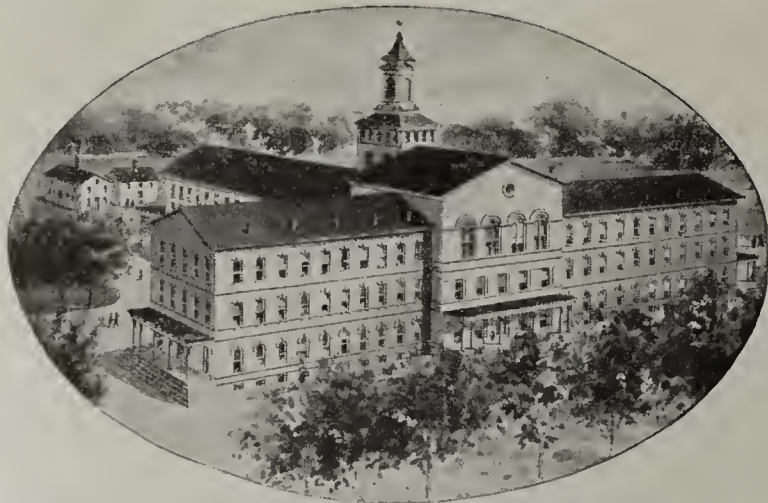
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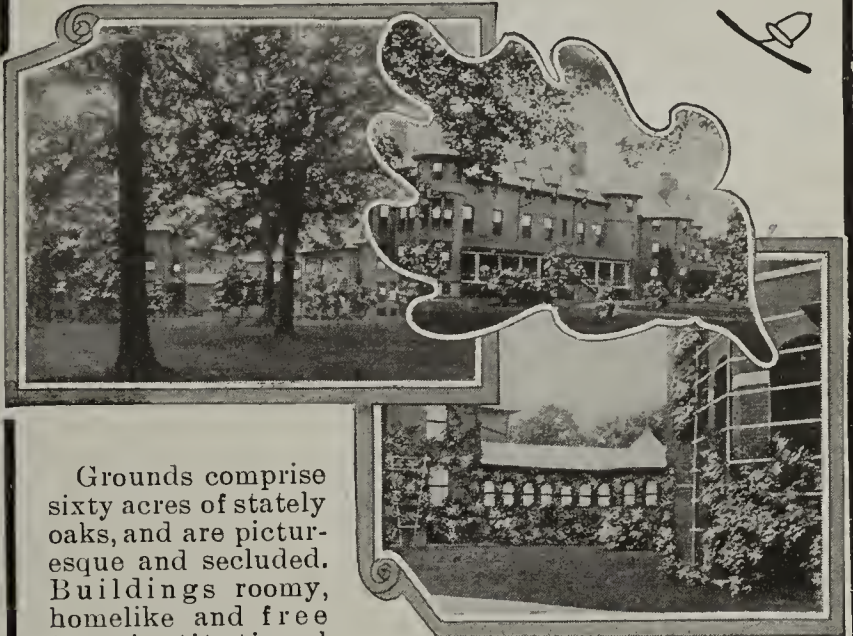
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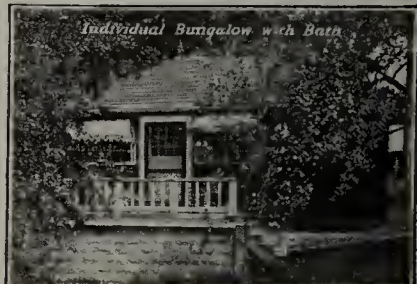


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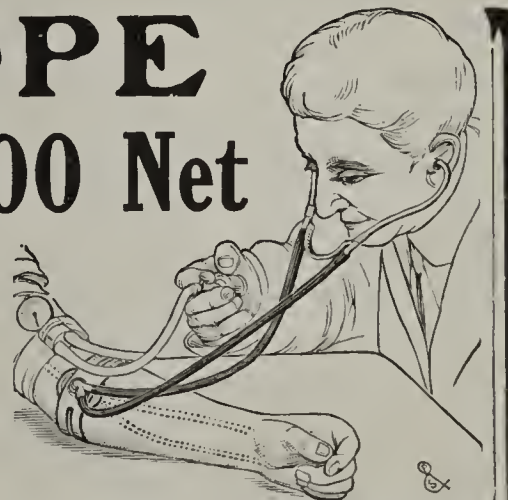
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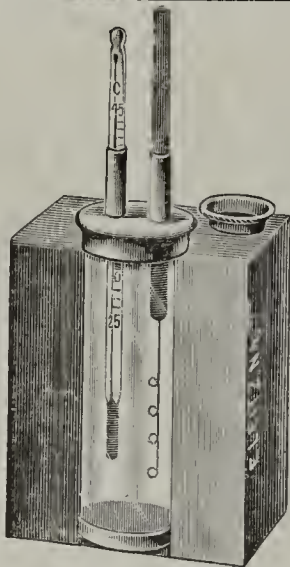
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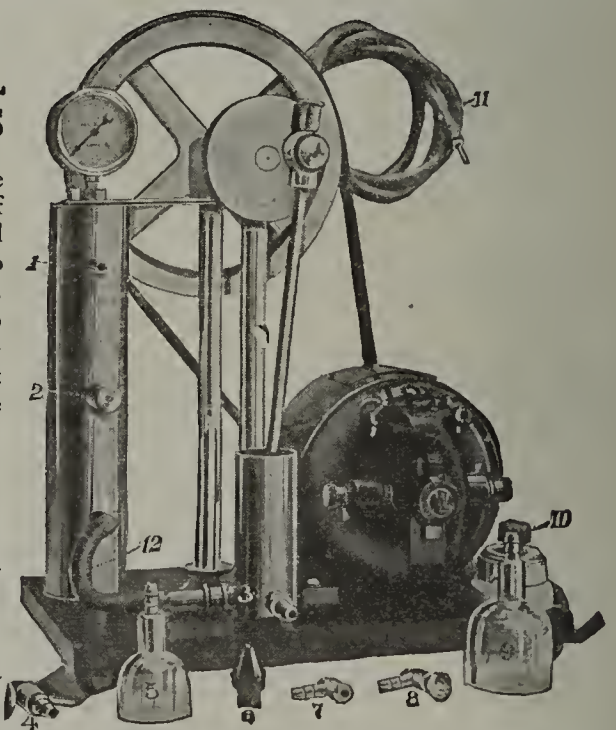
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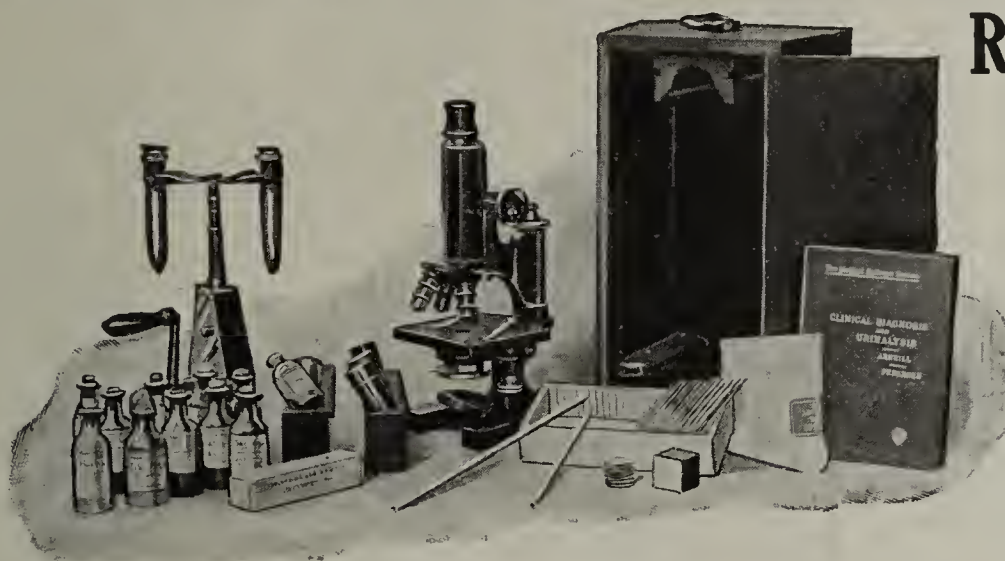
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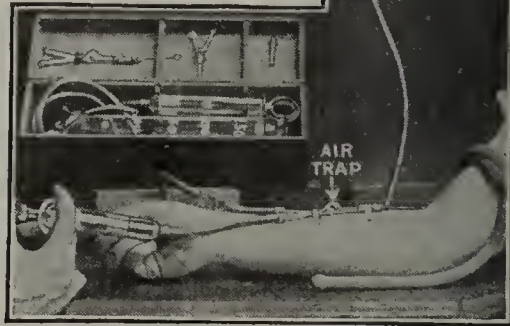
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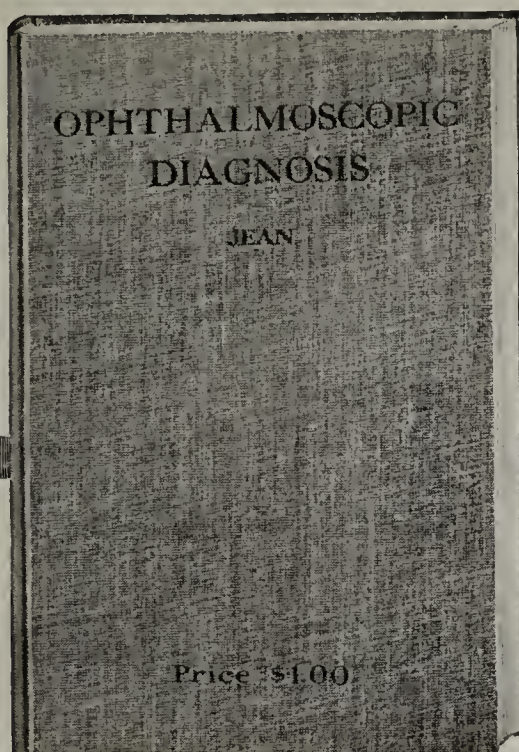
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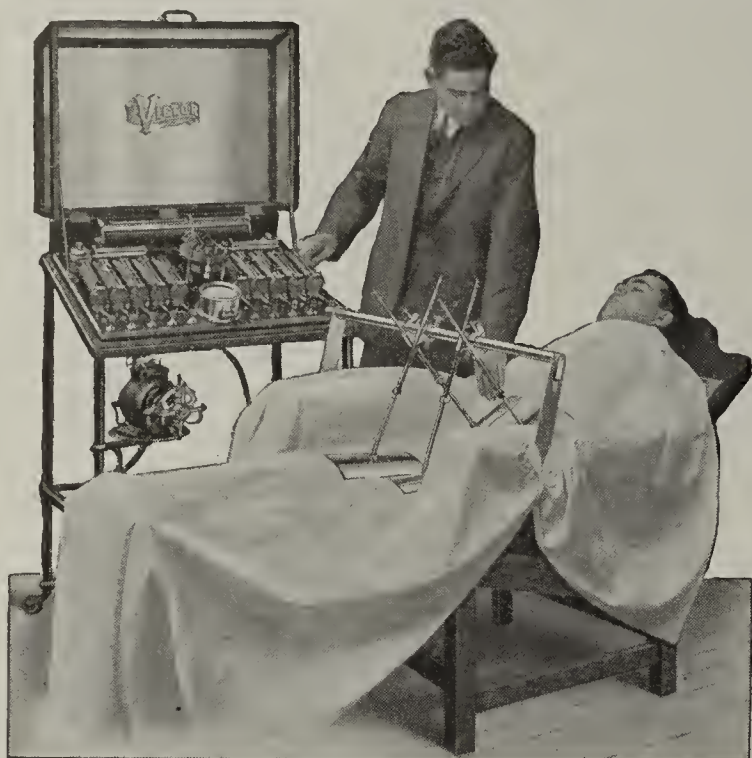
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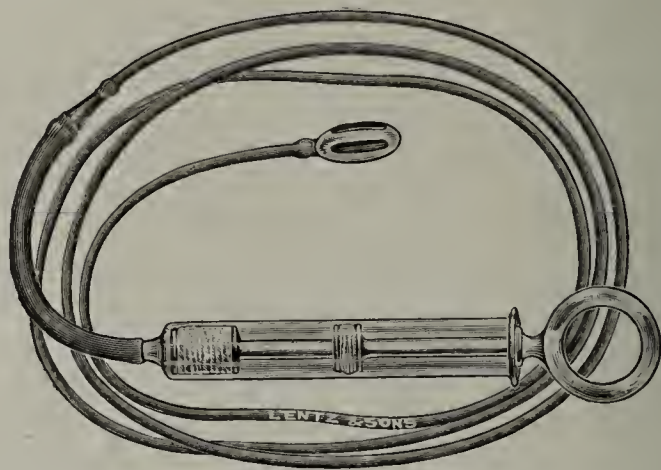
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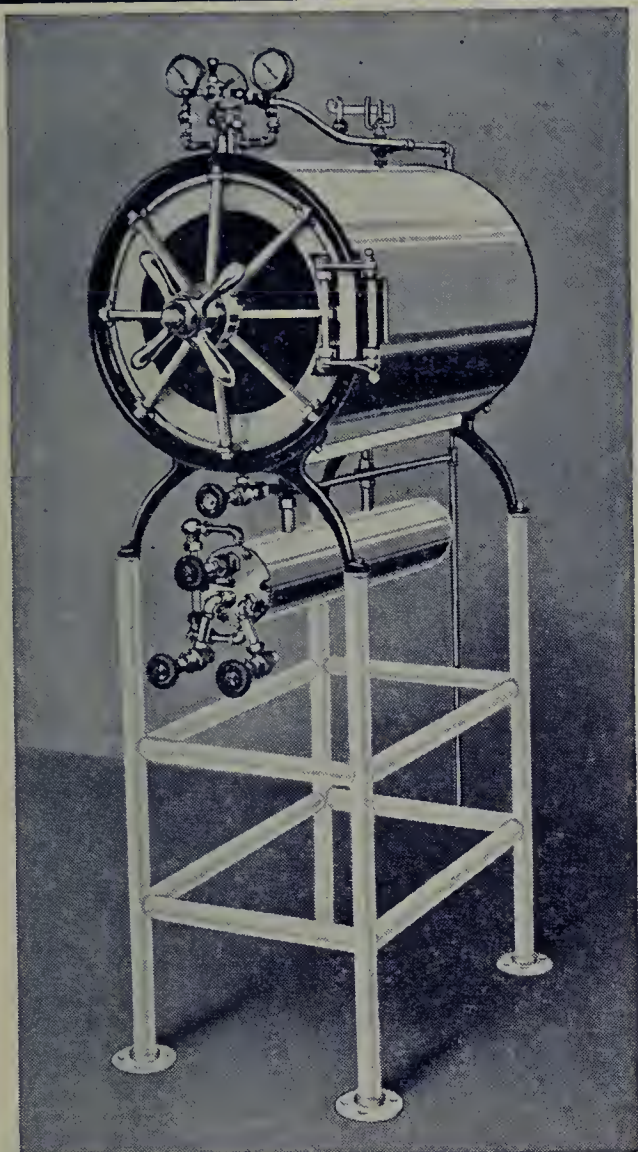
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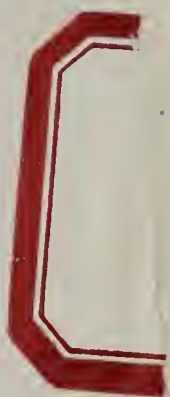
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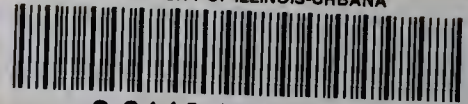
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